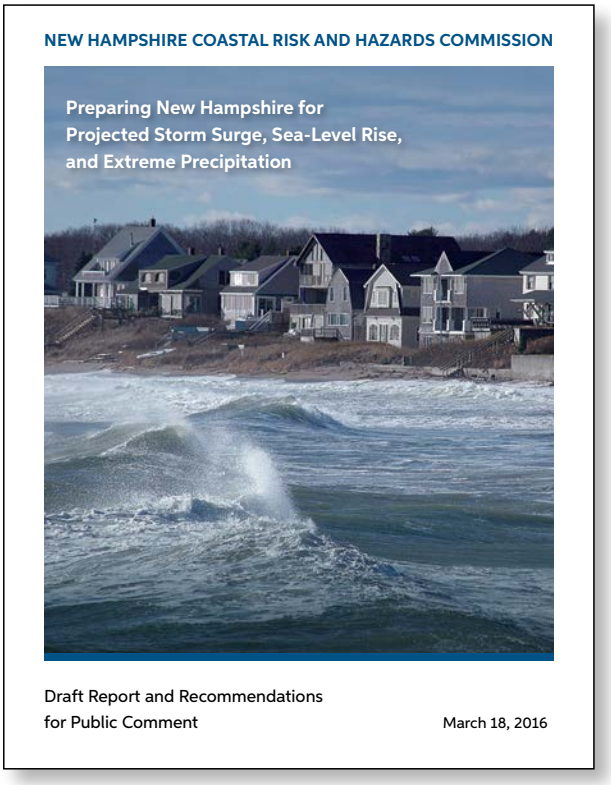
Supplement to the Coastal Risk And Hazards Commission Final Report: October 2016

Responses to Public Comments Received on the Coastal Risk and Hazards Commission Draft Report, *Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation*

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 as 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 provided below as a supplement to the Commission's final report.



Comments are organized into two categories: "Revision Warranted" and "No Further Action Required" and are listed in the order in which they were received. Each comment has been assigned a Comment ID, which denotes whether the comment was written (W) or verbal (V) and the date it was received.

Revision Warranted

Comment ID: **W01-03-17-16**
Commenter Name: Kyle Pimental
Commenter Affiliation: Strafford Regional Planning Commission

Comment:
I was skimming through the CRHC report, which looks great by the way, and I have one other project that we may want to add:

Groundwater modeling to investigate the effect of sea level rise on saltwater intrusion and drinking water wells in the Town of Newmarket

Period: 2016-2017

Strafford Regional Planning Commission (SRPC), in partnership with the University of New Hampshire, will be conducting an investigation of the vulnerability of public drinking water supplies in Newmarket to saltwater intrusion. This project will build off and expand UNH's current investigation of the impacts of sea level rise on groundwater and road infrastructure. It will provide SRPC with the critical data necessary to identify areas of vulnerability within the Town, and ultimately, to develop a set of strategies and policy recommendations for the community to address water quality, human health, infrastructure, and economic impacts.

CRHC Response:
Thank you for your suggestion. The CRHC has revised Appendix H: Relate Projects to include the Newmarket groundwater modeling and saltwater intrusion study, as well as any other recent additions to the NH Coastal Adaptation Workgroup project list, in its final report.

Comment ID: **W02-03-17-16**
Commenter Name: Kyle Pimental
Commenter Affiliation: Strafford Regional Planning Commission

Comment:
Was [Jayne Knott's] research on transportation included? I didn't see it. If not, I included a little more about it – although my knowledge of this project is very limited:

Climate Adaptation for Road Infrastructure in Coastal New Hampshire

Period: [?]

This project is supported by the New Hampshire Sea Grant which aims to further the mission of developing resilient seacoast communities by the coupling of climate change, groundwater, and sea level rise information with pavement design and performance methods to inform vulnerability assessments and adaptation planning."

CRHC Response:
Thank you for your suggestion. A reference to Jayne Knott et al.'s ongoing research investigating the impacts of sea-level rise and rising groundwater tables to pavement design and performance is already included in Appendix E: Other Hazards and Risks and Appendix H: Related Projects. The Commission has also expanded the first paragraph under Section 4.3.2 Highlights of Vulnerabilities – Roadways and Transportation Assets to include a brief summary of anticipated groundwater rise impacts to coastal road infrastructure.

Comment ID: **W04-03-21-16**
Commenter Name: Duncan Mellor, P.E.
Commenter Affiliation: Principal Coastal Engineer, Tigh & Bond

Comment:
"…I own a house… in Stratham, including an area of salt marsh and as both salt marsh fronting property owner and a professional in coastal engineering, I do follow this topic with considerable interest.

Recently I moderated a sea level rise conference presented by the NH chapter of the Environmental Business Council **http://ebcne.org/news/category/presentations/** and one of the speakers was Kevin Knuuti, PE, a sea level rise expert from the Army Corps of Engineers who gave an excellent presentation, including discussion of the large amount of error in current SLR projections. In the conference Q&A discussion Kevin noted his input as an advisor to the NH Coastal Risk & Hazards Commission was ignored – shocking considering he was the only technical coastal professional advising the Commission; and he noted they adopted the more extreme left views of Cameron Wake (UNH – "Carbon Solutions"). It is disturbing that a commission setting state and local government policy would not listen to professionals or take a balanced best science position, and I fail to see how this benefits the residents of Stratham. Of note, Cameron Wake from UNH clearly has an agenda, he is not a licensed professional in NH and UNH does not carry professional liability insurance.

In Kevin Knuuti's presentation he showed some new data showing global SLR of just 2.4 inches in the 20 years from 1992 to 2012, well below many of the hockey stick acceleration curves, and actually showing just a change in linear rate, not an "acceleration", (acceleration= continuously increasing rate of change). Of note that 20 years was barely one tidal epoch, still significantly less of a record length than recommended (40 years).

The state of NH has presented extreme SLR mapping (Coastal Viewer) showing properties being submerged by 2050. What has not occurred to them, is the drop in property values and drop in tax revenue coming in 2020 when those properties will not qualify for 30 year mortgages (what bank is going to issue a mortgage for a property projected to be regularly flooded within the life of the mortgage). I do hope you as representative of the Town of Stratham will take a balanced approach to Commission decisions and consider the negative impacts in adopting extreme SLR projections as they will adversely impact property values long before any actual SLR flooding occurs."

CRHC Response:
Thank you for your comment. The writing of the "Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends" report for the NH Coastal Hazards and Risk Commission (NH CRHC) by the Science and Technical Advisory Panel (STAP) was a collaborative effort—all authors shared their perspectives and all perspectives were considered in the final report findings and planning guidance. Kevin Knuuti (Technical Director at the Cold Regions Research and Engineering Laboratory, US Army Corps of Engineers) participated in these discussions and has confirmed that his input was fully incorporated in the report and recommendations (see paragraph below). The STAP report adopted a consensus view on potential amount of sea level rise within a risk framework. That is, "…for coastal locations where there is little tolerance for risk in protecting new infrastructure or existing coastal settlements, infrastructure or ecosystems, [we recommend] that the range include that from the Intermediate High (1.3' by 2050; 3.9' by 2100) to the Highest (2.0' by 2050; 6.6' by 2100) sea level rise scenario."

In addressing your comments we asked Mr. Knuuti for his thoughts. Mr. Knuuti replied that it was not his intent during his presentation to the NH chapter of the Environmental Business Council of New England to imply that his opinions on sea-level rise were ignored by the NH Coastal Risk & Hazards Commission. To the contrary, Mr. Knuuti stated that he feels the opinions of all team members were fully considered by the STAP and that the sea-level rise scenarios recommended by the team were a reasonable compromise of all team member opinions. It is worth

noting that Mr. Knuuti was also a member of the U.S. National Climate Assessment team that recommended in 2014 a suite of sea-level rise scenarios that also had an upper limit of 2.0 meters (6.6 feet) by the year 2100 and of a recent Department of Defense sea-level rise risk assessment team that used the same upper limit scenario (DoD Report on Regional Sea Level Scenarios for Coastal Risk Management; **https://serdp-estcp.org/News-and-Events/News-Announcements/Program-News/DoD-Report-on-Regional-Sea-Level-Scenarios**).
Mr. Knuuti also replied that each individual planning and engineering effort should consider a range of potential sea-level rise scenarios and use the scenario that is most appropriate given the associated risk and risk tolerance levels. For some projects this could be the low scenario of 0.5-meters SLR by 2100 while for others it could be a higher scenario of 1.0, 1.5, or even 2.0-meters of SLR by 2100. This approach is consistent with current U.S. Army Corps of Engineers guidance, for which Mr. Knuuti was the lead author.

We appreciate your observation that some data show a global SLR of 2.4 inches in the 20 years from 1992 to 2012. This rate is approximately equivalent to a rate of 3.0 mm/year which is consistent with satellite observations, but we agree with you that this is only from a 20-year period of record and is thus not appropriate for a persistent sea-level rise trend assessment.

Regarding your comment about New Hampshire presenting "extreme SLR mapping," the best available maps of sea-level rise scenarios for 2050 and 2100 for coastal New Hampshire were published by the University of New Hampshire Earth Systems Research Center through a contract with AECOM. The maps are available for download at **www.granit.unh.edu** and metadata for these maps is available here: **http://www.granit.unh.edu/data/metadata?file=sealevelrise/nh/sealevelrise.html.**
These maps do not show individual residential properties and private buildings; however other organizations have conducted broad vulnerability analyses using these sea-level rise maps. The Tides to Storms project, conducted by the Rockingham Planning Commission and referenced throughout the Commission report overlays the sea-level rise maps with tax parcel maps for the seven coastal municipalities, however parcel data is aggregated. The metadata for the sea-level rise maps states under the Use Constraints section that: "The data are intended for planning purposes only and are not for legal or engineering use."

The Tides to Storms analysis suggests that 6.3 feet of sea level rise combined with storm surge could potentially affect up to 7,200 tax parcels, putting nearly $3.3 billion of assessed property value at risk of flooding; however, the extent to which a parcel and any structure or development on the parcel will be impacted by flooding or erosion (land loss) was not analyzed. As a result, information regarding specific impacts to property valuation was not available to the Commission at the time of publication. While we cannot precisely quantify the amount of assessed property value that is at risk given the information available today, the Commission acknowledges that loss of property value and property tax revenue is one of the largest economic risks associated with increases in coastal flooding. Whether municipalities will accept requests for tax abatements and how property tax revenues will be affected as a result of future flood damages also remains to be seen. Given this uncertainty, the intent of the Commission's report is to serve as a guiding framework for municipalities to initiate planning discussions, recognizing that preparing for increases in coastal flooding will require a town by town approach. That being said, the Commission has expanded Section 4.2.2. Highlights of Vulnerabilities – Assessed Property Valuation and Tax Base to partially address your suggestion to more fully address potential impacts to assessed private property and the real estate market and in its final report.

Comment ID: **V01-05-26-16**
Commenter Name: Jeff Hillier
Commenter Affiliation: North Hampton Heritage Commission

Comment:
Mr. Hillier asked if the population, labor force, and gross regional product statistics presented are just for NH, or if they include the broader region/capture people that commute here for work from neighboring states? Commenter also recommended that the Commission expand economic impact data included in report.

CRHC Response:
Thank you for your comment. Estimates of 2015 jobs and 2013 Total GRP were provided by the New Hampshire Department of Resources and Economic Development (DRED) and based on Economic Modeling Specialists Inc. (EMSI) data specific to the 23 zip codes located in NH's coastal municipalities, including the 17 coastal zone municipalities, as well as Brentwood and Kensington, which share zip codes. Please note that the 2015 population estimate for the coastal municipalities provided in the draft report was incorrect and was replaced with the correct figure for 2015 from the NH Office of Energy and Planning 2015 Population Estimates (146,721; 11% of the overall state population) in the final report.

The finding that NH's seacoast has a diverse economy that includes more than a quarter of NH's labor force is based on the NH Center for Public Policy Studies *What is New Hampshire? 2015 Edition* and includes the inland coastal communities along coastal rivers in addition to the NH's coastal municipalities (see **http://www.nhpolicy.org/UploadedFiles/Reports/What_is_NH_2015.pdf**).
Commuters that make up the labor force and contribute to the regional economy are accounted for in the labor force and GRP estimates, while the population estimate only includes the number of people known to reside in the region. The Commission has added regional export and import data in its final report to demonstrate the impact of the region as a net exporter, as well as Census data describing the commuting patterns for the region. For purposes of consistency, the Commission used the updated NH DRED estimates for Total Jobs (2016) in the coastal municipalities (108,679) and Total Jobs (2016) for State of NH (718,827) to recalculate fraction of jobs specific to coastal communities (15%) and removed references to NH Center for Public Policy Studies estimate that more than a quarter of NH's labor force is specific to the greater seacoast region (which encompasses inland communities beyond the 17 coastal zone communities).

Comment ID: **V04-26-16**
Commenter Name: Sonny Kravitz
Commenter Affiliation: Concerned Citizen (Hampton)

Comment:
Mr. Kravitz questioned what is going to happen when private properties are impacted and property owners begin requesting tax abatements.

CRHC Response:
Thank you for your comment. Please see response to Comment ID: W04-03-21-16.

Comment ID: **V05-05-26-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter expressed concern for how rising groundwater will impact roads and asked if more information was available to start planning now.

CRHC Response:
Thank you for your comment. Please see response to Comment ID: W02-03-17-16.

Comment ID: **V06-05-26-16**
Commenter Name: Barbara Kravitz
Commenter Affiliation: RPC Commissioner (Hampton)

Comment:
Mrs. Kravitz expressed concern for the apparent lack of continuity beyond the Commission's sunset in December 2016 and questioned whether a mechanism was in place to provide oversight and tracking implementation of recommendations. Mrs. Kravitz emphasized that municipalities do not have the capacity to do the work and will require technical assistance/guidance from the state; broad education/outreach to community members beyond municipal officials/staff will also be needed to build support for ultimate implementation. Mrs. Kravitz recommended that the report end with a "continuity plan" and that establishing the statewide climate change adaptation coordinator to monitor and coordinate implementation should be a priority next step. Mrs. Kravitz further suggested that legislation creating the position (if required) should be introduced as soon as next session.

CRHC Response:
Thank you for your comment. The Commission accepts your suggestion and has included a new concluding chapter (see Section 7. Where We Go From Here) in its final report, which describes the existing mechanisms, as well as other priority "next steps," to ensure maximum continuity and implementation moving forward beyond the Commission's sunset on December 1, 2016.

Comment ID: **V11-05-26-16**
Commenter Name: **Maureen Reno**
Commenter Affiliation: Union of Concerned Scientists

Comment:
Ms. Reno applauded the Commission's work so that we can better prepare ourselves for the future and, first noting that the Commission's effort was focused on adaptation, asked whether any of the Commission's recommendations focus on supporting the Regional Greenhouse Gas Initiative (RGGI), or other mitigation efforts to decrease the amount to which we'll have to adapt to.

CRHC Response:
Thank you for your comment. The Commission's mission, and therefore its culminating report, is focused on adaptation, and as such does not put forth recommendations to support ongoing mitigation efforts outside of recognizing the NH Climate Action Plan in Appendix C: Federal, New Hampshire, and Other State Guidance on Climate Change. The Commission does, however, recognize that making deep reductions in greenhouse gas emissions is one of the best ways to limit the magnitude and pace of sea level rise, as well as the costs of adapting to it, and has acknowledged this connection more explicitly under Section 3. Understanding What We're Facing in its final report.

Comment ID: **W09-05-27-16**
Commenter Name: Paul G. Sanderson, Esq.
Commenter Affiliation: Town of Greenland Board of Selectmen

Comment:
I attended the first public session at the Hugh Gregg Center last night, and in my capacity as a selectman for the town of Greenland would offer the following comment. Local communities will likely first act to implement the recommendations of the commission by a review of the local zoning ordinance and any building regulations that they have implemented beyond the minimums of the state building code. When the local planning board reviews the issue, they will initially look to the regulations enacted to implement the National Flood Insurance Program.

As you know, if a community is not in compliance with the program, it becomes very difficult or impossible for property buyers and sellers to receive financing from financial institutions. Thus, when a community receives notice from the NH OEP regarding the program, it is treated as an important matter in order to maintain the marketability and free transfer of real property. The commission's report should consider this linkage between their findings and the administration of the NFIP in New Hampshire because:

1. Municipalities rely upon the technical expertise of NH OEP to help them review and implement required local ordinance changes.
2. NH OEP remains the only reliable source of training for volunteer members of local planning board and zoning boards of adjustment in land use issues.
3. NH OEP remains the only reliable source of written materials that such members use for guidance during the year.

FEMA is in fact considering how sea rise affects their program. At least one of their efforts should be reviewed and considered by the Commission. See the following site:

https://www.floodsmart.gov/floodsmart/pages/crs/community_rating_system.jsp

The only NH coastal community working in the program is the town of Rye. The commission should review how the program is affecting them, and if it is positive, this is a short term step that we might all consider to assist us in the early stages of implementing the commission's recommendations. There may well be additional initiatives that have merit.

I urge the commission to consider recommendations to the legislature that deal with this linkage, and possibly act to assist the staff of the NH OEP with the resources necessary to improve their administration of the NFIP. They should specifically target the ability of staff to reach out and guide affected municipalities in their efforts to reduce the impacts of sea rise, control the cost of flood insurance, and improve the marketability of affected real property.

CRHC Response:

Thank you for your comment. The Commission agrees that the National Flood Insurance Program (NFIP) and a community's existing set of flood hazard regulations enacted to address program requirements are very effective ways to minimize coastal flood risk at the local level. The Commission's report already includes a recommendation that both state agencies and localities incorporate the higher standards of the Federal Flood Risk Management Standard (FFRMS; Executive Order 13690) into regulatory standards; nevertheless, the Commission has added a recommended for NHOEP to develop a guidance document with model regulations to address current and future flood conditions and include higher standards that exceed minimum NFIP regulations (see Recommendation BL2(d)).

We've heard from coastal municipalities about their concern that significantly higher flood insurance premiums under the NFIP could negatively impact property owners by making flood insurance prohibitively expensive, to the point where they may choose to sell their property or not be able to substantially improve their property. However, we believe these changes are needed, phased in over time, to properly reflect the true risk of flooding and reduce their public subsidies. Regarding the CRS program, Rye is working to reinstate its CRS credentials, and Hampton is working on joining the CRS program. The Commission has included a description of the CRS program (see revised Section 4.3.2. Private Property and the National Flood Insurance Program) and has added a new recommendation in its final report that encourages communities to consider the program as a way to provide some residents and businesses with discounted flood insurance premium rates as a reward for adopting and enforcing floodplain management regulations that exceed minimum NFIP requirements (see Recommendation CC7(i)).

We agree with and appreciate your recognition that OEP is the primary and trusted source of advice to communities about flood hazard management and the NFIP. The Commission also agrees that additional technical assistance will be required to assist municipalities with implementing all of the Commission's recommendations, not just the NFIP, and has added a statement to this effect under Section 6. Our Goals,

Recommendations, and Actions. In addition, the Regional Planning Commissions, NHDES, and other members of the NH Coastal Adaptation Workgroup are working with OEP to strengthen their existing partnerships in order to deliver reliable technical assistance, training, tools and guidance about the NFIP.

Comment ID: **V20-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter asked if there has been any consideration in the report as to being proactive about the root cause of sea-level rise and what actions/plans should be put into place.

CRHC Response:
Thank you for your comment. Please see response to Comment ID: V11-05-26-16.

Comment ID: **V23-06-01-16**
Commenter Name: Lydia Kachadoorian
Commenter Affiliation: Concerned Citizen / FEMA Region 1

Comment:
Ms. Kachadoorian expressed concern that the Commission is going to sunset in December 2016 and advocated for a coordinated approach to help state agencies secure funding for implementation, noting that a lack in concerted effort moving forward seems fragmented and may foster competition among state agencies for already limited resources. Ms. Kachadoorian also expressed concern that New Hampshire Homeland Security and Emergency Management (HSEM) was not included on the Commission even though many of the recommendations refer to integrating the best available climate science and adaptation strategies into hazard mitigation plans.

CRHC Response:
Thank you for your comment. Please see response to Comment ID: V06-05-26-16 regarding your concern for continuity beyond the Commission's sunset in December 2016. As to your comments regarding HSEM's participation, although the State Legislature did not formally appoint HSEM to the Commission, the agency has stayed peripherally involved with the Commission's activities and also participates on the State Agency Climate Change Workgroup, which will continue to meet beyond the Commission's sunset. HSEM has also been identified as a target state agency that will be briefed as part of an upcoming project, entitled NH Setting SAIL, which is intended to support initial implementation of the Commission's recommendations.

Comment ID: **V25-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter asked at what point will banks/lenders back out of vulnerable areas.

CRHC Response:
Thank you for your comment. Sufficient information is not available at this time in order for the Commission to fully assess how housing, insurance, and lending markets will respond to projected increases in coastal flood risk. That being said, the Commission has expanded Section 4.2.2. Highlights of Vulnerabilities – Assessed Property Valuation and Tax Base to more fully address potential impacts to assessed private property and the real estate market and in its final report.

Comment ID: **W14-06-03-16**
Commenter Name: Cory Riley
Commenter Affiliation: Great Bay National Estuarine Research Reserve

Comment:
I mentioned this at the public meeting, but Nathalie wisely asked me to enter it as an official comment.

When I was reviewing the Natural Resources section 4.4.2, I got stuck on the last paragraph on page 27. I had a hard time understanding what the take away message was (I think the take away is that there are more acres of freshwater wetlands that will be impacted (inundated?) than tidal wetlands) – but I feel like even stating it that simply requires a bit more context – like a sentence about the difference in the two types of wetlands and how they might react to flooding… or perhaps emphasizing the point that because tidal wetlands are already flooded twice a day, they are pretty adaptive in this way already… or maybe even having the context of the relative number of acres of freshwater vs. tidal wetlands to start with would help.

In any case, I challenged myself before the public meeting to go through my sections and look for "take aways"- and I had a hard time with this part of the section (and if I had hard time, I bet others will too).

Thanks a million for all your very hard work on this report!

CRHC Response:
Thank you for your comment. The Commission has reviewed the paragraph you are referring to and has attempted to clarify that the key point of this section was to highlight impacts to the categories of natural resources assessed in the Tides to Storms project, as emphasized in Figure 17. To improve relevance to the reader, the Commission has revised the language in this paragraph to emphasize that freshwater systems may turn brackish or tidal due to sea-level rise and storm surge.

Comment ID: **W15-06-28-16**
Commenter Name: Semra A. Aytur, PhD, MPH
Commenter Affiliation: UNH Department of Health Management and Policy

Comment:
Thank you for allowing me to comment on the draft report entitled Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation.

I commend the hard work of those involved in drafting this report. However, as an epidemiologist and public health professional, I would respectfully like to emphasize the importance of considering social vulnerability more explicitly in the vulnerability and recommendations sections of the report.

Many planning processes, including climate change adaptation planning and hazard mitigation planning, require an understanding of neighborhood-level social vulnerability so that emergency preparedness personnel can reach the most vulnerable residents. For the past four years, I have been collaborating with several NH coastal communities on research projects designed to build resilience against flooding, sea level rise, and other effects of extreme weather. Most recently, these efforts have focused on communities in the Hampton Seabrook Estuary (HSE). My team used a spatially-explicit social vulnerability index (SVI), developed at the New Hampshire Department of Health and Human Services (Environmental Public Health Tracking Program), which reflects the number of social vulnerability indicators in a particular census tract exceeding the 90th percentile for NH . Using the SVI, we found that larger-scale (e.g., municipal or county-level) aggregate indicators of relative economic prosperity mask deep pockets of social vulnerability in certain census tracts within coastal communities.

For example, the composite SVI ranged from 0 to 7 in the HSE. Specific drivers of social vulnerability varied by census tract. In the most vulnerable tract, 31% of the population is living below the federal poverty level, 20% is unemployed, 23% has a disability, 18% has no health insurance, 9% does not have a high school diploma, 21% is ≥age 65, 61% are

single parents, and 13% has no car. In another tract with moderately-high social vulnerability, 26% of the population is living in mobile homes, 23% is ≥age 65, and 20% has a disability. Some of these vulnerable populations have previously been 'invisible', because social vulnerability was not considered at the appropriate spatial scale.

Statistically significant correlations were also observed between particular social vulnerability indicators, indicating clusters of vulnerability domains. For example, the percentage of single-parent households was correlated with the percent with no car (Pearson Correlation Coefficient (r)=0.81; p value (p)=0.0145); the percent living in poverty (r)=0.84 p=0.0092), and the percent living in crowded housing conditions (r)=0.74 p=0.0357).

This has important public health implications, particularly for census tracts where social vulnerability is already high. For example, in the town where the most vulnerable tract is located, the only route in and out is very vulnerable to flooding. Residents may not only have difficulty evacuating (13% do not own a car) but they may also be cut off from important social services and 'anchor institutions' (e.g., health care facilities; faith-based organizations, shelters, food banks) after a storm event. Emergency services personnel must simultaneously consider the needs of older persons with disabilities, as well as the needs of single parents without transportation who may have young children. Seasonality also influences social vulnerability in complex ways in the HSE; approximately one quarter of the homes in more vulnerable tracts are 'seasonal/ rental' properties.

The social vulnerability assessment is currently being used as a springboard for community dialogue and ongoing collaborative adaptation planning. Social vulnerability data is being integrated with dynamic flood and wetland models to provide stakeholders with information about the changes in vulnerability under various climate change scenarios. Working with local stakeholders, public health professionals can use the social vulnerability assessment to inform the development of adaptation strategies that will improve community resilience over time.

In light of the above, in accordance with the Centers for Disease Control and Prevention's Building Resilience Against Climate Effects (BRACE) framework, I suggest adding a statement to the Recommendations section of the CRHC report (Chapter 6) recognizing the importance of integrating social vulnerability information with other types of scientific data to inform adaptation planning, emergency preparedness strategies, and public health interventions.

I also suggest underscoring the need for more social vulnerability information and analysis in the Science Recommendation section of the CRHC report. This includes analyzing how various climate-related impacts may differentially affect specific population subgroups.

In the section where the four topic areas are introduced (p. 40,"How are these Recommendations Organized?"), I suggest considering the addition of a fifth topic labeled "Our Health and Social Well-Being" (or something similar). This would call explicit attention to social vulnerability and related quality of life/public health impacts, which are not subsumed under the other categories. For example, emerging research suggests that although acute injuries and fatalities are frequently considered to be the most important human health impacts associated with extreme weather events, mental health and stress-related issues may cast much longer shadows in terms of human suffering and medical costs. These effects can last for months or years after a natural disaster. In NH, where mental health and substance abuse issues are of great concern, this warrants greater consideration.

If it would be helpful, I offer the use of the figures and results in the attached scientific abstract on social vulnerability (which I recently submitted to the American Public Health Association National Meeting to be held in November, 2016) for use in the CRHC report.

In sum, please consider giving more attention to social vulnerability and encouraging communities to use this information to inform coastal resilience efforts.

CRHC Response:
Thank you for your comments. While public health impacts fall beyond the scope of the Commission's mission, and therefore its final report, the Commission agrees with your general suggestion to more explicitly acknowledge the importance of integrating social vulnerability information in coastal resilience planning and has made revisions to its final report (see revisions to *How sensitive are our assets to coastal hazards?* under Section

4. Understanding Our Risks and Vulnerabilities) and recommendations (see Recommendations S2(c)(ix); S4(e); CC5(f); and CC7(b)) based on several of your suggestions. The Commission has not, however, included a fifth topic area labeled "Our Health and Social Well-Being," as this falls beyond the scope of the Commission's report.

Comment ID: **W16-06-29-16**
Commenter Name: Thomas Wysmuller
Commenter Affiliation: The Colder Side of Global Warming©

Comment:
The comments below are minimal. The assumption that the National Climate Assessment represents the 'best science' is debatable. What follows is not part of that debate....

1: The following paragraph appears in section 3.1 "The Science and Technical Advisory Panel" on page 7 of the report; I have highlighted the error:

The Panel analyzed the latest published data on historic trends and projections for the years 2050 and 2100 for sea-level rise, coastal storms, and extreme precipitation. These findings were summarized in a peer-reviewed STAP report entitled *Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends,* which the Commission unanimously adopted after careful and deliberate discussion in July 2014 and used to develop its recommendations to assist in planning and preparation for the changing climatic conditions in coastal areas of the state.

The STAP report was never "peer-reviewed." We had agreed on the Science and Technical Advisory Panel that we would use the term "external review" when describing the process of selectively choosing outside reviewers. The cover sheet of our publication "*Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends*" uses the term "Outside Reviewers" and correctly identifies them. Well known professors who had testified on climate at U.S. congressional hearings and might have taken a more critical look [MIT's Richard Lindzen, Princeton's Will Happer, Colorado's Roger Pielke – there were more] were suggested but specifically excluded.

Action Needed: Replace < peer reviewed > with < limited externally reviewed >. The word "selected" could be used as "limited" may appear awkward.

2: The last sentence on page 8 of the report is decidedly incorrect, even though extracted from the STAP report. We cannot have a known falsehood in the report. If not replaced, it will seriously undermine the report's credibility with far reaching consequences, and crucially, the credibility of some really superb recommendations that the NHCRHC has put together:

The rate of sea-level rise has increased to approximately 1.3 inches per decade since 1993. Using 1992 sea levels as a baseline, New Hampshire sea levels are expected to rise between 0.6 and 2.0 feet by 2050 and between 1.6 and 6.6 feet by 2100.

Action Needed: Replace it with the following: "The rate of sea level rise on the New Hampshire coast in the Gulf of Maine has declined somewhat since 1993; it is still rising but now at a rate that is under 1 inch per century. Using 1992 sea levels as a baseline, New Hampshire sea levels are expected to rise between 0.1 and 2.0 feet by 2050 and between 0.2 and 6.6 feet by 2100, using the National Climate Assessment and present Gulf of Maine extrapolation."

3: Here are the paragraphs that I handed out to attendees at our June 3 meeting:

Probabilities, Predictabilities, and Precision: Factors influencing Ocean Incursion are cumulative in that a combination of Storm Surge, Highest Tides, and Sea-Level Rise, taken together, equate to the maximum risks that are faced by New Hampshire's Coastal communities. It is not advisable to base plans on ocean incursion attributed to only one risk, as damage associated with maximum water will likely result from a combination of all.

The highest risk probability arises from Coastal Storms and Hurricanes, as they will account for the most rapid water rise, and not just from coastal flooding, but inland rainfall inundation too. Their long-term predictability is low as they usually present a lead-time of a few days, or a week at best. As a storm approaches, precision increases, as radio and television media provide the needed accuracy. The range and short-term rate of rise and ocean incursion associated with Coastal Storms is highest, and bears the most attention. For construction and other planning purposes, the highest storm surge value for a 100 or 500 year storm should be used, as the probability of experiencing a 100 year event within the next 84 years is almost certain, and that of a 500 year event is greater than 1 in 5!

Tidal changes, in and of themselves, present a lower probability of risk, yet very high predictability arises from daily tidal change. The changes are known months in advance, with widely available charts, and include Spring tides and King tides. In addition the timing of tidal changes have very high precision, as tides, their heights, and their changes, can be determined to within an hour with appropriate tide chart availability.

Sea-Level rise presents the lowest probability of risk, because on a month-to-month or annual basis, it has the highest predictability of all the factors. Annual changes are measured in fractions of an inch, and have extraordinarily high precision. If the local sea level changes to any significant degree, it will be widely reported. As the 2015 Updated NOAA Tide Gauge Data shows no Coastal Sea Level Rise Acceleration going back beyond a quarter century, the probability of risk for this factor remains lowest, as the trend consistently remains well beneath the lowest of the National Climate Assessment's scenarios that the Science Advisory Panel incorporated into its report.

Reiterating: All the factors are cumulative, and need to be considered together, with appropriate risk and cost factors combined with the best information available at the time planning commences.

Action needed: Insert these just ahead of section 4 "Understanding Our Risks and Vulnerabilities" that begins on Page 10, either as a new section or incorporated within it. The Sea-Level section addresses credibility, the Tidal Changes address a factor minimally treated in the report, and the Coastal Storms and Hurricanes address the real and most significant threat, highlighting the short term warning available to the public.

CRHC Response:
Thank you for your comment. Regarding your first point, while the Science and Technical Advisory Panel (STAP) limited its review to NOAA and other peer-reviewed scientific publications, you are correct in that the STAP report itself was not peer-reviewed. The STAP did however, seek, receive, and incorporate comments on the draft report from internationally recognized experts outside of the panel in the field of sea level rise and coastal storms, including Robert Kopp (Rutgers University), Stephen Gill (National Oceanic and Atmospheric Administration), and Kerry Emanuel (Massachusetts Institute of Technology). Per your suggestion, the Commission has replaced the term "peer-reviewed" with "externally reviewed" in its final report.

Concerning your second point, the Commission disagrees with your conclusion that New Hampshire sea levels have been rising at a negligible rate of less than 1 inch per century since 1992, as well as your suggestion to qualify the STAP's sea level rise projections summarized its draft report. While mathematically correct, your analysis relies on using only two data points to estimate sea level rise (SLR) based on the annualized tide gauge records for Portland, ME available from the Permanent Service for Mean Sea Level (**http://www.psmsl.org**), and is therefore not scientifically valid. A more robust analysis uses all of the available annualized tide gauge data from Portland, ME and shows that sea levels have been rising at a rate of 0.074 inches per year for the entire period of record (1912-2015), equivalent to 7.4 inches per 100 years. For the period of 1992-2015 (used here to compare directly with your analysis) the rate of SLR is 0.136 inches per year, equivalent to 13.6 inches per 100 years, and is almost double the rate of SLR over the past century at this location. Please see the attached memo for a more detailed explanation.

Finally, the Commission has carefully considered your suggestion and has decided not to include the proposed language related to probabilities, predictabilities, and precision as it is unclear and not supported by detailed

scientific analysis. Probabilities are not opinions or scenarios, but rather represent outcomes based on a statistical analysis of a suite of data or model output. NOAA already provides estimates of the height of future tides that have a high probability of being correct (based on analysis of past tidal heights and a solid understanding of the processes driving the tides). Ships entering ports use these tidal height estimates to determine if they have sufficient water depth to traverse safely. On the other hand, it is not yet possible to estimate the probability of sea level rise because it depends in part on how much humans alter the climate system (e.g., via emissions of greenhouse gases and aerosols from the burning fossil fuels and raising livestock; see IPCC 2013 for more thorough discussion), which at this point in time we are unable to develop a probabilistic estimate. If a particular emissions scenario is selected, then the results from multiple global climate model runs driven by that particular scenario can be analyzed to estimate probabilities regarding the amount of sea level rise associated with that particular scenario (for example see: Kopp et al. (2014) Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. Earth Futures. doi: 10.1002/2014EF000239). However, even that approach assumes we have a solid understanding of the dynamics driving the melting and calving of outlet glaciers draining the Greenland and West Antarctic ice sheets – which we do not. Probabilities are unreliable when they are based on assumptions. For example, assuming future sea level rise will continue the linear trend of the past 100 years is a significant (and likely incorrect) assumption that does not represent a probabilistic analysis. Based on these limitations, the approach presented in the STAP report is one based on different scenarios which are designed to identify a possible range of outcomes that can be used to plan for the future. But scenarios are not predictions; rather they are possible story lines. Scenarios represent what could happen, not what will happen.

The Commission agrees with your point that developing probabilistic projections of sea-level rise would be far more useful in planning and managing future risk associated with coastal hazards; however, the STAP and Commission have concluded that given the boundaries of our current knowledge, it is highly problematic to assign exact, unconditional probabilities to sea-level rise projections, and that the range of possible – instead of probable – future sea-level rise scenarios should be used. We are hopeful that future editions of the STAP report will be able to assign specific probabilities or likelihoods to individual sea-level rise scenarios if and when a widely accepted method for doing so becomes available. For this reason, the Commission's guidance includes some of the following principles for responding to future coastal flood risk: respond incrementally; revisit and revise assumptions and scenarios periodically; and incorporate risk tolerance into design (see Section 5.1 General Guidance for Responding to Coastal Flood Risk).

The Commission also appreciates your points that "all the factors are cumulative, and need to be considered together…" and "coastal storms and hurricanes address the real and most significant threat, highlighting the short term warning available to the public," and has expanded the preface to Section 3.2 The Science and Technical Advisory Panel Report explaining

1) coincident occurrence of storm surge, sea-level rise, and extreme precipitation can lead to compound flooding in the coastal region;
2) storm surge presents and immediate and damaging threat to the region; and (3) preparing for storm surge will help us prepare for long-term sea-level rise.

Comment ID: **W18-06-30-16**
Commenter Name: Duncan Mellor, P.E.
Commenter Affiliation: Tighe & Bond

Comment:
We offer the following comments on the draft report:

Page vi: The first listed recommendation is to review and evaluate the current state of climate change science including sea level rise. As you will see from the attached chart which presents tide observation trends and satellite altimetry observation into June 2016, compared to the various sea level rise projections, it is clear that

the higher power curve projections are diverging already from the observations. We have 24 years of observation since the SRL power curve projections were presented, yet no revisions to the projections have been made. If the CRHC is going to recommend the SLR acceleration projections, they should reflect up to date observations. I agree with the report that it needs to be a living document, but how do the ordinances become living documents and get adjusted over time if SLR is not as predicted?

Page vi: This list of recommendations is similar to the Section 309 assessment report list vulnerability to state and municipal infrastructure. It does not list residential/private properties, other than that is perhaps implied by mention of ordinances. Are these report recommendations for state and municipal infrastructure, excluding private property? If the intent of these recommendations is to affect private properties, the report should be balanced and provide narrative about the potential negative impacts to property values, property tax assessments and shift property tax burden. NH DES has already published SLR flood maps for 2050 and the maps show individual residential properties and private buildings. Based on a typical 30 year mortgage, we expect this SLR mapping will be used by banks for due diligence review leading to mortgage refusals by 2020. Similarly, many NH shoreline home owners pay very high property taxes and will use this data, and failures to sell properties due to the mortgage issue, to challenge and significantly reduce the assessed values of SLR mapped properties. As shoreline property values drop, property tax burden will shift to non-shoreline tax payers (assuming municipal budgets remain the same). These adverse implications should be mentioned along with the proposed ordinances, so residents and municipalities are aware of the consequences of adopting the ordinances leading to reduced shoreline property values.

CRHC Response:
Thank you for your comments. With regards to your first point, the Commission's Science and Technical Advisory Panel concluded that the range that best covers plausible sea-level rise increases to 2050 and 2010 are those prepared for the US National Climate Assessment. The State is now required to revisit and revise these projections regularly pursuant to Chaptered Law 121. The Commission recommends that the state and municipalities follow a risk management approach and adjust course of action accordingly as new information becomes available (see Section 5. Understanding What We Need to Do for more detail). Specifically regarding your question as to how "ordinances become living documents and get adjusted over time if SLR is not as predicted," one option for municipalities could be to reference the Commission's Science and Technical Advisory report, as updated, as is done for State agencies in Chaptered Law 195.

With regards to your second point, the Commission's recommendations are primarily directed to the State Legislature, State agencies, and municipal governments. Please see the Commission's response to your first comment, Comment ID: W04-03-21-16 for an explanation of the limitations of the sea-level rise mapping that has been completed for New Hampshire, and how the Commission has revised its final report to partially address potential impacts to assessed private property and the real estate market.

Comment ID: **W20-06-30-16**
Commenter Name: Sue Foote
Commenter Affiliation: Seabrook Conservation Commission

Comment:
I have a few comments / suggestions. They may be mentioned in other sections that I have yet to read.

NR2.b. about incentives to remove structures such as freshwater and tidal crossings. I would suggest adding *or restructuring to allow an increased flow by utilizing multiple culverts of greater size*

NR2.c. There is a need to identify true invasive species vs. northern migration of North American species. My woodlands used to be predominantly high bush blueberries but in the past decade they have been on the decline and are being over grown with Sweet Pepper Bush which grows taller and denser and out competes the

blueberries in all ways. I have a 1950 Audubon book that states the northern most zone for Sweet Pepper Bush is Connecticut and southern New York.

NR2. e. There needs to be established a minimum for the mean height and linear depth of dune to be effective in barrier beach habitat protection. Of course the bigger the better, but we often deal with individuals that wish to reduce, or completely remove, the dune in front of their property.

NR 3.b.c.f. and e. Consider establishing an "available lands directory" for mitigation of inland (wetland or density) development. A directory of parcels available for mitigation and conservation would be a tool landowners could utilize to protect the valuable buffer areas. Land owners could fill out a form to list the parcel and developers that require mitigation could access that list, if they wish, and contact the landowner for negotiations, which would still have to be approved by the state and municipal regulators for acceptable mitigation compliance. All along the seacoast there are property owners that have parcels of woodlands that abut the salt marsh. Many of those woods are somewhat developable. Those woodlands are valuable as buffers and eventually will be locations for salt marsh migration. I suspect the majority of those woodlands have been and are currently owned by multi-generational families that often struggle to pay the property taxes on those woods. I own 10 acres of woodland that abuts the salt marsh and am contacted several times a year by developers interested in purchasing for development. I refuse to sell because I love my woods and do not want to see it ravaged for a subdivision. However someday I may have to sell for my financial welfare and I have no doubt my heirs won't think twice about selling it for development. I am sure there are other landowners in the same position as I am. I would consider selling my woodlands outright for non-development purposes, or for conservation easement rights to my woods.

CRHC Response:
Thank you for your thoughtful comments. Per your suggestion, the Commission has revised action NR2 (b) to include incentives for modifying or restructuring culverts as well as removing them.

Your comment about action NR2 (c) is an excellent point. The northern migration of North American species is largely driven by temperature changes rather than increases in storm surge, precipitation and flooding. The scope of this commission was focused specifically on those three threats, and changes in air and water temperature and any associated impacts were not included in the charge of this commission. Therefore we did not add any actions or recommendations related to the impacts of changing temperature on flora or fauna. However, the Wildlife Action Plan does address temperature and includes recommendations related to the northern migration of plants, wildlife and fish.

Your comments related to minimum height and linear depth of dunes for beach protection are well taken, but the commission did not put forth detailed engineering specifications or methods for the recommendations and actions in the report. Those details will be established by the agencies or organizations that implement the work.

Finally, based on your comments, the Commission has included a new action under recommendation NR3 to "Establish and share municipal inventories of land available for mitigation and conservation in areas that reduce flooding and promote the migration of species and habitat" (see Recommendation NR3 (h)).

No Further Action Required

Comment ID: **W03-03-19-16**
Commenter Name: Dan Krell
Commenter Affiliation: Concerned Citizen

Comment:
"Maine and New Hampshire do not have to plan for flooding of just coastal communities. The southern ends of I-95 and parts of Rte. 16 are only about 10 feet above sea level. It does not take much foresight to see disruption of these highways with sea level rises, hurricanes and tidal surges. Think of what would happen to Maine and NH travel and economies if one or both of these routes is significantly damaged by a flood event and temporarily closed; it's not a matter of 'if,' but of 'when.' I hope our states are planning for this (elevated roadways, higher bridges across waterways) and consulting with the Federal Government for appropriate changes before I-95 and/or Rte. 16 are closed. I'm sure there are plans for this, but haven't across them, yet. As a Maine resident, I shudder to think what the scenario would be like if I-95 were cut off at the southern end. Knowing what the lead time could be for elevating portions of the roadway and raising heights of any bridges at risk, it would be reassuring to know that such a likely/inevitable event is included in the plans for these highways."

CRHC Response:
Thank you for your comment. The Commission's draft report acknowledges that state and local roadways throughout New Hampshire's seacoast are vulnerable to flooding and damage from storm surge, sea-level rise, and extreme precipitation and reports the miles of state and local roadways affected as identified by the Tides to Storms Vulnerability Assessment conducted for the 7 Atlantic Coast municipalities in 2015 (see Section 4.3.2 Highlights of Vulnerabilities – Roadways and Transportation Assets). While preliminary vulnerability assessments like the Tides to Storms project are useful for highlighting patterns, summary statistics, and planning implications, the Commission also acknowledges that more detailed vulnerability assessments are needed to identify site-specific vulnerabilities (e.g., specific road segments) and recognizes that improving the resilience of New Hampshire's coastal road infrastructure will require extensive regional coordination between state and local governments. In particular, the Commission recommends that state agencies and municipalities work together to develop, or update, integrated emergency management and response and recovery plans that address current and future coastal flood risks (see Recommendations CC3(d), CC5(d), CC7(b, c)). For example, the City of Portsmouth led the development of a seacoast evacuation plan in 2011-2012 with funding from the NH Department of Safety, Division of Homeland Security and Emergency Management. The study evaluated inundation based on several storm scenarios and included a model to evaluate evacuation time estimates that included consideration of transportation infrastructure, census population data, demographics, and human behavior. This plan should be reviewed and revised based on the more detailed vulnerability analyses that have been conducted since.

Comment ID: **W05-03-21-16**
Commenter Name: Fanny Langella, Managing Editor
Commenter Affiliation: PreventionWeb | United Nations Office for Disaster Risk Reduction

Comment:
"We are currently promoting your disaster risk reduction (DRR) related content/materials on PreventionWeb:
*Preparing New Hampshire for projected storm surge, sea-level rise, and extreme precipitation
http://www.preventionweb.net/publications/view/48305

PreventionWeb is the global disaster risk reduction (DRR) community platform to find and share DRR knowledge and expertise, and progress on the implementation the Sendai Framework for Disaster Risk Reduction 2015-2030.

If you did not submit this content directly, we invite you to do so in the future by visiting: **http://www.preventionweb.net/submit/**

Soon you will be able to publish your DRR materials directly via the platform.

We look forward to continued collaboration and promotion of your work and appreciate receiving feedback on our services. Contact us at: **http://www.preventionweb.net/english/contact/**

CRHC Response:
Thank you for your comment. The Commission appreciates your recognition and promotion of its draft report on PreventionWeb.

Comment ID: **W06-03-30-16**
Commenter Name: Heather Parker
Commenter Affiliation: Concerned Citizen

Comment:
"Cameron Wake notes superstorms could get to be storms from hell given changes in the North Atlantic. Superstorm Sandy had 29-foot waves and a 6-foot surge destroying 2000 homes. Check out this video of an 18-foot surge in Kesennuma, Japan, and imagine what Portsmouth would look like with bigger superstorms – then go order more insulation, buy a hybrid and give up red meat: **https://www.youtube.com/watch?v=P8qFi74k2UE**."

CRHC Response:
Thank you for your comment. At this time, the Commission's Science and Technical Advisory Panel (STAP) 2014 report concluded that there is insufficient basis to draw a specific conclusion as to whether larger and more frequent storm surges will occur in the future, but emphasized that future storm surges will occur on top of higher sea levels. As a result, the STAP anticipates that today's extreme surge events (i.e., 100-year flood) will have a greater inundation extent and a shorter return period by 2100. Given the uncertainties associated with future storm trends, the STAP recommends that coastal projects be designed to account for future storm surges by adding projected sea-level rise heights to current storm surge heights, as measured by the 100-year and 500-year floods.

Comment ID: **W07-04-22-16**
Commenter Name: Tom Irwin, Jeff Barnum, Elena Mihaly
Commenter Affiliation: Conservation Law Foundation

Comment:
"Conservation Law Foundation (CLF) and its Great Bay-Piscataqua Waterkeeper program appreciate the opportunity to comment on the New Hampshire Coastal Risk and Hazards Commission's (Commission) draft report *Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation* (Report). CLF is a non-profit, member-supported organization working to project New England's environment for the benefit of all people, using the law, science and the market to create solutions that preserve our natural resources, build healthy communities, and sustain a vibrant economy. Our Great Bay-Piscataqua Waterkeeper program is devoted to restoring and protecting the health of New Hampshire's and Maine's unique and sensitive Great Bay estuary. We applaud the Commission for facilitating robust public engagement during the drafting process, and we believe these efforts resulted in a high quality, comprehensive Report.

New Hampshire Communities Benefit from Understanding Coastal Risks and Vulnerabilities

The time is ripe for coastal communities to proactively plan for hazards and vulnerabilities associated with climate change. New Hampshire's coastal municipalities are no exception. Home to approximately 12 percent of the state population, and hosting over 100,000 jobs (more than 25%of the state's workforce), New Hampshire's 17 coastal

communities are wisely engaged in a critical effort to understand and prepare for the risks and vulnerabilities associated with projected climate change.

If New Hampshire's state agencies and municipalities incorporate future projected flood risks into planning, design, construction, and conservation practices, the state can greatly reduce its exposure to flood hazards, resulting in saved lives and property, conserved natural resources, and lower response and recovery costs.

The Report Satisfies the Commission's Research and Reporting Duties in Senate Bill 163

The New Hampshire Legislature established the Coastal Risk and Hazards Commission through Senate Bill 163 in July 2013. Among the Commission's legislative duties was to 'recommend legislation, rules, and other actions to prepare for projected sea-level rise and other coastal and coastal watershed hazards such as storms, increased river flooding, and stormwater runoff, and the risks such hazards pose to municipalities and the state assets in New Hampshire.' During the scoping process, 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.

The draft Report undoubtedly satisfies the Commission's duties set forth in Senate Bill 163. The Report contains a comprehensive analysis of New Hampshire's vulnerabilities to projected coastal flood hazards, and identifies a set of clear, practical, and scientifically-supported recommendations to minimize risk and improve resilience to sea-level rise, storm surges, and extreme precipitation. The Commission's recommendations lay out specific priority actions for the three target audiences: lawmakers, state agencies, and municipal decision makers.

CLF particularly supports the Report's recommendation that state agencies 'review whether existing state statutes and rules adequately permit agencies and municipalities to prepare and adapt to best available climate science and impacts.' Cross-Cutting Recommendations, CC3, pg. 44. It is our understanding that Senate Bill 452 was introduced this session to implement this recommendation. We applaud the Commission for including this actionable recommendation in the Report, among others, and for communicating with the Legislature to prompt swift action towards implementation.

Additionally, CLF supports the Report's recommendation that the Legislature 'authorize a state agency to convene a Science and Technical Advisory Panel to review and evaluate the current state of climate change science in order to periodically update storm surge, sea-level rise, extreme precipitation and other relevant climate projections and provide planning and guidance at least once every five years.' Legislation Recommendations, S1, pg. 57. The Commission's Science and Technical Advisory Panel produced a useful two-page 'Panel Report Summary' to help municipal and state decision-makers prepare for projected sea-level rise and other coastal hazards. But as we move further into an era where the climate is warming at a faster rate than ever observed, it is imperative that we continue to update our projections with new data.

Implementation of Report Recommendations is Vital

In addition to conveying our support for the Report, we also want to take this opportunity to emphasize the importance of implementation. Too much work has gone into creating this roadmap to let it collect dust on decision-makers' shelves; instead, it should be a heavily used, living document. CLF looks forward to engaging with State agencies, municipalities, regional planning commissions, and other stakeholders on future implementation efforts.

Thank you once again for the opportunity to provide comment on this draft Report, which provides a set of clear, attainable steps to make New Hampshire more resilient to the risks and hazards associated with climate change and life on the Seacoast."

CRHC Response:
Thank you for your letter in support of the Commission's approach and resulting draft report and recommendations. The Commission shares CLF's sentiment that implementation of this report is vital and greatly appreciates your readiness to support and engage with relevant stakeholders on future implementation efforts.

Comment ID: **W08-05-09-16**
Commenter Name: Russell Bastedo
Commenter Affiliation: Wentworth Coolidge Commission

Comment:
Thank you for release of this timely report. The Wentworth Coolidge Commission has been aware of rising water levels at Wentworth Coolidge mansion, Portsmouth for some time, and members of the Commission have been informed of this report.

CRHC Response:
Thank you for your comment and for sharing the draft report with members of the Wentworth Coolidge Commission.

Comment ID: **V02-05-26-16**
Commenter Name: William Pierce
Commenter Affiliation: Portsmouth Public Media TV

Comment:
Commenter asked if land uplift as sea levels rise and if fracking can affect uplift.

CRHC Response:
Thank you for your comment. The rise or fall of coastal land is driven by variety of processes (e.g., subduction zones driving uplift (e.g., Alaska), coastal uplift and then subsidence resulting from the removal of a large ice sheet (e.g., Mid-Atlantic coast), and coastal subsidence resulting from the removal of ground water and/or fossil fuels (e.g., Louisiana) changes relative sea level. However, uplift or subsidence is not driven by sea level rise itself. It is not clear why fracking as a process would have any particular effect on uplift or subsidence itself, although in Oklahoma, extensive fracking has been linked to an increase in earthquakes.

Comment ID: **V03-05-26-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter asked whether quality issues, including saltwater intrusion, were addressed town by town in the draft report.

CRHC Response:
Thank you for your comment. This report does not specifically address water quality issues, but does summarize some of the ways in which storm surge, sea-level rise, and extreme precipitation are expected to alter the physical and biological characteristics of New Hampshire's coast (see Section 4.4 Our Natural Resources) and puts forth recommendations that support improved water quality (see Recommendations NR4(a); NR4(b); NR5(e); NR6(a)).

Comment ID: **V07-05-26-16**
Commenter Name: Rep. Renny Cushing
Commenter Affiliation: Rockingham – District 21; CRHC (Hampton)

Comment:
Rep. Cushing shared that fellow legislators that attended the CRHC legislative briefing on April 20, 2016 have expressed an interest in assessing vulnerabilities in the Merrimack and Connecticut Valley, modeled after the

Coastal Risk and Hazards Commission report. Rep. Cushing also acknowledged that New Hampshire's highest-grossing liquor store is located in a vulnerable area and the need to plan accordingly is in the best interest of the state at-large.

CRHC Response:
Thank you for your comment. The Commission supports the logical expansion of assessments beyond the coastal zone and notes that climate adaptation groups are already active in the Upper Valley and Monadnock/Keene regions of the state. As far as the vulnerability of state liquor is concerned, the NH Department of Administrative Services (DAS) plans to use the Commission's Science and Technical Advisory Panel (STAP) findings as a tool to determine how projected extreme weather, sea-level rise and storm sure will affect future projects in order to develop building and site solutions that minimize damage on a case by case basis. For example, the DAS plans to use the STAP findings to determine what impact, if any, the new Portsmouth Liquor Store might be subjected to and will attempt to include design elements that will minimize damage to that store and site. Those design elements might be topographical, might be related to access locations, might involve incorporating flood boards in the doorways, or might be to do nothing at all, depending on the assessed vulnerabilities.

Comment ID: **V08-05-26-16**
Commenter Name: Jeff Hillier
Commenter Affiliation: North Hampton Heritage Commission

Comment:
Mr. Hillier expressed concern that municipalities aren't going to pay for preparedness and that the state legislature may not always support the need for funding with changes in representation. Mr. Hillier emphasized the need to have confidence that the cost of implementation will be covered.

CRHC Response:
Thank you for your comment. The Commission acknowledges that adaptation will be costly and will require innovative means of financing; however, the Commission also acknowledges that actions taken now, even costly ones, will more than likely pay for themselves in the form of reduced losses and greater resilience. A study completed in 2005 by the Multi-Hazard Mitigation Council for the National Institute of Building Sciences concluded that when it comes to infrastructure, every dollar spent on mitigation saves an average of four dollars in avoided damages. In short, responding now to the future threat of coastal flooding will maximize long-term cost savings that result from building more resilient communities. Additionally, by starting now, the normal cycles of construction, replacement, and redevelopment can be harnessed to gradually introduce more resilient design into our structures and facilities, often at minimal additional costs. That being said, the Commission also recognizes that additional funding will be required and recommends that the state legislature, state agencies, and municipalities secure new and allocate existing funding sources to conduct vulnerability assessments and implement adaptation strategies (see Recommendation CC1). Recognizing that regional needs always compete for funding at the state level, the Commission has proposed several funding-related actions that do not require legislative support; however, for those that do, the Commission remains optimistic that the state legislature will recognize the importance of funding assessment and implementation activities in the coastal region given its importance as an economic driver for the rest of the state.

Comment ID: **V09-05-26-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter asked if the report includes a recommendation to educate children.

CRHC Response:
Thank you for your comment. The Commission encourages the incorporation of climate science and information about the risks and hazards associated with changing climatic conditions in public school curriculum as an associated action under Recommendation S4: "*Provide clear, concise, science-based information to inform and raise awareness of relevant audiences about the risks and vulnerabilities associated with coastal risk and hazards* (see Recommendation S4(f))."

Comment ID: **V10-05-26-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter asked if the report addresses how to educate prospective homebuyers about coastal risk and hazards, particularly those who do not speak English.

CRHC Response:
Thank you for your comment. The Commission recommends that a notification of coastal risk and hazards be included as part of any purchase and sale agreement (see Recommendation E4(a)).

Comment ID: **V12-05-26-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter noted that there is high drama about sea-level rise and asked whether the report addresses meteorology and predictions that we'll see more severe storms on an annual basis.

CRHC Response:
Thank you for your comment. The draft report summarizes the Science and Technical Advisory Panel's findings related to historic and future storm surges (see Section 3.2 The Science and Technical Advisory Panel Report), and planning guidance based on these findings (see Section 5.2 STAP Guidance).

Comment ID: **V13-05-26-16**
Commenter Name: Sonny Kravitz
Commenter Affiliation: Concerned Citizen (Hampton)

Comment:
Mr. Kravitz suggested one possible adaptation solution could be to construct a floodgate with hydropower generation capabilities in Portsmouth (near to where the submarines were located during WWII) similar to what has been done in the Netherlands.

CRHC Response:
Thank you for your comment. The Commission intentionally does not recommend specific engineering solutions in its report and instead encourages the state, in coordination with municipalities, to develop a comprehensive shoreline management plan for New Hampshire that presents general priorities for coastal shoreline management, as well as site specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment (see Recommendation BL6).

Comment ID: **V14-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter expressed concern over what will happen once the Commission's report is finalized and asked whether it will result in homeowners having to pay higher taxes and/or compliance costs, especially for older homes.

CRHC Response:
Thank you for your comment. The Commission's report is intended to serve as a guiding framework for the state and municipalities to initiate planning discussions, recognizing that preparing for increases in coastal flooding will require a town by town approach. As a result, the Commission's report will not directly result in increased taxes and/or compliance costs; however, future state and municipal decisions based on the Commission's guidance may result in new costs and other regulations with possible fiscal implications.

Comment ID: **V15-06-01-16**
Commenter Name: Kenneth A. Berry
Commenter Affiliation: Berry Surveying & Engineering

Comment:
Mr. Berry commented that we will likely see more damage along waterfront properties as storms become more intense and asked if grant funding will be made available to support private property owners institute erosion control designs.

CRHC Response:
Thank you for your comment. The Commission is not aware of and does not identify any grant funding to support the design and construction on private property in its draft report. The Commission does however, encourage the state, in coordination with municipalities, to develop a comprehensive shoreline management plan for New Hampshire that presents general priorities for coastal shoreline management, as well as site specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment (see Recommendation BL6).

Comment ID: **V16-06-01-16**
Commenter Name: Kenneth A. Berry
Commenter Affiliation: Berry Surveying & Engineering

Comment:
Mr. Berry questioned how private property lines will be affected and how private landowners should plan to adjust to changing property lines. Mr. Berry also commented that while professionals understand water boundaries as dynamic, property owners do not, and suggested that additional outreach is needed to inform them of the risks involved with living in a dynamic coastal environment.

CRHC Response:
Thank you for your comment. The Commission's draft report does not cover impacts to private property lines; however, coastal shoreline systems are dynamic and existing state regulatory frameworks (e.g., 100' coastal buffer, Wetlands Rules, and Shoreland Water Quality Protection Act) acknowledge that the reference line has changed and will continue to change over time as mean high water and highest observable tide line advance landward as sea level rises. With regards to raising awareness related to the risks involved with living in a dynamic coastal environment, the Commission promotes science-based education and outreach efforts related to coastal risk and hazards (see Recommendation S4) and recommends that a notification of coastal risk and hazards be included as part of any purchase and sale agreement (see Recommendation E4(a)).

Comment ID: **V17-06-01-16**
Commenter Name: Robert Ladd
Commenter Affiliation: Hampton Beach Village District

Comment:
Mr. Ladd asked what the different levels of projected sea level rise mean for the Seabrook nuclear power plant.

CRHC Response:
Thank you for your comment. While the Commission's report does not assess the vulnerability of specific privately-owned structures, results from the Tide to Storms Vulnerability Assessment conducted for the 7 Atlantic Coast municipalities in 2015 suggest that only the access road and parking lot of the Seabrook Station Nuclear Powerplant will be subject to flooding under various sea level rise scenarios. It is important to note however, that additional areas may be identified as vulnerable at a higher-spatial resolution, pointing to the need for a more detailed site-specific vulnerability assessment.

Comment ID: **V18-06-01-16**
Commenter Name: Wendy Lull
Commenter Affiliation: Seacoast Science Center

Comment:
Ms. Lull commented that the whole concept of living in a dynamic fluid system needs to be understood in this country and that if she were NOAA, her mission would be to help the American public understand the concept of risk. Ms. Lull explained that the ocean is the largest geophysical system on the planet and that it's changing. Ms. Lull also noted that there are no static lines in nature – they're all dynamic – and suggested the need to catch up with Tribal understanding that we live in a fluid and dynamic pace.

CRHC Response:
Thank you for your comment. The Commission agrees with the need to inform and raise awareness about the risks involved in living in a dynamic coastal environment and puts forth recommendations promoting science-based education and outreach efforts related to coastal risk and hazards (see Recommendation S4) and that a notification of coastal risk and hazards be included as part of any purchase and sale agreement (see Recommendation E4(a)).

Comment ID: **V19-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter expressed concern that sea level rise impacts will be limited to the coastal region and questioned whether the legislature would provide funding to support affected coastal communities, and if so, how the rest of the state would feel if their tax dollars were being spent elsewhere.

CRHC Response:
Thank you for your comment. Please see response to Comment ID: V08-05-26-16.

Comment ID: **V21-06-01-16**
Commenter Name: Nick Toumpas
Commenter Affiliation: Concerned Citizen (Rye)

Comment:
Mr. Toumpas applauded the Commission's long view, but encouraged the Commission to continue a dialogue with affected communities, noting the small windows of opportunity following a storm to influence policy makers

to make informed investment decisions. Mr. Toumpas also commented that the shale piles along Route 1A are not only unsightly, but are constantly being washed away, and need to be rebuilt after every big storm. Mr. Toumpas went on to suggest that the shale piles appear to be an irrational and unsustainable investment, and present a real safety issue when the pile washes across the road, blocking emergency response access.

CRHC Response:
Thank you for your comment. The Commission acknowledges that long-term planning and actions to prepare for future flood risk should be developed collaboratively between state, regional, and local governments. Furthermore, the Commission recognizes and promotes proactive response and recovery planning in order to take advantage of the small windows of opportunity following a disaster to mitigate future coastal risk and hazards and improve resilience. Regarding your comments related to the shale piles along NH Route 1A, the NH Department of Transportation (NHDOT) agrees that cleaning up roads and rebuilding shale piles is not a viable long term solution to an ongoing issue. The Commission intentionally does not recommend specific engineering solutions in its report and instead encourages the state, in coordination with municipalities, to develop a comprehensive shoreline management plan for New Hampshire that presents general priorities for coastal shoreline management, as well as site specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment (see Recommendation BL6).

Comment ID: **V22-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter expressed concern that the report is directed at decision-makers, but that implementation will likely require eventual support from voters. Commenter asked if the Commission had any plans to provide the report in a more succinct form for the general public.

CRHC Response:
Thank you for your comment. Recognizing the need for continued education and outreach, the Commission's draft report does include a recommendation and associated actions to *provide clear, concise science-based information to inform and raise awareness of relevant audiences about the risks and vulnerabilities associated with coastal risk and hazards* (see Recommendation S4). Additionally, with support from the NH Coastal Program, the Commission does plan to produce several fact sheets to distill the final report for specific target audiences. The NH Coastal Program and partners have also secured funding from the National Oceanic and Atmospheric Administration (NOAA) to provide added capacity to begin implementation of the Commission's recommendations. Broadly, this project seeks to achieve the following goals:

a. Ensure through education and outreach that the CRHC recommendations are understood and championed by state and municipal stakeholders.
b. Assist Great Bay coastal municipalities to prioritize and implement actions that meet their unique needs (similar to what has been done for the Atlantic Coast municipalities under the Tides to Storms 2 project); and
c. Provide capacity for the collaborative state agency climate change workgroup to coordinate audits of existing state statutes, rules, and agency policies as required by SB 452; inventories of vulnerable state assets; and other implementation activities.

Comment ID: **V24-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Commenter commended the Commission for its presentation, noting that it was to a limited audience. Commenter asked how the Commission got the word about the report and public meetings beyond the DES press release.

CRHC Response:
Thank you for your comment. The original announcement and follow-up reminders related to the Commission's public information meetings was circulated to the following stakeholder groups with instructions to share the message broadly to other relevant networks and constituencies:

- DES Press Release;
- Local press outlets;
- Active commission members/alternates;
- Former commission and STAP members;
- Coastal area legislators;
- Rockingham and Strafford Regional Planning Commission municipal listservs;
- NHCAW partners;
- State Agency Climate Change Workgroup members;
- Great Bay Stewards;
- Union of Concerned Scientist listserv; and
- Other interested parties and stakeholders (e.g., The Nature Conservancy, Conservation Law Foundation, Seacoast Chambers of Commerce, etc.)

Comment ID: **W10-06-01-16**
Commenter Name: Wendy Lull
Commenter Affiliation: Seacoast Science Center

Comment:
Re: BL2 3 options – at first I thought the flexibility was good – now wonder what happens if agencies managing the same resource choose to use difference approaches?

CRHC Response:
Thank you for your comment. The Commission anticipates that state agencies will follow the example set by federal agencies and will coordinate early to ensure a consistent approach.

Comment ID: **W11-06-01-16**
Commenter Name: Unrecorded
Commenter Affiliation: Unrecorded

Comment:
Proactive suggestions: (1) loss of state salt marsh would devastate Gulf of Maine fisheries. State of Louisiana is rebuilding and stabilization their deltas for fisheries. Perhaps a model for NH? (2) New Castle Ave (1B) causeway could be replaced with floating bridges like on Lake Washington in Seattle.

CRHC Response:
The Commission intentionally does not recommend specific engineering solutions in its draft report and instead encourages the state, in coordination with municipalities, to develop a comprehensive shoreline management

plan for New Hampshire that presents general priorities for coastal shoreline management, as well as site specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment (see Recommendation BL6). The draft report also includes several recommendations to improve our understanding of how coastal risk and hazards may impact natural resources and prioritize management actions to protect coastal resources and the ecological services they provide (see Recommendation NR1-4). While the report does not specifically identify adaptation solutions for New Castle Ave., a feasibility study for causeway improvements along NH Route 1B in New Castle-Rye, as well as the rehabilitation of the single leaf bascule moveable bridge over Little Harbor, are included in the NH Department of Transportation Draft 2017-2026 Ten Year Transportation Improvement Plan that has been approved by the NH Legislature and signed into law by the Governor as of June 24, 2016.

Comment ID: **W12-06-01-16**
Commenter Name: Jeff Barnum
Commenter Affiliation: Great Bay-Piscataqua Waterkeeper, Conservation Law Foundation

Comment:
The draft report is a fine work product. I compliment all involved as well as early implementation efforts in the legislature (SB 452). I and CLF hope to work strategically with partners on the issue of climate resilience.

CRHC Response:
Thank you for your support. The Commission greatly appreciates your and CLF's readiness to support and engage with relevant stakeholders on future implementation efforts.

Comment ID: **W13-06-01-16**
Commenter Name: David Burdick
Commenter Affiliation: UNH Jackson Estuarine Laboratory

Comment:
I like the idea of educating the public to understand the dynamic nature of our environment. We also need to educate our civil/highway engineers to build for extremes in weather, not just the nice days! Great presentation tonight.

CRHC Response:
Thank you for your support. Legislation recommended by the Commission was adopted during the 2016 session (SB 452, RSA Chapter 195) requiring New Hampshire state agencies involved in planning, siting, and design of state-funded structures and facilities, public works projects, and transportation projects, as well as land acquisition and management and other environmental activities to reference the 2014 Coastal Risk and Hazards Commission Science and Technical Advisory Report, as updated, for guidance on all potentially affected activities, and to develop, as possible and appropriate, uniform standards of guidance, in conformity, as may be necessary due to federal actions.

Comment ID: **W17-06-29-16**
Commenter Name: Steve J. Miller
Commenter Affiliation: City of Portsmouth Representative to NHCRHC

Comment:
I first want to commend the Commission on a job well done. Especially the state agency personnel upon whom fell the heavy lifting of synthesizing, organizing, and writing the draft report and recommendations. I also commend the members of the STAP who volunteered their time to produce the critical science and technical report.

As I have processed and thought about the report and its recommendations I believe we have been too conservative in our efforts. While the STAP Report is based on the best available science, and the NHCRHC Draft Report recommends that this report be updated "periodically… at least once every five years" (Science

Recommendations Goal 1 S 1) , there is every indication in observations worldwide that rapid and potentially catastrophic change is a real possibility.

I fully support the STAP Report and how it was produced, I understand it must be based on peer reviewed science that has been reviewed/tested, and this takes time. There are frequent new studies and reports that give a new and deeper understanding on how the ice sheets in the Antarctic and Greenland are responding to the warming climate and oceans. These changes may not be thoroughly understood but they present a real dilemma; how do we prepare our coastal municipalities and state should we be faced with a rapid change in sea level rise?

Recent changes in the Antarctic and Greenland ice sheets have confounded the scientific community in the rapidity in which they have occurred. Change has been documented that was not thought possible for another 100 years. New work is taking place to gain a better understanding of these processes and I believe we have not addressed the potential for a relatively rapid and catastrophic change in sea level in the NHCRHC Draft Report.

I believe we need to be absolutely certain that the STAP be updated every three years not five. The NHCRHC must make certain this recommendation is implemented and the updates used to inform our on-going preparations to protect and prepare our citizens, municipalities, and state for the changing climate.

I also believe that the NHCRHC should add a new recommendation that addresses the need to plan and prepare for the potential of a rapid change in sea level. Once again thank you for your work on this critical issue.

Here is a link to a recent scientific report on Antarctic and Greenland ice sheet melt that supports my statements **http://www.atmos-chem-phys.net/16/3761/2016/acp-16-3761-2016.html**

CRHC Response:
Thank you for your comment. The Commission recognizes that scientific understanding of the causes and consequences of climate change, including the potential for rapid sea level rise, is continuously evolving and improving. As a result, Chaptered Law 121 / SB374 requires the NH Department of Environmental Services (NHDES) to update coastal flooding trends *at least* every 5 years, allowing for more frequent updates (e.g., every three years) provided national and local scale information (e.g., National Assessment) is available and NHDES has the capacity to do so. The Commission also appreciates your concern that the potential for and need to plan for rapid sea level rise has been excluded from the draft report and agrees that future editions of the STAP report should consider new findings of rapid Greenland and Antarctic ice sheet melt and implications for future sea level if and when that information becomes available.

Comment ID: **W19-06-30-16**
Commenter Name: Ann Hoyt
Commenter Affiliation: Hoyt's Lodges, Rye, NH

Comment:
On June 1, I had attended the meeting for this preparation. During that meeting, it was said that the recommendation was to prepare any legislation or changes to building codes, assuming the worst case scenario, which was for the 6.6 foot sea level rise, as opposed to starting with legislation and building codes for a 1.6 foot sea level rise. I am opposed to starting at the 6.6 foot level for two reasons. The first is on page iii of the draft report, where it states in the 4th bullet point that 'storms will be more severe… but at the time of the STAP report, the research continues to be uncertain about whether storm frequency will change in the future'.

This "is too uncertain" to start at the highest level of sea rise for any recommendations, because that would be saying that legislation and building codes, reconstruction, replacement and redevelopment, would all be subject to the highest costs for resilient designs and insurance to cover where we are on the coast (insurance costs are going to go up if they have to assume that you live in a place where the sea level will rise 6.6 feet). It would be like saying we're going to assume that, right at this moment, we are basing things on a Hurricane Katrina type

of scenario, and that is the new way we base costs. This would be devastating for average, middle class people trying to make ends meet here.

For all the concern in this report about population increase on the seacoast, and building and development increasing in high risk areas, and how we need to salvage all our built landscape, our natural resources.... I think they should study the miles of coast I ride by every day from Rye down to Hampton, where the size of the mansions being built are a putting a huge footprint while taking nesting areas and who knows what else by digging so much of the ground out where they sit, as well as removing all trees that used to be there (which protect from floods). You cannot even see between these homes from Rye, down to North Hampton State Beach on down to High Street in Hampton. Both sides of 1A are putting up the largest structures I've ever seen on the coastline in my lifetime. It seems too late to stop, and makes me feel it is more about more cost coming down to the folks with modest means, or else possibly losing your property some day because you can't afford to have your house picked up on stilts or redone. These things cost money a lot of us don't have.

I would recommend trying to get any money for all these things in the report from the tourists, not the people who live here year round. In Florida for example, I rent a car and have a list of taxes I have to pay as a tourist added to it, which all help build their infrastructure. The same applies to my hotel I rent there. I think it's time we start adding more cost to tourism, not the residents.

I also think that sea grasses are more beautiful to look at than the mountain of shale they put up in front of 1A in Rye this past spring. It is an eyesore, and it is dangerous for our guests to try to climb over it with babies, and lawn chairs and coolers. It would be my recommendation for sea grasses curbing the tide, just like Cape Cod does. In 15 years, we have seen the ocean come over 1A twice. I would like to know the cost of cleanup for that one day, as opposed to the cost of the DOT coming with all their crews, trucks and tractors for a week, every year. I really think this is not the answer. And most of the shale ended up in our yard, for my husband and I to clean up for days. At the meeting on June 1, it was said FEMA won't even help with the costs of the shale because it's not considered risk.

Thank you for the opportunity for the comment and I apologize it had to wait until this last day for comment. We are very busy opening up this season.

CRHC Response:

Thank you for your comment. With regards to your first point related to planning for the highest sea-level rise scenario, the Commission's report does not include a recommendation to prepare legislation or changes to building codes, assuming the worst case scenario of 6.6 feet of sea level rise by 2100. The Commission does however recommend that the range of sea-level rise to consider in areas where there is little tolerance for risk in protecting built or natural assets includes the "Intermediate High" and "Highest" scenarios (see Figure 2). More specifically, the Science and Technical Advisory Panel recommends that this range be applied as follows:

i. Determine the time period over which the system, structure, or facility is designed to serve (either 2014-2050 or 2050-2100);
ii. If the design time period is 2014-2050, commit to manage 1.3 feet of sea-level rise, but be prepared to managed and adapt to 2 feet if necessary;
iii. If the design time period is 2050-2100, commit to manage 3.9 fee of sea-level rise, but be prepared to manage and adapt to 6. 6 feet if necessary.
iv. Be aware that the projected sea-level rise ranges may change and prepare to adjust design considerations if necessary. The choice of management strategies can include strategies to protect, accommodate, or retreat from flood risk.

With regards to your comments about costs, please see response to Comment ID: V08-05-16-18. Finally, with regards to your comments related to the shale piles along NH Route 1A, please see response to Comment ID: V21-06-0-16.