STATE OF MAINE

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OFFICE OF THE COMMISSIONER
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TESTIMONY BEFORE THE JOINT COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

IN SUPPORT OF LD 1572

Resolve, To Analyze the Impact of Sea Level Rise

May 7, 2021

Senator Brenner, Representative Tucker, and members of the committee, my name is Robert Marvinney, and I am the State Geologist and Director of the Bureau of Resource Information and Land Use Planning. I am speaking on behalf of the Department of Agriculture, Conservation and Forestry in support of LD 1572, Resolve, To Analyze the Impact of Sea Level Rise.

Over the past two years, I served the Maine Climate Council as Co-chair of the Science and Technical Subcommittee (STS). The twenty-eight members of the STS plus scores of other scientists worked exhaustively to identify the most relevant scientific literature related to the trends and impacts of climate change in Maine, captured in the report "*Scientific Assessment of Climate Change and Its Effects in Maine*." The chapter on sea level rise was written by the three most experienced marine geologists in the State who have spent much of their careers researching this issue and its implications.

Sea Level Rise

Maine is fortunate to have several tide gauges with long-term records including Portland, Bar Harbor, and Eastport. The figure below illustrates the long-term record for Portland – over 100 years of record shown as yearly averages. Over that time, sea level has risen 7.4 inches, a rate of 0.62 feet/century. Since 1996, the rate of sea level rise at Portland has increased to 0.88 feet/century (first graph). Similar increases occurred at Bar Harbor and Eastport. These trends follow global trends closely.

While there is considerable scatter in the data, and several decadal-scale cycles related to long-term ocean circulation patterns and orbits of the Moon and Earth, it is important to note that the lowest yearly averages for the past several years are higher than the highest yearly averages in the 1950s and 1960s. The highest levels recorded in the past few years are unprecedented. We know of no credible scientific evidence that suggests sea level will fall anytime in the remainder of the century or even that the rate of rise will moderate.

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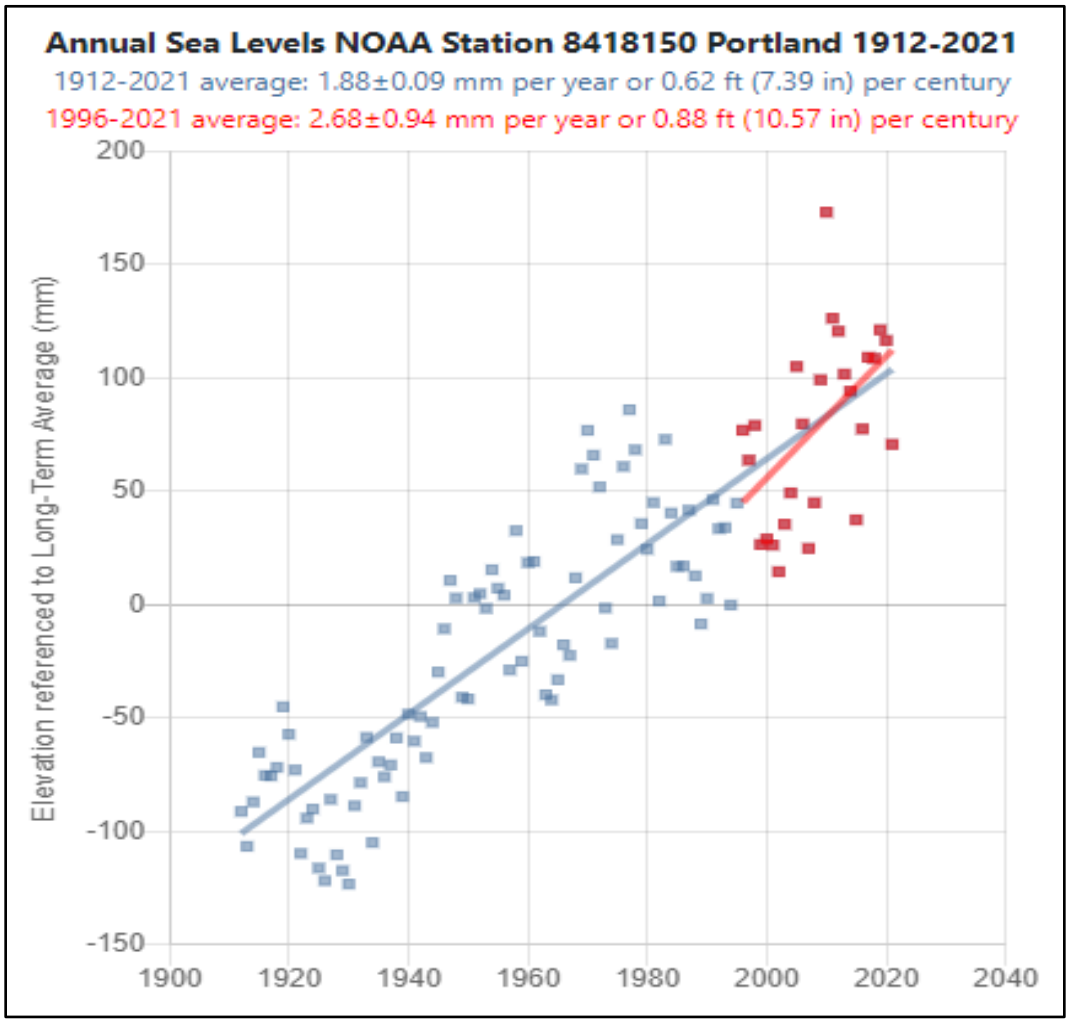
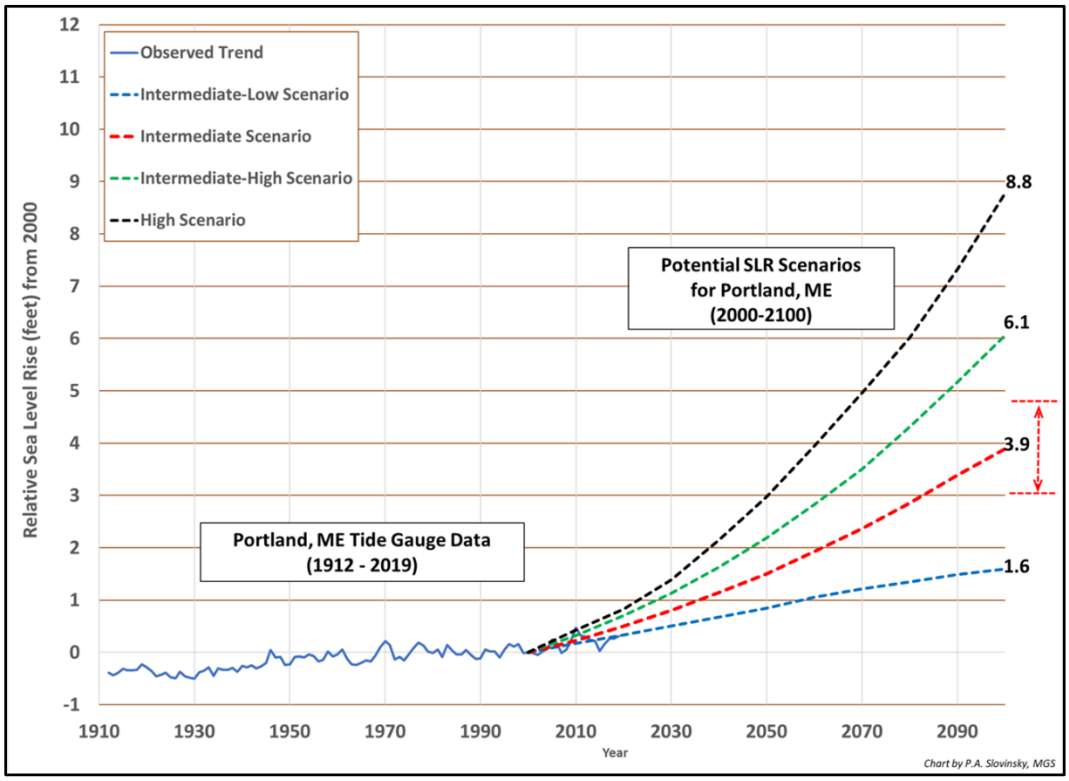


For the STS report, we identified the most rigorous projections for sea level rise through 2100 based on different scenarios for increases in atmospheric greenhouse gases. Through review of the scientific literature, debate among STS members, and vetting by the Maine Climate Council, we selected the intermediate scenario in the model used by the U.S. Army Corps of Engineers as appropriate for incorporation in State policy (second graph). This scenario anticipates 1.5 feet of sea level rise by 2050 and 3.9 feet by 2100. While 3.9 feet was generated through rigorous scientific analysis, it represents the median of possible outcomes for the intermediate scenario. For practical implementation purposes, we recommend that 4 feet be adopted for 2100.

- The best surveying equipment has +/- 0.1 feet of accuracy; the best lidar topography for inundation maps is closer to +/- 0.2 feet; footprints on the beach are deeper than 0.1 feet.
- Peer-reviewed scientific papers released since the STS report indicate sea level rise projections we used now underestimate future levels.
- A simple round number is better for implementation and public acceptance.



Thank you for your time. I would be happy to answer any questions now or at the work session.