APPLIED COASTAL

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Project: Design and Hydrodynamic Study of Poplar Island Cell 3D, Chesapeake Bay, MD

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Applied Coastal evaluated hydrodynamics and design criteria for a new marsh being constructed on a dredge disposal site within Poplar Island. Poplar Island is a dredge disposal island on the Chesapeake Bay, used for the containment of dredged material from the entrances to Baltimore Harbor. The goal is to reestablish a series of marsh systems within the island to provide valuable natural habitat for the Chesapeake Bay. To guarantee the health of newly created marsh, a series of marsh systems around the Chesapeake Bay were characterized for the establishment of design parameters. Utilizing channel and marsh plane characteristics, tidal lag times, and vegetation types a two-dimensional hydrodynamic model of the new marsh was created. This allowed for the testing and adjustment of the design criteria to ensure a healthy ecosystem would be established. A variety of conditions were tested to examine the wetting and drying characteristics of marsh plan and circulation within the channels. Applied Coastal was also responsible for the design and sedimentation analysis of the inlet to the marsh. The inlet was constructed through the existing revetment structure that surrounds Poplar Island.