

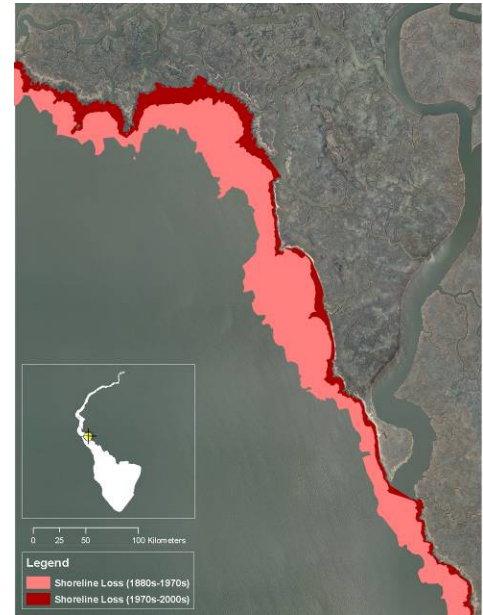
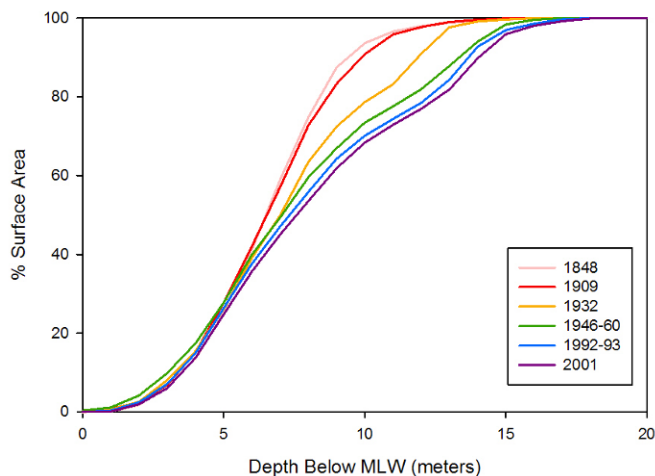
Delaware Estuary Regional Sediment Management: Fine-grained Sediment Budget

Project Characteristics:

- *Regional Sediment Management*
- *Literature review*
- *Quantitative time-series analysis*
- *Geographic Information Systems (GIS) analysis*
- *Shoreline change analysis*
- *Bathymetric change analysis of historical data*
- *Sediment budget*

Woods Hole Group is working for the USACE Philadelphia District to develop a fine-grained sediment budget, which is part of the Regional Sediment Management Plan for the Delaware Estuary. A sediment budget is a mass balance of sediment entering or exiting a coastal basin. Sediment budget analysis involves identifying and quantifying sediment sources and sinks for a control volume. Sediment budgets are frequently developed for estuaries to establish the time-averaged state of a sedimentary system, i.e., whether the basin is a net source or sink for sediment produced within or external to the basin – this is the value to the USACE RSM Project.

The work is being performed with teaming partner Dr. Christopher Sommerfield, University of Delaware. Previous sediment budgets have not utilized the advanced technologies now available for quantitative spatial analysis, and have remained out of balance.



The extensive analyses performed for this project helps resolve the balance of sediment.

This project evaluated and quantified the following areas significant to quantifying the sources and sinks of the modern sediment budget:

1. River Sediment Loads
2. Suspended Sediment Inventory
3. Dredging History
4. Bottom Sedimentology
5. Shoreline Change Analysis
6. Bathymetry Change Analysis
7. Tidal Marsh Sedimentation

Results will be used to help plan future dredging activities in a manner that minimizes impacts on the estuary and wetlands.