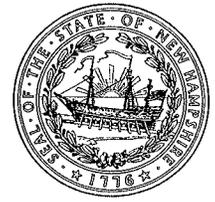




The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Thomas S. Burack, Commissioner**

February 22, 2011

The Honorable Gene Chandler, Chairman  
Public Works and Highways Committee  
Legislative Office Building, Room 201  
Concord, New Hampshire 03301

Re: HB 583 relative to including projected sea level rise in planning and implementation of state-funded projects.

Dear Chairman Chandler:

Thank you for the opportunity to comment on HB 583, which would require the state to consider sea level rise as it plans for capital projects. The Department of Environmental Services (DES) supports the bill in concept, however, we also have some concerns with the proposed bill language that are described below as well as some suggested changes.

As background, sea level at the New Hampshire shore has been rising for the past 10,000 years. A few thousand years after the last ice age, one could walk on dry land to the Isles of Shoals. For the last two millennia, the average sea level rise rate has been about 1.7 mm/year or about 7 inches per century. Since European settlement of our coast in the 1620s, the sea level has risen over 2 feet.

There are indications today that the rate of sea level rise is increasing. Data over the last 2 decades in the Boston area show a near doubling of the historic rate. A number of factors are at work which can accelerate relative sea level rise. Some of these include: thermal expansion of the ocean; changing precipitation patterns; melting glaciers; and reduced isostatic rebound of the land. The last factor is particularly interesting. In the last ice age, the land was crushed under the weight of a mile thick ice sheet. The land rebounded significantly after the weight of that ice was released. As the land rebounded the *relative* rate of sea level rise was reduced. This rebound has now largely abated, so relative sea level rise rates tend to be greater. This also points to the importance of discussing sea level rise as a relative rate compared to land rebound/subsidence.

Given the substantial economic interests at our coast, with its beaches, industry, and valuable real estate, losses associated with sea level rise are a serious concern. In addition, the state supports significant infrastructure in the coastal zone, from highways to state parks to harbors. Modeling done by UNH Jackson Estuarine Lab has shown that 2 feet of sea level rise increases the storm surge frequencies that would impact our coasts by a factor of 10. In other words, a 100-year frequency storm surge would become a 10-year frequency event. Planning for both the historic rates of sea level rise as well as realistic predictions for the

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future is important to protect state investments on the coast. This bill attempts to do that. Our primary concerns about the bill are as follows:

- 1) The word "relative" should precede sea level rise throughout the bill.
- 2) Changing the reference line in RSA 483-B as proposed would be very difficult to track and could have unforeseen consequences on unrelated projects.
- 3) The Office of Energy and Planning may not have qualified engineers and hydrologists to carry out the predictions as the bill requires. There are researchers in the Federal government, especially EPA and NOAA, and at UNH who may be better qualified to calculate relative sea level rise.

In addition, we are concerned about the resolution of data for sea level rise modeling. Accurate elevation data for the coastal area has not historically been available. DES is involved in LIDAR mapping for the coast which should return much better data within the next year. In addition, New Hampshire needs baseline measurements and tracking of land levels and sea levels to improve the resolution of relative sea level rise predictions. Until such time as better data are available for regional planning, sea level rise analysis will need to take place on a project-by-project basis.

Finally, it is interesting to note that the Army Corps of Engineers has a policy on sea level rise which requires all coastal infrastructure projects to plan for three projections – historic rates, high future projections and medium future projections. This could serve as a model that agencies in New Hampshire should follow for planning for future state projects in the coastal zone.

Thank you for this opportunity to comment on this bill. Please feel free to call Ted Diers at 271-7940 or me at 271-2958 if you have any questions or need additional information.

Very truly yours,



Thomas S. Burack  
Commissioner

cc: Representatives Watters, Read, Sprague and Hooper