

On a Collision Course with Sea Level Rise: Helping Maryland Communities become Coast-Smart

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Climate change is already impacting Maryland. With more than 4,300 miles of shoreline, Maryland's low-lying coastal areas are on a collision course with the sea. Sea level rise and coastal storms however are not new phenomena for our State. Rising and falling sea levels have played a historic role in shaping Maryland's coastal environment.

Tide gauge records document a rise in Mid-Atlantic sea level of approximately one foot over the last century. Evidence of this rise is visible to the naked eye throughout several coastal areas on the Eastern Shore, and made especially noticeable with the disappearance of 13 charted Chesapeake Bay islands. On top of that, the 6- to 8-foot storm surge produced by Tropical Storm Isabel in 2003 truly brought home the message of just how vulnerable Maryland is to coastal flooding, causing more than \$162 million in insured flood losses in the State.

One of the looming threats of climate change is an increased rate of sea level rise, which has the potential to cause profound changes in Maryland's environment, natural resources and economy. Based on current scientific projections, a staggering 2.7 to 3.4 feet of rise along our coast is expected by the year 2100. At this rate, low-lying areas will be inundated, existing tidal marshes will be submerged and our groundwater aquifers will be compromised from salt water intrusion. During storm events, sea level rise will cause the height of storm waves to increase, allowing them to reach further inland. For our coastal communities, this increases the risk of damage to coastal infrastructure and exacerbates the processes that drive shore erosion, a chronic problem along much of our coast.

Despite these problems and concerns, coastal communities are here to stay, as Marylanders continue to invest, live, and grow in areas that we know, with near certainty, will experience the devastating impacts of sea level rise. As coastal development intensifies, so does coastal property loss. The time to prioritize reducing our vulnerability is upon us. We must begin making adjustments to current activities and practices so that the potential climate change impacts can be reduced. Simply put, we must begin adapting.

Taking Action to Help Communities Become Coast-Smart

It's unlikely we will ever find simple solutions to the problems facing coastal living, but there are many actions that communities

can take to meet these challenges. Many times, the struggle is just knowing where or how to begin. The Maryland Chesapeake and Coastal Program (CCP), administered by the Maryland Department of Natural Resources, is committed to providing the necessary tools and resources to aid the process.

The Department has been working on coastal hazard issues for over 10 years. These efforts have followed a fairly traditional planning path, with a focus on data acquisition, vulnerability assessments, strategic planning, policy development and stakeholder engagement. Thanks to this work, the bulk of the necessary technical tools are available for strategic adaptation planning. The focus is now shifting towards policy adoption and implementation of on-the-ground measures. New approaches, mechanisms and partnerships are needed for this to be successful.

In the spring of 2009, Governor Martin O'Malley launched the *Coast-Smart* Communities Initiative. *Coast-Smart* Communities is designed as a service center for local governments, providing a comprehensive toolbox of resources they need to become ready, adaptive and resilient to the impacts of sea level rise and coastal storms. By tapping into and building upon existing information and tools, we can now help answer the question, "What can we do?"

Plotting a Course towards Adaptation - The Coast-Smart Community Scorecard

One of the first steps of adaptation planning is to gauge where you are now. By creating a *Coast-Smart* Community scorecard, our goal is to provide a simple, clear, practical way of assessing how well a community is prepared for the impacts of climate



change. At the same time, we hope to demonstrate realistic and specific steps communities can take to reduce their vulnerability and build resilience.

The scorecard will not outline a one-size fits all solution. Maryland's coastal communities are diverse and unique, and the adaptation strategies should be applicable to communities regardless of whether they are small or large, rural or urban. Our focus will be to illustrate various avenues for integrating sea level rise into existing issue-based planning, management and regulatory programs.

The scorecard is expected to be completed by the end of 2010. In the meantime, some of the strategies can be found in the *Building Coast-Smart Communities* role-play materials on our website.

One example strategy is modifying local floodplain ordinances to require higher minimum elevations for building in the floodplain. For instance, elevating the lowest floor of a building by an additional 2 feet above base flood levels can result in: significantly decreasing the chances that the structure will be damaged by storms and flooding; substantial reductions in flood insurance; and improved protection against sea level rise.

Funding Opportunities for Coastal Communities

The Coastal Communities Initiative (CCI) competitive grant program provides local governments with financial and technical assistance for coastal hazard and sea level rise response planning. The purpose of this assistance is to see measurable improvements to local institutional and policy mechanisms such as enhanced land use plans or the establishment of new coastal development codes and ordinances.

Announced through an annual request for proposals (RFP), municipalities and counties in Maryland's coastal zone are eligible to apply for and receive funds. To date, CCI funds have been used to support sea level rise adaptation planning for the Town of Crisfield, the City of Annapolis, the Town of Queenstown and Worcester, Dorchester, Somerset, Caroline and Anne Arundel Counties.



Informing Coastal Decision Making - Maryland's Coastal Atlas

The State is also improving the capacity of state and local managers to implement coastal management policies through Maryland's Coastal Atlas. The Coastal Atlas is part of the family of Maryland iMap tools which are based on a single, continuously updated base map. Once complete, the Coastal Atlas will provide centralized access to coastal data and mapping tools to visualize, query, map and analyze data sets.

The Coastal Atlas will feature Maryland Shorelines Online, the mapping application for statewide shoreline erosion data, which also includes a comprehensive shoreline inventory, storm surge inundation areas and vulnerable high risk sea level rise areas based on high resolution topographic data. While the Coastal Atlas is still under construction, the current Shorelines Online website and interactive mapper is being maintained (<http://shorelines.dnr.state.md.us/>).



Maryland's coastal zone is on the front line for the impacts of climate change. While these challenges are enormous, addressing them through sound adaptation planning is possible. We still have much to learn, but the Coast-Smart Communities Initiative will continue to assemble the best resources and tools to inspire the local leadership we need to be successful. ■

For more information on becoming Coast Smart, visit <http://maryland.coastsmart.org/> or contact Gwen Shaughnessy at gshaughnessy@dnr.state.md.us or 410/260-8743.