Creation of Bathymetric Volumes for the Chesapeake Bay

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Periodically, the Chesapeake Bay Program receives requests from the scientific community for the volume totals of part or all of the Bay and its tidal tributaries at different depths. The volumetric data could be used for modeling processes, habitat restoration (such as Bay grasses) or other research and projects. To respond to volumetric data requests a tabular file was developed.

The data used to create the bathymetric volumes were an ArcGIS shapefile of the 92 Chesapeake Bay TMDL segments and a raster file of the bathymetry for the Bay and tributaries. The bathymetry data used were derived in 1999 by the Bay Program from more than 3 million NOAA/NOS GEODAS soundings (datum mean lower low) that were interpolated into 10m x 10m cells. The depth values in the bathymetry data were in increments of 0.1 meters. The depths are at mean low water.

Using ESRI's ArcGIS Model Builder, the volume of water for each segment for each of the Bay's 503 0.1 meter bathymetric depths was calculated and exported to an EXCEL file.

Note: No bathymetry data currently exist for two of the TMDL segments (WBRTF and ANATF_MD) and so no volumes were generated for those segments.