

Thank you for your interest in the USGS Shoreline Management Tool.

The Shoreline Management Tool is a GIS-based application used to assess how changes in water depth can affect an area. This includes identifying areas that may flood when water reaches a certain level or estimating how much water is available at any given time. In addition, the Shoreline Tool can be used to identify habitat areas that are suitable for a certain type of plant or animal based on known conditions like water depth or surface gradient.

The Shoreline Management Tool consists of two parts: first, an Esri™ ArcMap™ GIS software extension that models a scenario or scenarios and then maps the results. And, second, a Microsoft® Excel® spreadsheet that displays both tables and graphs from the scenario results. Within ArcMap, users define the scenario by selecting a water inundation level (or stage) and a study area of interest (known as a parcel). There is also an option for selecting particular habitat criteria for near shore environments, if the user is interested in exploring potential suitable habitats for plants or animals. The Shoreline Tool operates by querying land-surface elevation data, as well as tables of stage/volume and stage/area relationships, and applies this information to the parcel boundaries. The final result is a mapped surface of inundated or flooded areas and any suitable areas that meet the inputted habitat criteria.

There are two types of scenarios that can be modeled using the shoreline tool. First is a Single-Time Scenario mode, which explores conditions for one water level. The second option is a Time-Series Scenario mode. The time-series option uses an input file of dates and their respective water levels to simulate conditions over that time period, whether it be hourly, daily, monthly, or yearly.

The spreadsheet portion of the Shoreline Management Tool processes the scenario results and creates tables and graphs for each land parcel, including water volume, inundated area, dry area, and mean water depth. The spreadsheet also displays tables and graphs representing the number, area, and perimeter of the user-defined habitat within each parcel.

The Shoreline Management Tool is a free and powerful exploratory tool developed to assist water- and land-resource managers. If you would like to download the software package, or if you have any questions or comments, please follow the links provided.