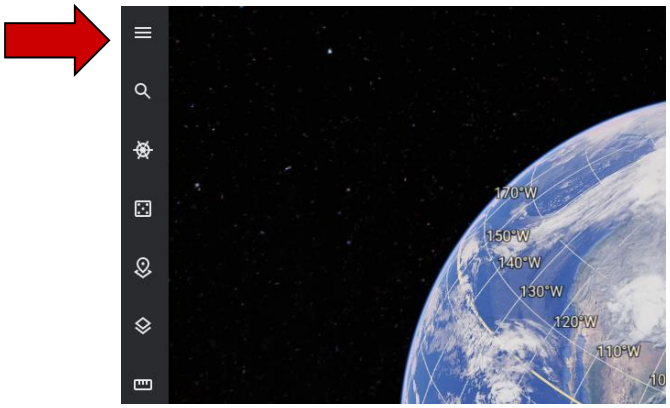
Desktop Analysis Guide

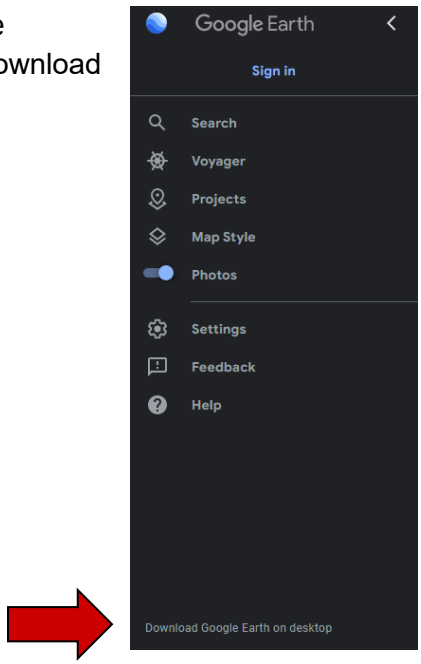
Site Assessment

This instruction guide is intended to assist in conducting a desktop analysis for a potential living shoreline project. Use this guide to complete the Desktop Analysis portion of the Site Evaluation Form. Refer to the VIMS *Living Shoreline Design Guidelines* key reference for a more detailed discussion of terminology and the site assessment process. For convenience, the analysis criteria in this guide are organized according to the digital tool used and may not be in the exact order found on the evaluation form. *Note that sample map images may not correspond to the project site being evaluated.*

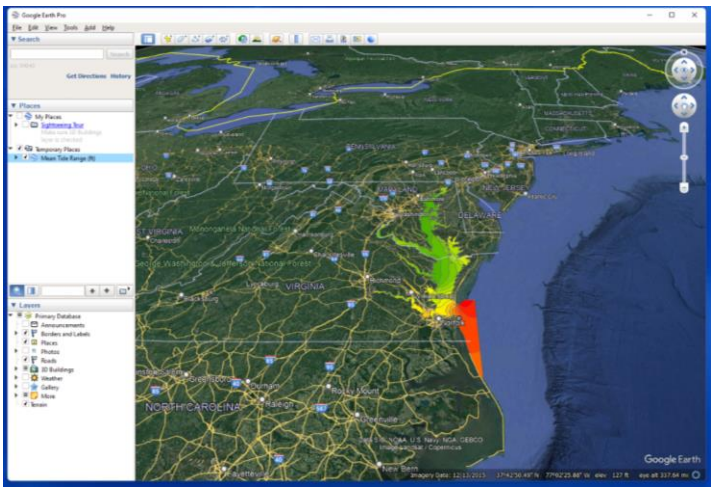
Before you begin:

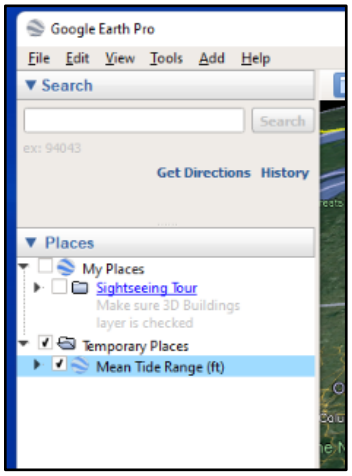
1. Download the free version of Google Earth, available here. Click the hamburger icon (3 stacked lines) in the top left corner, then click “Download Google Earth on desktop” at the very bottom of the menu.





2. Download the VIMS Shoreline Studies Program’s Google Earth tools - Mean Tide Range & NAVD88 to MLW Conversion Factor here. Click on the file names to automatically download the utility files.
3. Open the utility file (depending on your computer’s settings, look in the Downloads folder). This will open Google Earth with the utility active. Use the left menu to turn the utility on/off by clicking the box.

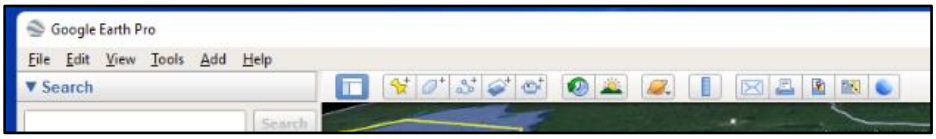




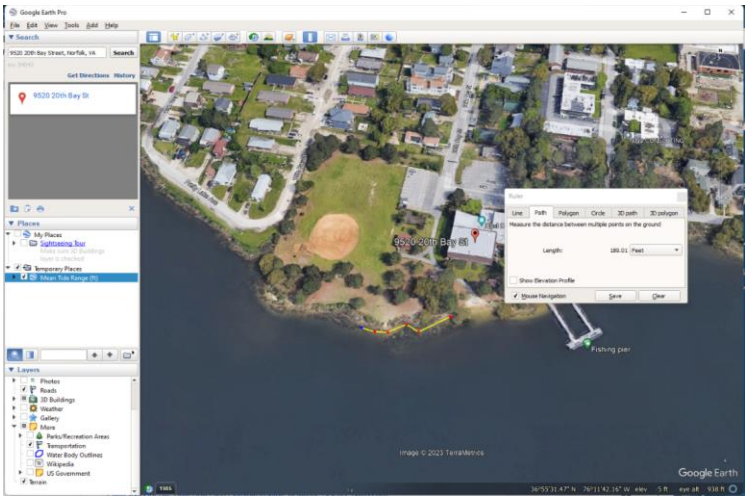
Complete the Desktop Analysis portion of the Site Evaluation Form using the following tools and methods.

Shoreline Orientation
Tool: Google Earth
Method: In the Search field, enter the property address and click Search. (Refer to the site map provided to determine the exact section of shoreline to analyze.) Find the North arrow in the top right corner, then determine the direction the shoreline is facing. Circle the corresponding direction(s) on the form.

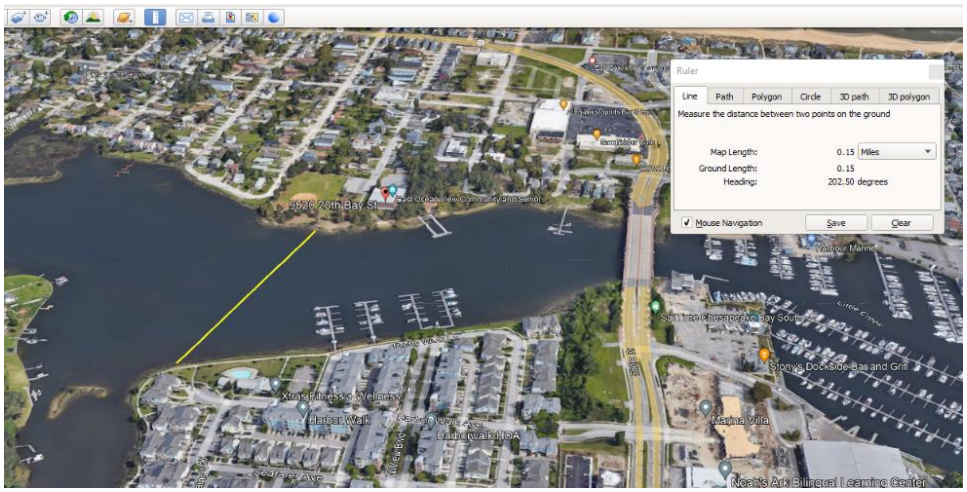
Shore Length and Width
Tool: Google Earth
Method: Choose the Ruler tool at the top of the map.



A small window will open. Choose the Path tab and change the measurement units to feet. Using the cursor, add points along the shoreline. The measurement will appear in the small window. Save this path as a starting point for determining fetch in the next step. Repeat this step to determine the width. You may need to zoom in for accurate point placement.



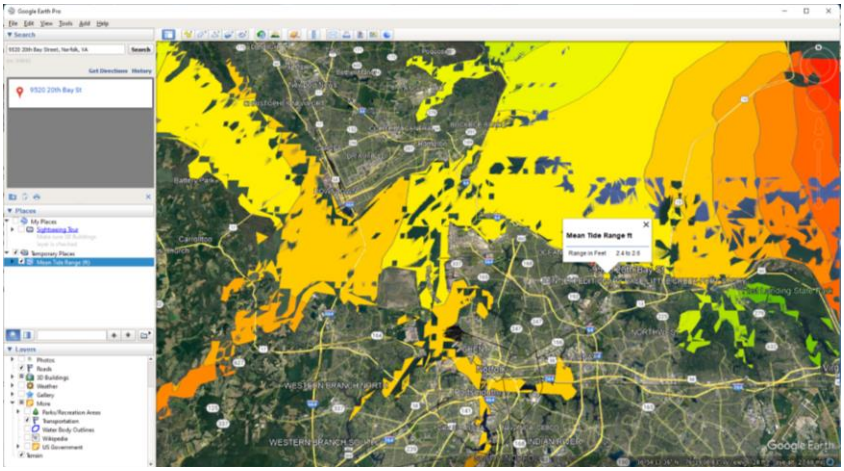
Fetch
Tool: Google Earth
Method: Zoom out sufficiently to see the opposite shoreline and surrounding area. Using the Ruler tool, choose the Line tab in the popup window and change the measurement unit to miles. In the popup window, you will see Map Length, Ground Length, and Heading. Map Length is the measurement you will use. Heading indicates the angle. Measure the fetch in four directions: NE, NW, SE, SW.



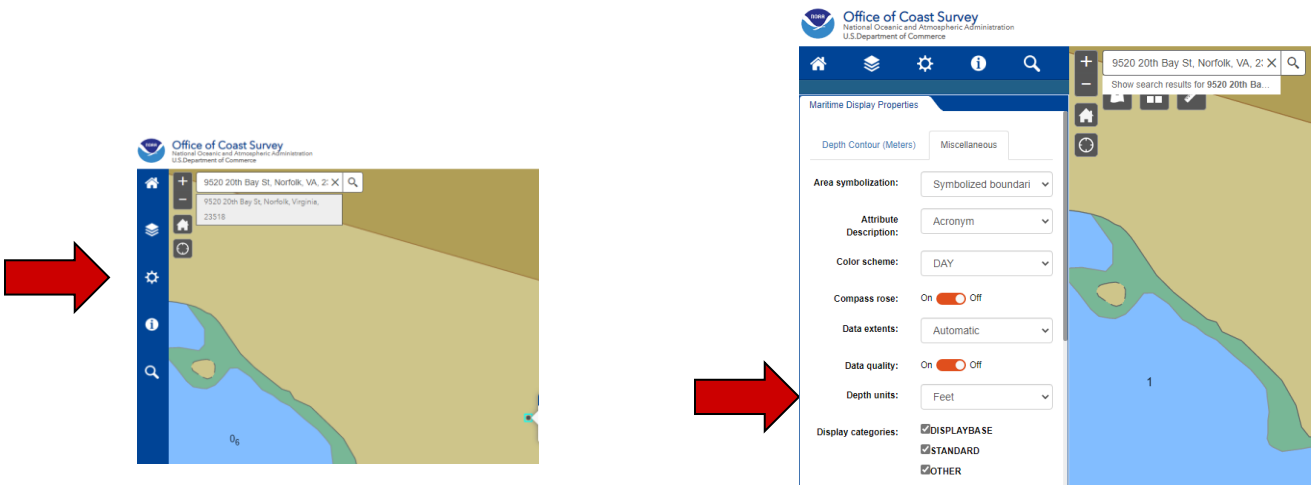
Shore Morphology
Tool: Google Earth
Method: Observe the location and outline of the shoreline. Determine if it is best classified as: pocket beach, headland, straight, or irregular. Refer to the VIMS *Living Shoreline Design Guidelines* key reference page 19, *for photos illustrating each type of morphology.*

Nearshore Morphology
Tool: Google Earth
Method: Zoom in on the site and look at the areas just off shore to determine if tidal flats or sandbars are present. This should be verified during the site visit.

Tide Range
Tool: Google Earth w/ Mean Tide Range utility turned on
Method: Zoom out of the site area until you see the color-coded tide ranges appear. Click inside a color zone as close as possible to the site to find the mean tide range.



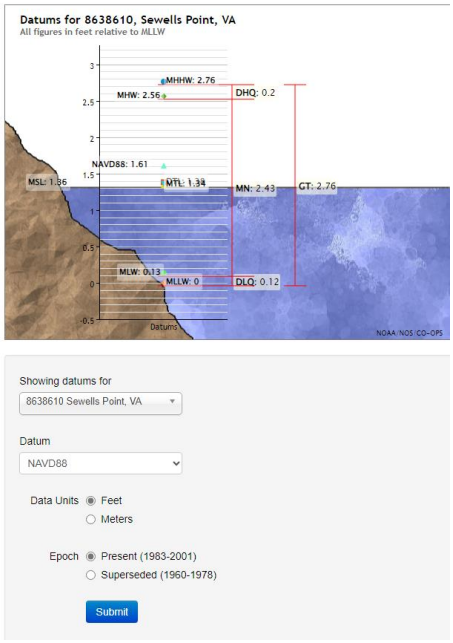
Depth Offshore & Federally Authorized Civil Works Projects
Tool: NOAA Nautical Chart Viewer
Method: Click on the tool link above to go to the viewer. Enter the property address in the Search field. Select the Settings tool from the left side menu. Change the depth units to feet. Record the number closest to the site shoreline, and at approximately 20 and 40 ft channelward of MHW, relative to MLW. Note whether a federal navigation channel is nearby. For help with chart symbols, see US Charts No. 1.
Additional resources for identifying US ACE federally authorized civil works projects:
Federal Navigation Channels: http://www.nab.usace.army.mil/Missions/Civil-Works/Nav-Maps/
National Levee Database: http://nld.usace.army.mil/egis/f?p=471:1:
Corps Lakes: http://www.nab.usace.army.mil/Missions/Dams-Recreation/



Tide Data

Tool: [NOAA Tides & Currents]

Method: Click on the tool link above to go to the Tides & Currents map. Zoom in to the site area or enter the address in the Search box. Click on the closest nearshore Station Marker. In the popup window, click the More Data down arrow, then select Datums to view MHW, MLW, and MTL. Below the right hand image, select NAVD88 and Current Epoch:



Average Salinity

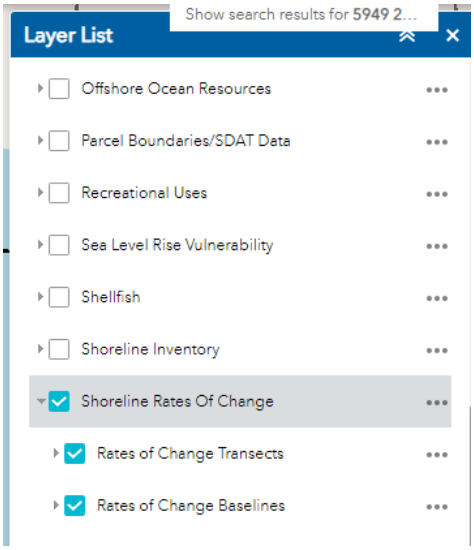
Tool: [VIMS Focused Salinity Forecasts]

Method: Click on the tool link above to go to the Chesapeake Bay Environmental Forecast System's Focused Salinity Forecasts page. Look at the Nowcast maps to determine salinity. Note: these maps are static and small water bodies are not color coded. Choose the salinity level closest to the project area. Salinity is a factor in choosing appropriate marsh plants and determining the suitability of oyster structures for a living shoreline. During the site visit, field verify if oysters are present.

Erosion Rate

Tool: [Maryland Coastal Atlas]

Method: Click on the tool link above to access the Coastal Atlas. Enter the project address in the search bar. Click the Layer List icon at the top right of the page, then select Shoreline Rates of Change. In the submenu, select Rates of Change Transects and Rates of Change Baselines. Click on a transect that crosses the project area and note the number displayed at the top of the pop up box.



Submerged Aquatic Vegetation (SAV)

Tool: [Maryland Shoreline Stabilization Mapper]

Method: Click on the tool link above to access the Mapper tool. Zoom into the project site or enter the address in the search box. Click on the Map Layers icon at the top right of the page, select Reference Layers, then make sure the *SAV Habitat 2016 - 2020* layer is visible. Areas where SAV is present are highlighted green on the map.