



Regional Sediment Management Program

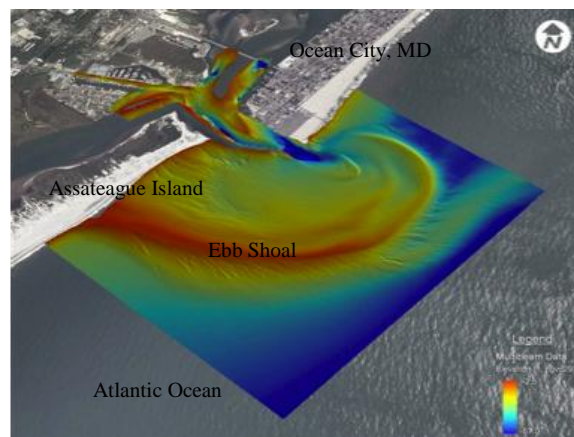
Baltimore District Assateague Bypass Initiative



Description

This project is located on the eastern seaboard in the State of Maryland. On the back side of Fenwick and Assateague Islands there are numerous federal channels used for navigation and commerce. Two jetties were constructed to protect the Ocean City inlet. Although the littoral drift fluctuates, the net movement is to the south. The north jetty has trapped sand and diverted the excess sand to form an ebb shoal. In addition, on flood tides some sand from the shoal enters the inlet and back bays. The impacts of the jetties have caused the northern portion of Assateague Island to significantly erode.

A 1998 study entitled “Ocean City, Maryland, and Vicinity Water Resources Study, Final Integrated Feasibility Report and Environmental Impact Statement” included a sediment budget analysis, which indicated that sand bypassing was needed to offset the loss of sand incurred due to the jetties. Since 2004, sand has been dredged and bypassed to Assateague Island from three areas on the ebb shoal, the inlet, and bay channels. The material is placed along the coastline of Assateague Island in two distinct areas. There is a northern site and a southern site with a gap in between. Bypassing occurs in the spring and the fall of each year. The annual volume dredged and placed is approximately 160,000 cubic yards with the sand being placed in the surf zone.



Location map

Issue/Challenges

Although sand is placed in two distinct areas twice a year, the effects of the placement are not readily apparent. Profiles in the surf zone and beach profiles have led us to keep moving the placement sites further south. The issue is whether the placement is in the correct location to allow for a southerly drift. In addition, the borrow areas on the ebb shoal have not recharged as quickly as predicted and additional areas may need to be identified.

This project is to develop a holistic approach to the overall system to determine the fate of the material placed and the short and long term impacts to the ebb shoal. The distribution of the sand will allow for proper identification of future placement locations along the shoreline. In addition, this project will help predict the capability of the ebb shoal to replenish itself so decisions can be made as to where to dredge, and the effects that the dredging will have on the borrow area as compared to the overall



system. The team members will be trained to calibrate and run the Coastal Modeling System (CMS) model and report the results all in FY 12.

Expected Products

- Training for implementing CMS model.
- Calibration of CMS model at the Assateague By-Bass location
- Application of CMS model for the determining the most efficient placement of sand.
- Technical Note for the Assateague By-Pass Study.
- RSM strategy to take action and optimize use of sediments from the annual O&M dredging of the Ocean City Inlet and nourish Assateague Island.

Potential Users

Coastal Districts, planners and engineers with existing or future navigation projects involving jetties, littoral transport and regional sediment management analyses, and beach nourishment projects.

Projected Benefits

Ability to run CMS and to plan and implement effective decision making that may lead to lower overall costs like shorter hauling distances to the placement site. The findings will allow for selection of optimal borrow and placement sites as well as more precise volumes. This could help identify sand deficient areas and help reduce the amount of sand entering the inlet from the ebb shoal.

Leveraging Opportunities

Utilized DOTS funding to obtain training of personnel in NAB on implementation of CMS model. Coordinating with the Project Manager of the Assateague Project (Ocean City Water Resources Study) and the NPS to potentially fund new surveys to assist in the calibration of the model. Used existing surf and beach profile to help calibrate the model and used the annual sand dredging by the Currituck to run and calibrate the CMS model.

Points of Contact

Michele L. Gomez (410) 962-5175

Participating Partners

National Park Service Assateague Unit, Town of Ocean City, MD, other non funding partners and stakeholders including Maryland Department of Natural Resources, U.S Fish and Wildlife Service, NOAA, Maryland Geological Survey, and Maryland Coastal Bays Program.