







involves a more in-depth assessment of the costs and benefits of various measures to mitigate the impacts of sea level rise. Many factors must be accounted for to determine how much sea level rise should be accounted for in a design, including:

- 1) When will construction start?
- 2) What is the projected lifespan of the project?
- 3) How sensitive is the project to impacts from flooding or sea level rise?
- 4) How critical is the project to public health, safety, and welfare (or other significant concerns)?

Answering the first two questions helps a designer to calculate the amount of sea level rise that is projected to occur between the present and the start of construction and between construction and possible replacement. Answering the last two questions helps to determine how to address the inherent uncertainty present in any sea level rise projection. For projects of low importance, addressing a higher amount of sea level rise may be cost prohibitive. However, for projects of high importance, reducing the chance of failure by accounting for higher levels of sea level rise may be more prudent. The desired level of protection can be determined through a benefit-cost analysis of different adaptation measures.

For engineering purposes, the HRPDC recommends

- Using the U.S. Army Corps of Engineers Sea Level Change Curve Calculator with the 2017 NOAA sea level rise scenarios<sup>3</sup>
- Performing a benefit-cost analysis of adaptation strategies under various sea level rise scenarios to determine the appropriate level of sea level rise to design for given the accepted level of risk of the project

## **Future Policy Recommendations**

Sea level trends are continuously being monitored and updated by both federal (NOAA, USGS) and state (VIMS) entities. In addition, research and analysis into the dynamics of sea level and how it responds to changing climatic conditions are also ongoing. The HRPDC recommends that the HRPDC staff and localities reevaluate and consider updating these scenarios as appropriate based upon new information developed by the National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, or Virginia Institute of Marine Science.

<sup>3</sup> <http://www.corpsclimate.us/ccaceslcurves.cfm>