



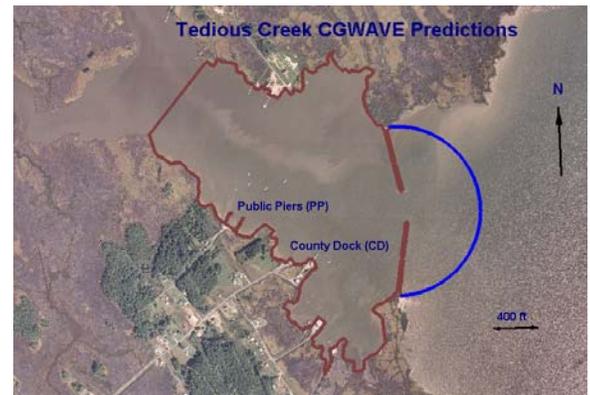
Tedious Creek Shallow Harbor Study

Description

An investigative study was conducted to determine if the Tedious Creek, MD, shallow-draft harbor is adversely affected by breakwater gap width. Bathymetry, sediment samples, tidal elevations, and wave data were collected over a 3-year time span to verify analytical, physical, and numerical model computations. Several numerical models were employed: CGWAVE for wave climate, RMA2 for general circulation, and SED2D for sediment transport. These models tested the as-built and authorized breakwater configurations.

Issue

Tedious Creek is a small estuary on the Eastern Shore of Chesapeake Bay in Dorchester County, MD. It provides anchorage to over 100 commercial and recreational vessels. The primary anchorages are the county boat dock and the public piers, both on the south shore. Because of its orientation, storm waves may cause substantial damage. The primary project purpose was to reduce wave heights to a more acceptable level of 1-ft in the harbor. The existing as-built breakwater differed in geometry from the plans tested in 1994 because of foundation problems encountered during construction in 1997. As a result, the north breakwater was shorter with a 100-ft-wider gap (i.e., 400 ft gap) in the main entrance. The authorized project design included a breakwater gap of 300 ft for the main channel. Because of local concerns, a monitoring effort was begun in 2001 to test the hypothesis that (a) the existing as-built gap will provide a functional harbor from the standpoint of wave attenuation, circulation, sedimentation, and wetland impacts, (b) the 1997 improvements are structurally sound, (c) the models used are accurate, (d) navigation and the environment will not be adversely impacted by sedimentation from the improvements, and (e) local wetland areas are not adversely impacted.



CGWAVE model boundaries for Tedious Creek, MD

Supporting Technology

CGWAVE, RMA2, and SED2D are general purpose, state-of-the-art, finite element models interfaced with the SMS (Surface Wave Modeling System) of the Army Corps of Engineers for graphics and efficient implementation (pre- and post-processing). Field measurements were conducted in August 2001, September 2002, and are planned for FY03.

Benefits

Results have indicated that the existing, as-built breakwater and gap are adequate for the design goals of the project.

Sponsors

U.S. Army Engineer District, Baltimore.

Point of Contact

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