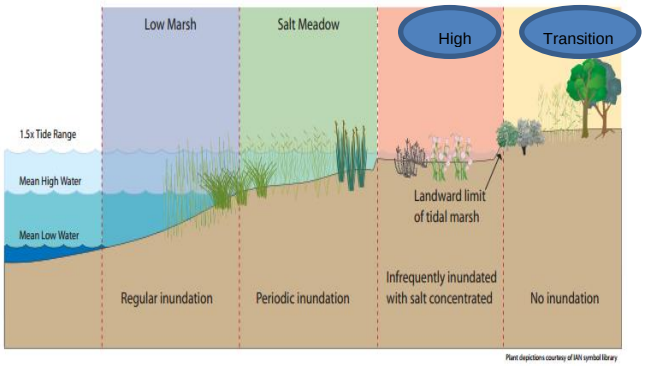
CLIMATE EDUCATION FOR A CHANGING BAY at Mathews High School

On March 11th and 12th, 2015, CBNERR educators attended Mathews High School to give the second lesson of the *CECB* program Mr. Tomcany's classes. This lesson provided the action phase of the MWEE providing an interactive and investigative field experience on their school grounds.

Prior to going outside to conduct their survey, students were introduced to wetlands, by discussing marsh zonation and identifying notable plants in the salt marsh. Marshes have different zones based on elevation, different plants and animals characterize each of the zones. Smooth cordgrass, *Spartina alterniflora,* is the dominant plant in the low marsh zone where it is flood daily by tides, very nutrient rich, and has a high bio-mass. Salt meadow hay, *Spartina patens*, grows in the high marsh where there is rise in elevation. The high marsh typically has sandier soils and greater plant and animal diversity than the low marsh zone. Students learned that Marsh elder, *Iva frutescens*, grows in an even higher elevation closer to the forest edge in the shrub zone of the marsh. Students were then asked to explain why marshes were important listing the following points:



- Habitat for many animals and plants
- Help filter the water
- Provide flood and erosion control
- Provide recreation areas
- Important for local economy and fisheries

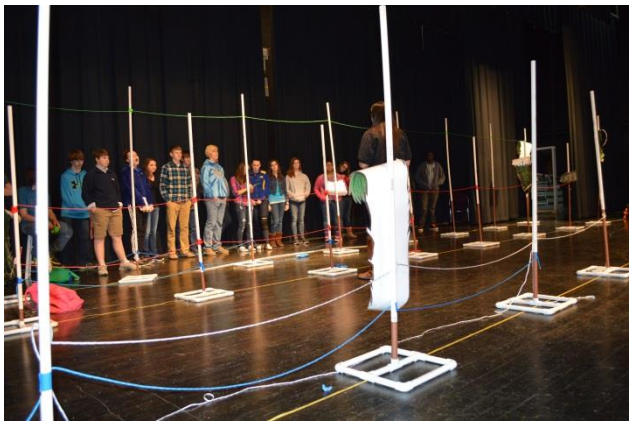
Students were introduced to the work being done at CBNERRs and other reserve sites to monitor the impact of sea level rise on salt marshes. Please take the time to watch this short video to learn more about this work! Click here to view

Students were instructed that the stage was to represent a marsh and that they were going to evaluate how sea level would impact it. Students were divided into three research groups; tides, storm, and sea level rise group. Using a set of PVC poles, with pre-determined marsh elevation painted on them, students completed the marsh profile by properly aligning their poles so that the elevation increased further along their transect line.

They used ropes of various colors to display the water level of the tides, storm, or predicted sea level in 2050. Once they knew where the water level was relative to the elevation, students had to use the information they learned about where certain zones were in the marsh, to correctly place the three plants named above, properly in their marsh.

As a conclusion to the activity, students answered a series of questions about their marsh profile. Students compared all of the profiles that were created making observations about what was shown. Students were able to view water levels from current mean high tide, spring tides, water level during Hurricane Isabel, and projected water level in the year 2050. Students concluded that the marsh plants will move landward as sea level rises, identifying how marshes will respond to rising sea level.

A benchmark was installed in the schoolyard, allowing the students to know their school's elevation relative to sea level. The benchmark is a small brass disc, flush with the ground, which establishes the exact elevation of the location. Students have been learning about benchmarks throughout the course of the program from viewing them on topographic maps to seeing one installed at their school and other locations.



The day at the school allowed the students to learn the necessary information and skills to bring with them for their concluding trip to the Virginia Institute of Marine Science, where they will survey an actual marsh habitat, calculate the biodiversity in the York River, and explore coastal community impacts from sea level rise.

For more information about CBNERR please visit our website at http://www.vims.edu/cbnerr/.

Thank you to all of the students and teachers participating in CECB!