US Army Corps of Engineers®
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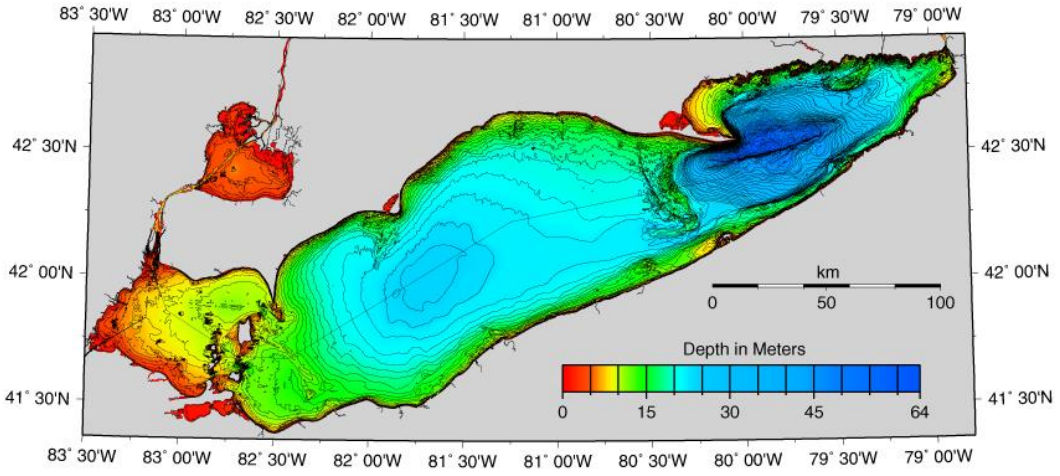
# National Regional Sediment Management Program Buffalo District (LRB):

# Lake Erie Sediment Budget Application and the Sediment Budget Analysis System – rolling out to the end user

## Description

Adaptation and extension of existing Lake Erie Sediment Budget Data for use by landowners, municipalities, and local and state agencies.




Lake Erie

## Issue/Challenge To Address

The comprehensive Lake Erie Sediment Budget was completed in 2016 and released publicly. Reception from landowners, local, state, and Federal regulators and engineering firms has been overwhelmingly positive. Completion of the sediment budget provided a comprehensive and robust dataset of coastal shoreline erosional and transport properties for the entire 300 mile shoreline from Toledo, OH to Buffalo, NY and includes bluff retreat rates, volume estimates of littoral drift and bluff inputs, and future predictions of sedimentation volumes. This dataset has proven valuable to coastal planners and regulators when examining methods and impacts of shore protection, however the intricacies of the data are lost in generalization of the dataset into the existing SBAS framework. The project proposal involved improving the resolution of the existing dataset and SBAS work and creating a much more useful repository for interested parties to access the data. Presently, the SBAS cells are set up harbor to harbor, generalizing sediment transport pathways into cells that span up to 35 km. Additionally, the SBAS dataset as it is now only allows the user to access the quantity entering a cell, the quantity leaving the cell, and the quantity lost or gained by a cell. To determine sediment quantities, the original sediment budget measured bluffline properties down to a 40m resolution, then generalized it into 1-km reaches for the purposes of summation. This refinement would take these 1-km reaches and allow any interested party to determine the erosion and sediment transport ranges for any reach along the lakeshore, including approximate recession rates, volumes of sediment entering the nearshore system, sediment properties, and transport quantities entering and leaving each 1-km reach.

## Successes Lessons Learned

The completed sediment budget has been integrated into district projects and regulatory permitting reviews.

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## Expected Products

- Updated SBAS Data structure containing completed Lake Erie Sediment Budget Data
- CHETN to accompany datasets in SBAS
- Stakeholder meetings and presentation to roll dataset availability to end user
- Attendance at the 2018 RSM Conference in May, 2018

## Stakeholders/Users

The project initially would work closely with the programmers at the USACE Geospatial Platform to extend the existing SBAS framework to accommodate the expanded datasets, and to provide hosting for the finalized SBAS results. Ohio Department of Natural Resources is integrally involved in coastal project planning decisions, working with the USACE Buffalo District regulatory team to make permitting decisions.

## Projected Benefits Value Added

Extending the functionality of the SBAS work allows for all stakeholders from the local property owners through the state level and Federal interests to reference the same high quality high resolution dataset for coastal planning. Presently, project proposals will reference different sources for models, causing large discrepancies between results. Additionally, the resolution of the data allows for USACE regulators to quickly and accurately assess coastal projects for the purposes of permit approval and monitoring plans.

## Leveraging Opportunities

The existing dataset and sediment budgets are already used for district project and to form engineering determinations and analysis by local, state, and federal entities as well as property owners. The existing dataset has been integrated into USACE coastal projects, and the greater refinement provided by the update will further guide these efforts.

## Points of Contact

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## Participating Partners