Using the Maryland Coastal Flood Explorer

The Maryland Coastal Flood Explorer is a tool to understand and visualize the impacts of sea level rise and flooding in Maryland. It offers interactive features that allow users to explore historical data and projected water levels, across Maryland's coastal zone. By leveraging tools, such as depth queries and customizable layers, users can gain valuable insights into their local flood risks and make informed decisions.

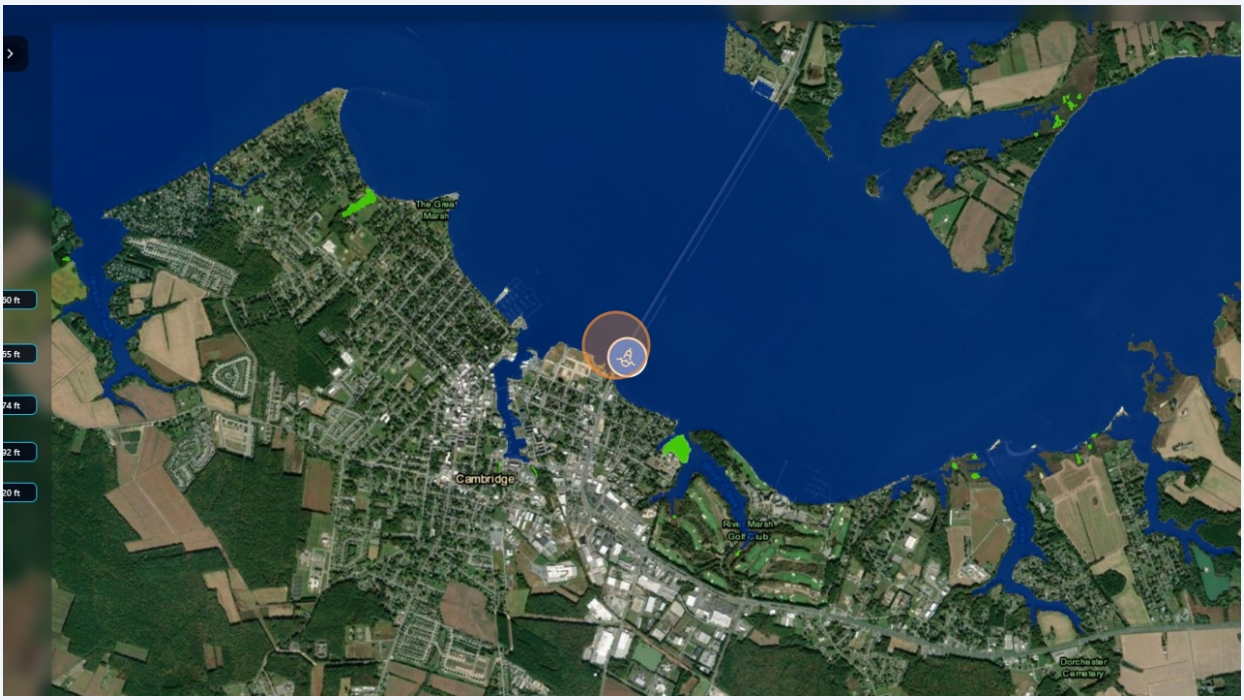
Getting Started

1 [Navigate to https://mdfloodexplorer.org](https://mdfloodexplorer.org)

2 You can enter a place or address directly into the search bar.

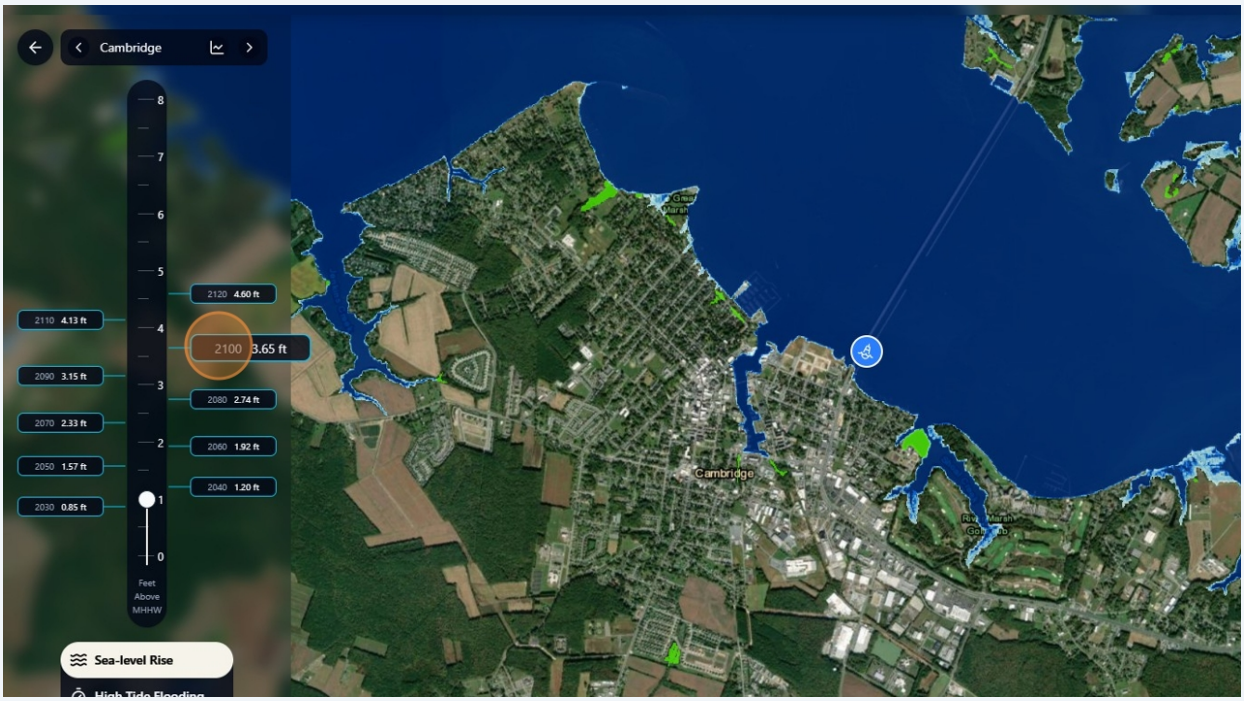
3 Or you can navigate by clicking the closest tide gauge.

4 This icon shows the location of the tide gauge. By clicking on it, you can pull up additional information such as the station information and historical water levels. Clicking the links here will take you to the NOAA webpage for this station.

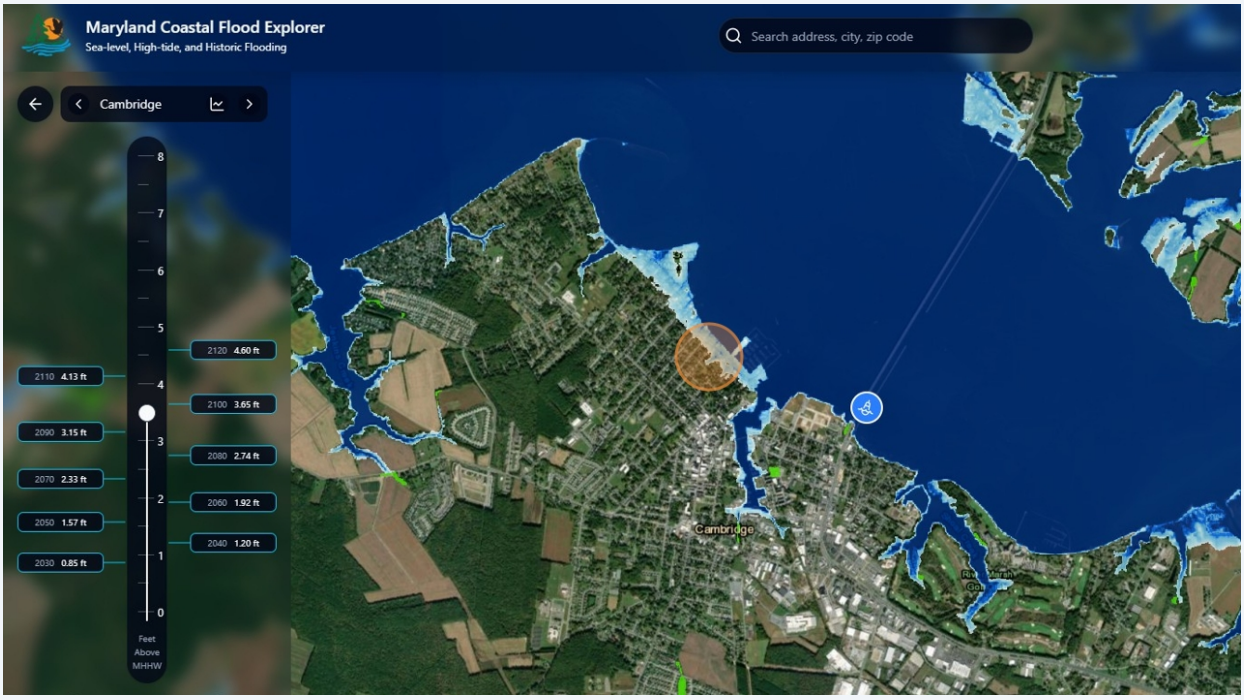


Using the slider bar

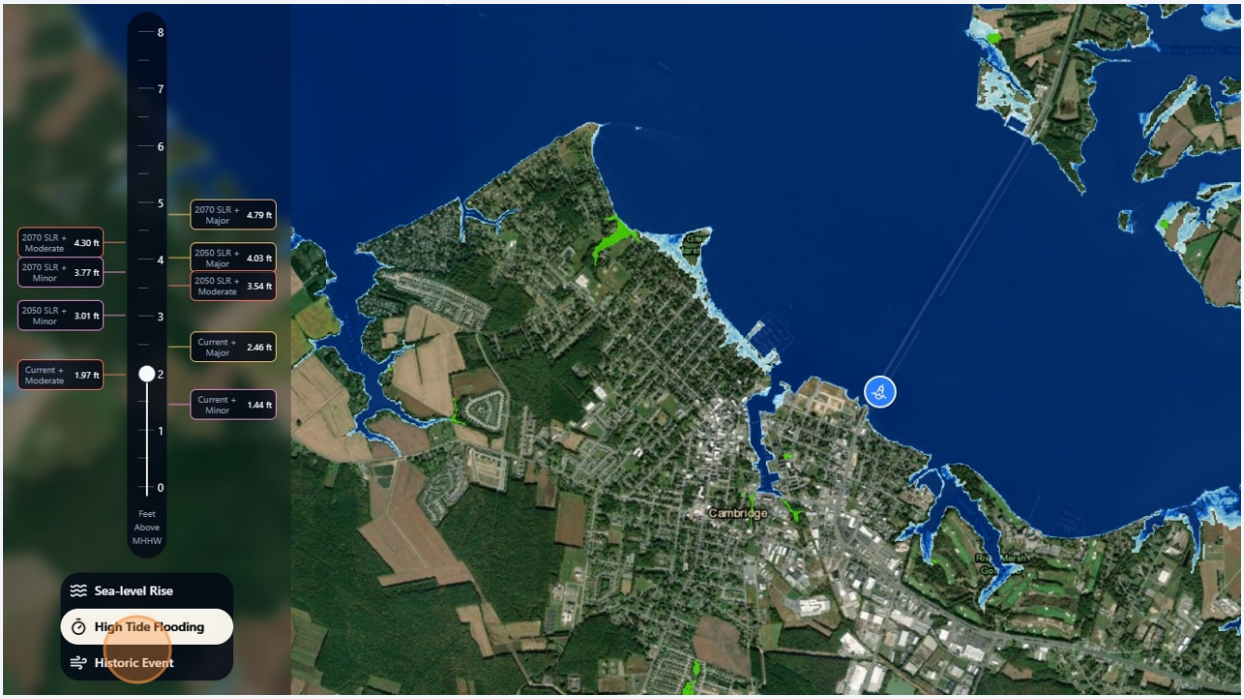
5 To visualize different sea level rise numbers, drag the slider up and down or directly click the year you'd like to visualize.



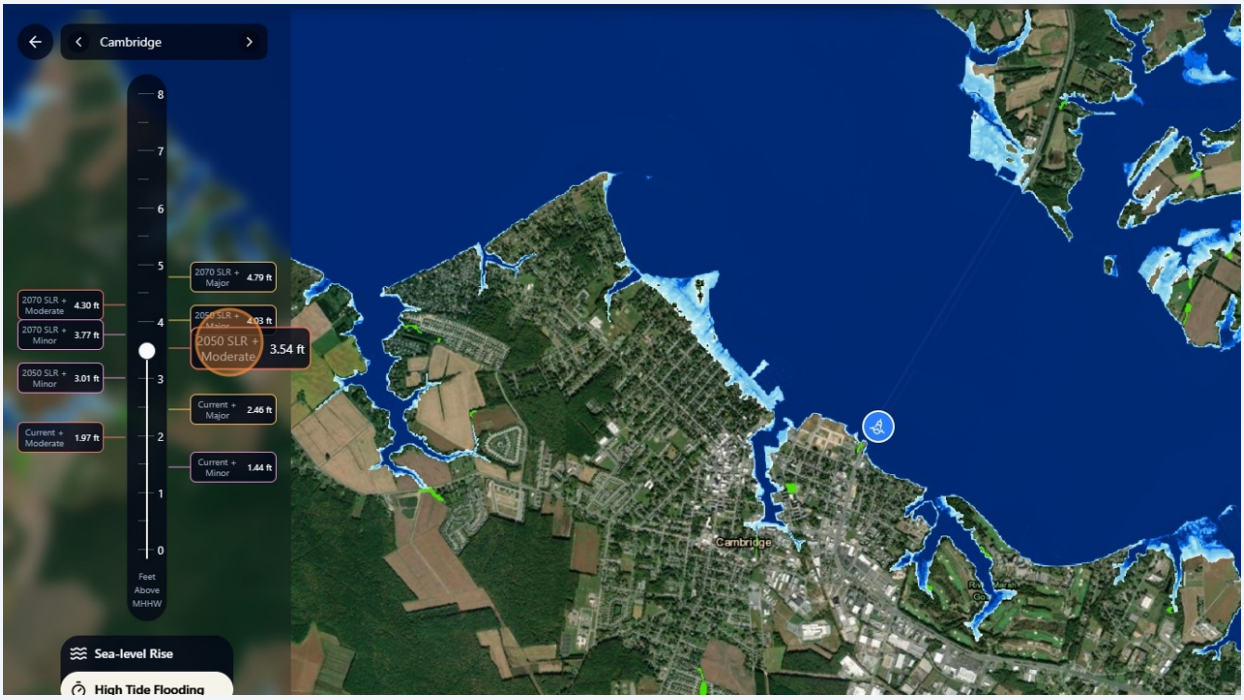
6 Note the water level change. The darker the blue, the deeper the water.



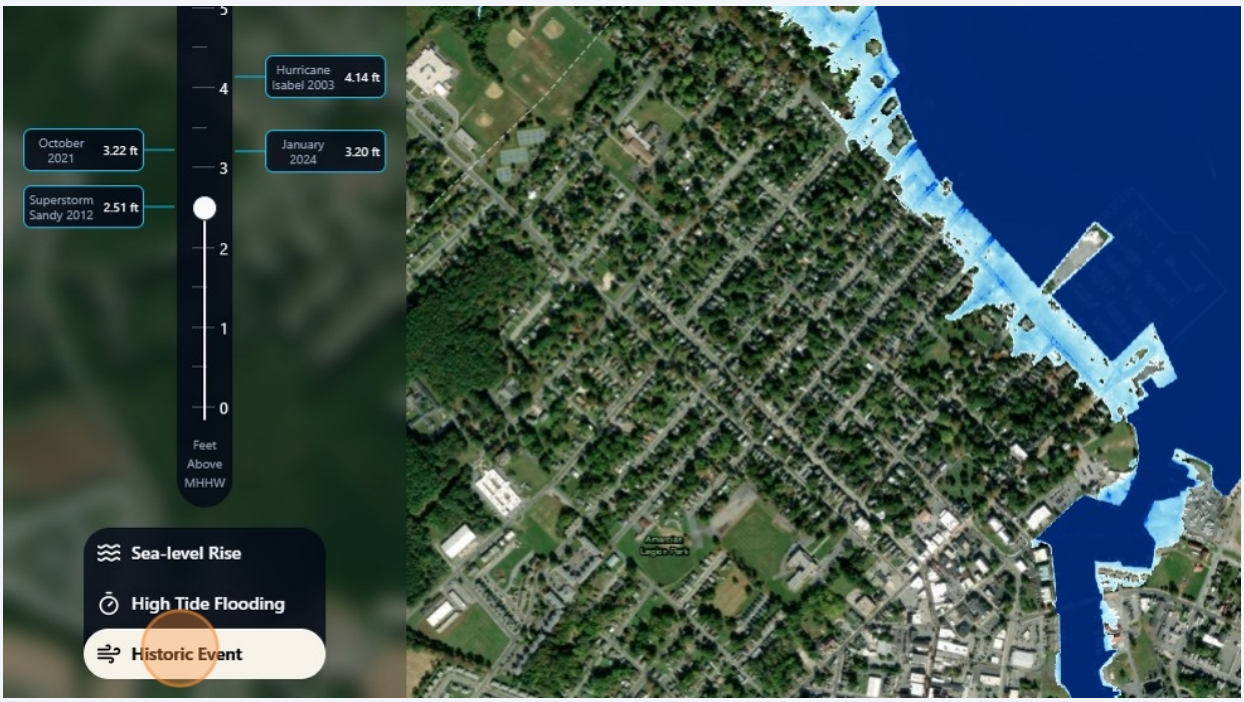
7 The viewer also visualizes current minor, moderate, and major flood thresholds for each tide gauge and these flood thresholds with SLR added to them. This image shows moderate flooding under current tide levels (2005 baseline).



8 Choosing "2050 SLR + Moderate" will visualize 2050 slr projection for that location with a moderate high tide.

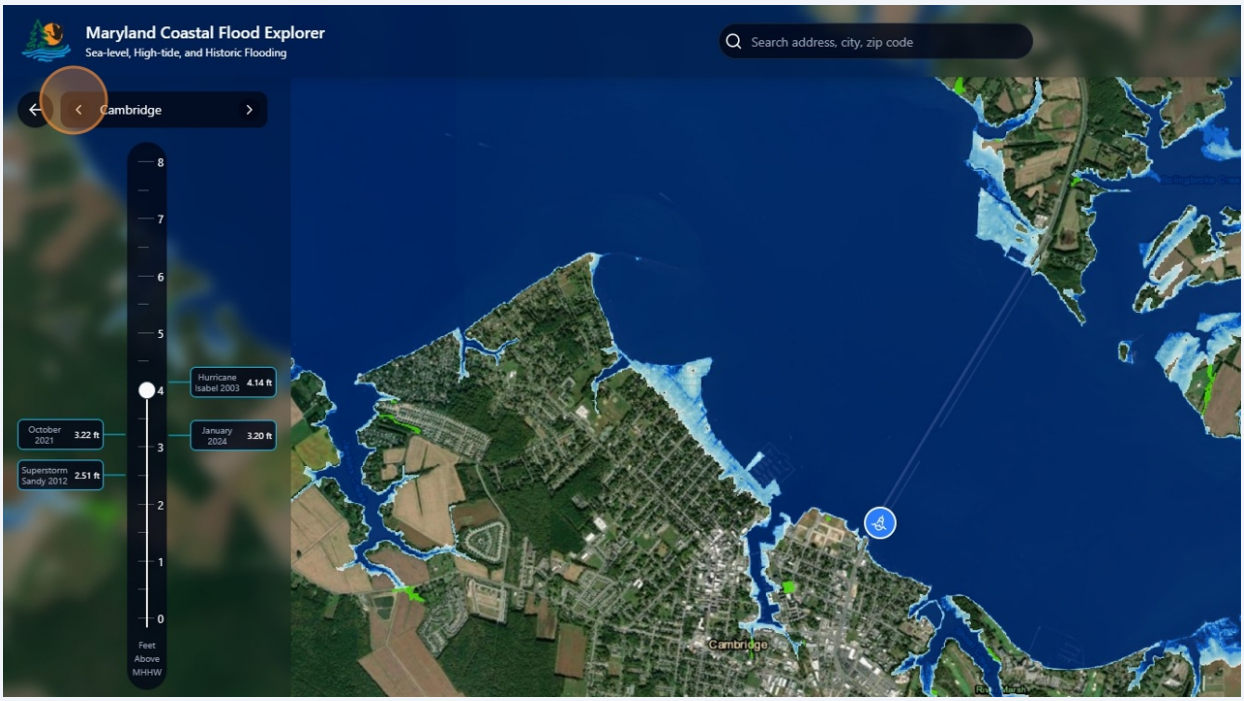


9 Finally, you can explore water levels associated with historic flooding events. These were chosen based on focus group feedback.

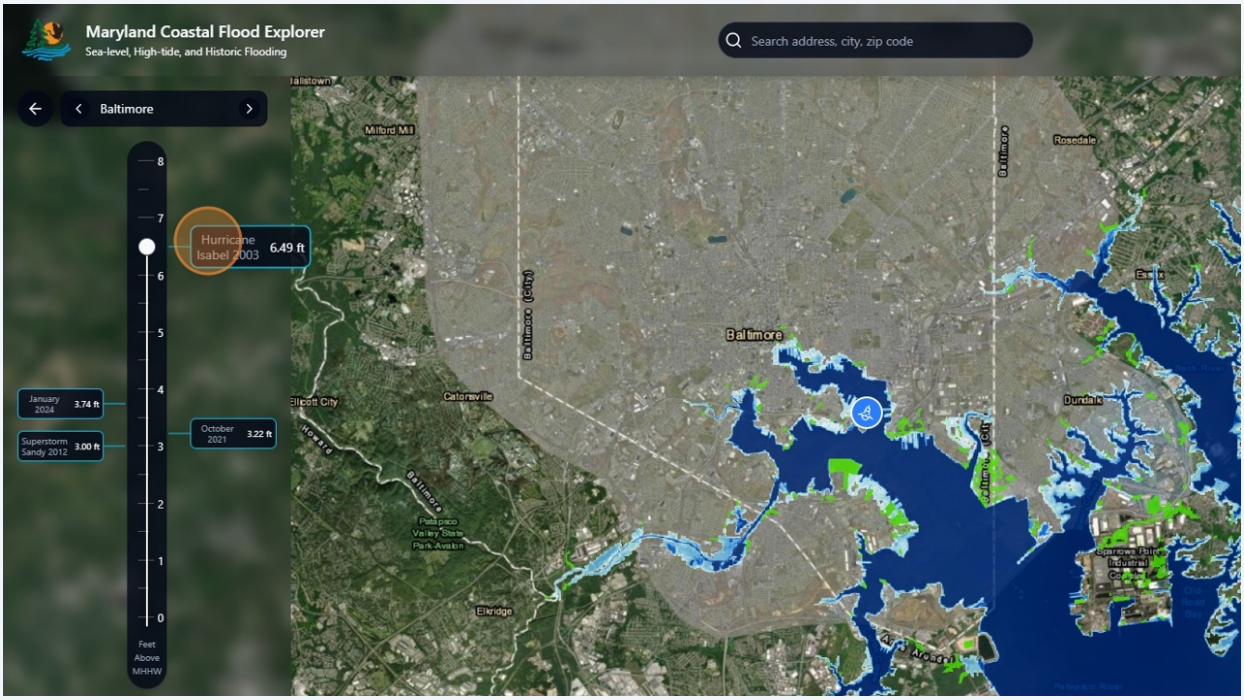


Tip! You can explore how one flooding event may have impacted water levels differently at different tide gauges. For example, Hurricane Isabel water levels were different than in Baltimore.

10 Click "Hurricane Isabel 2003" to show water levels. To see how levels may be different at a different station, click the arrow to navigate to the Baltimore tide gauge.



11 As you can see along the slider, water levels in Baltimore (6.49 ft) were higher than Cambridge (4.14ft) during Isabel.

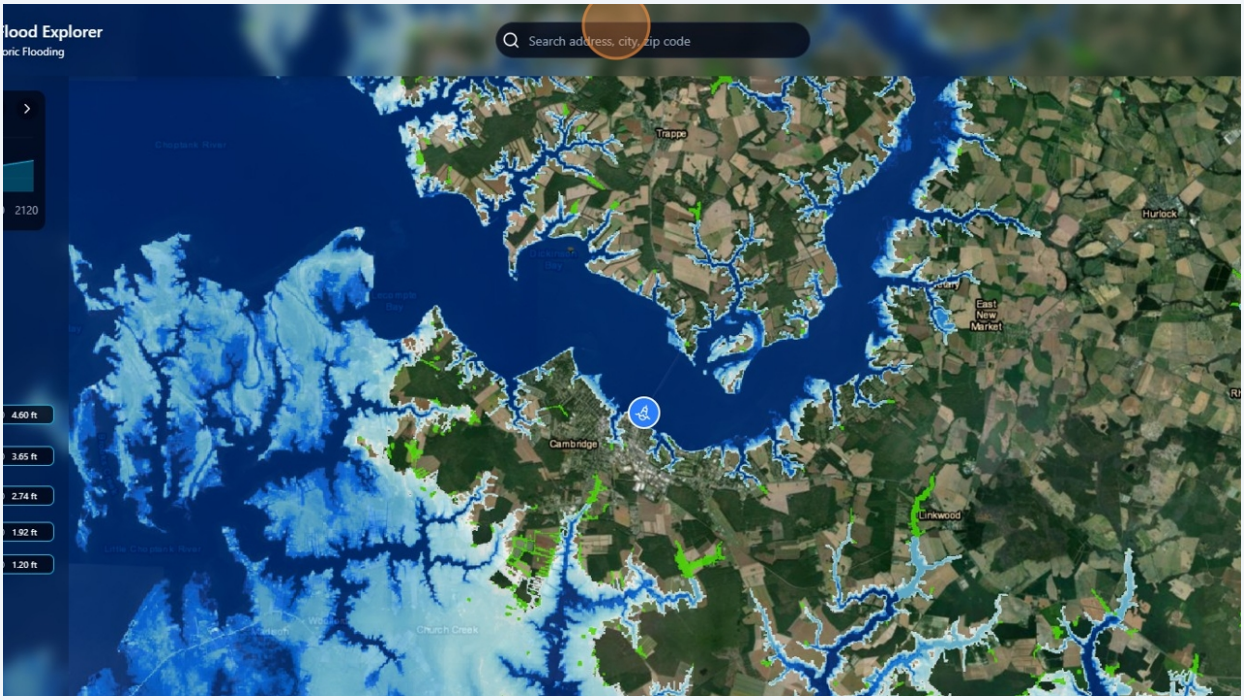


12 To navigate back to Cambridge, simply drag across your screen.

13 The explorer automatically switches the tide gauge based on where you are on the map. To use the Cambridge tide gauge, click "Apply Local Water Levels".

Tip! A user can choose not to switch to the recommended tide gauge by clicking "Retain Local Water Levels". This can be useful if the site is right on the border between and the user feels a different gauge is more representative of the area they're working in.

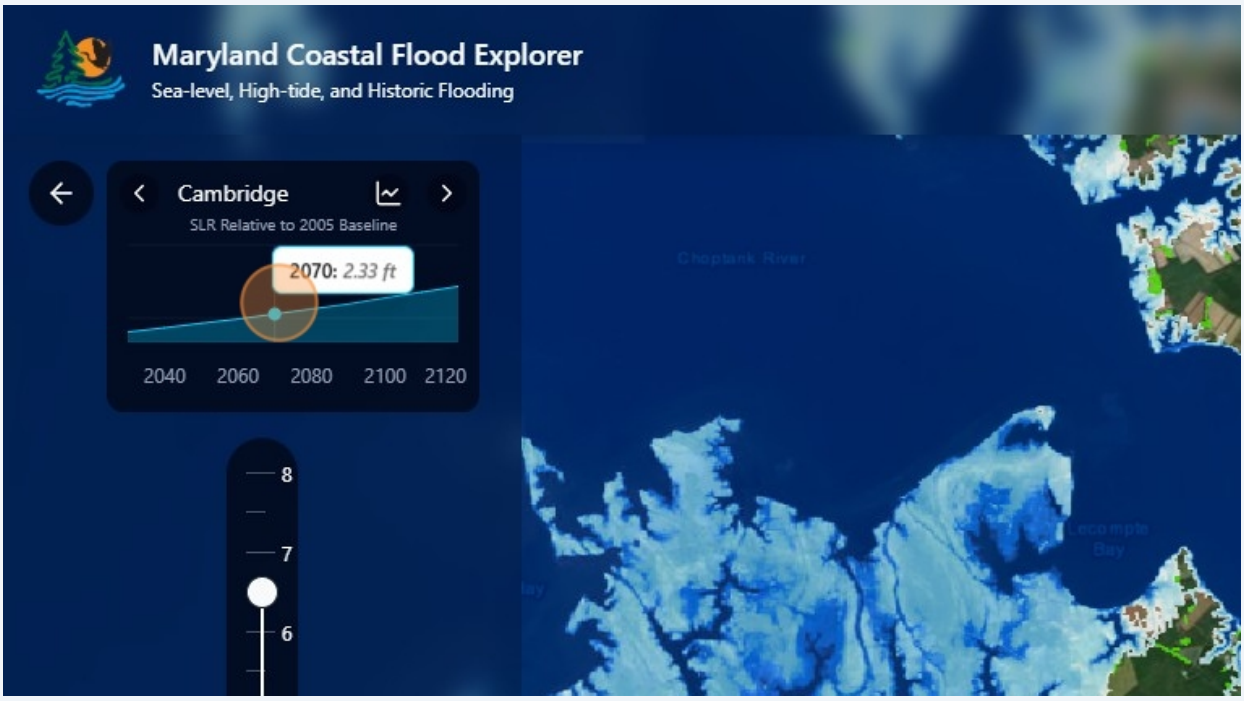
14 You can also navigate by putting an address in the search bar at the top of the screen.



15 Back in Cambridge, click the graph icon next to the tide gauge to get a graph of SLR for that tide gauge area.

Tip! To see what tide gauges are assigned to each county, navigate to “Data Modeling” within the information tab.”

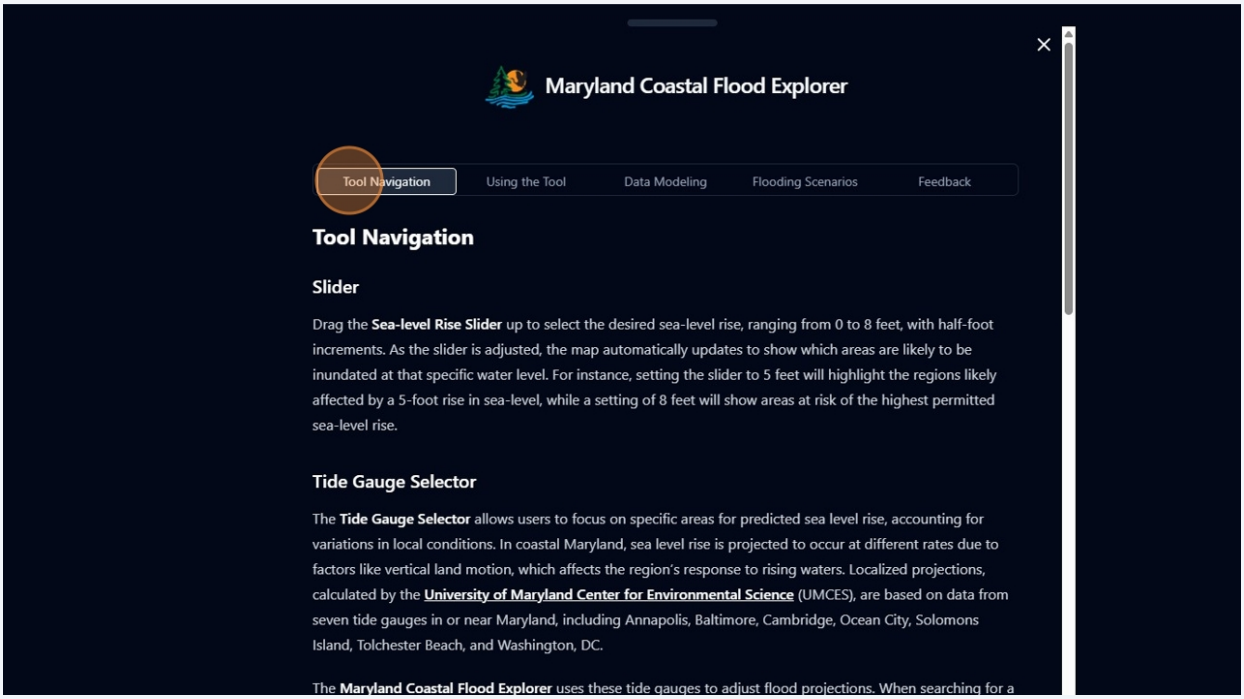
16 Click differnt years along the graph to get the projected SLR number.



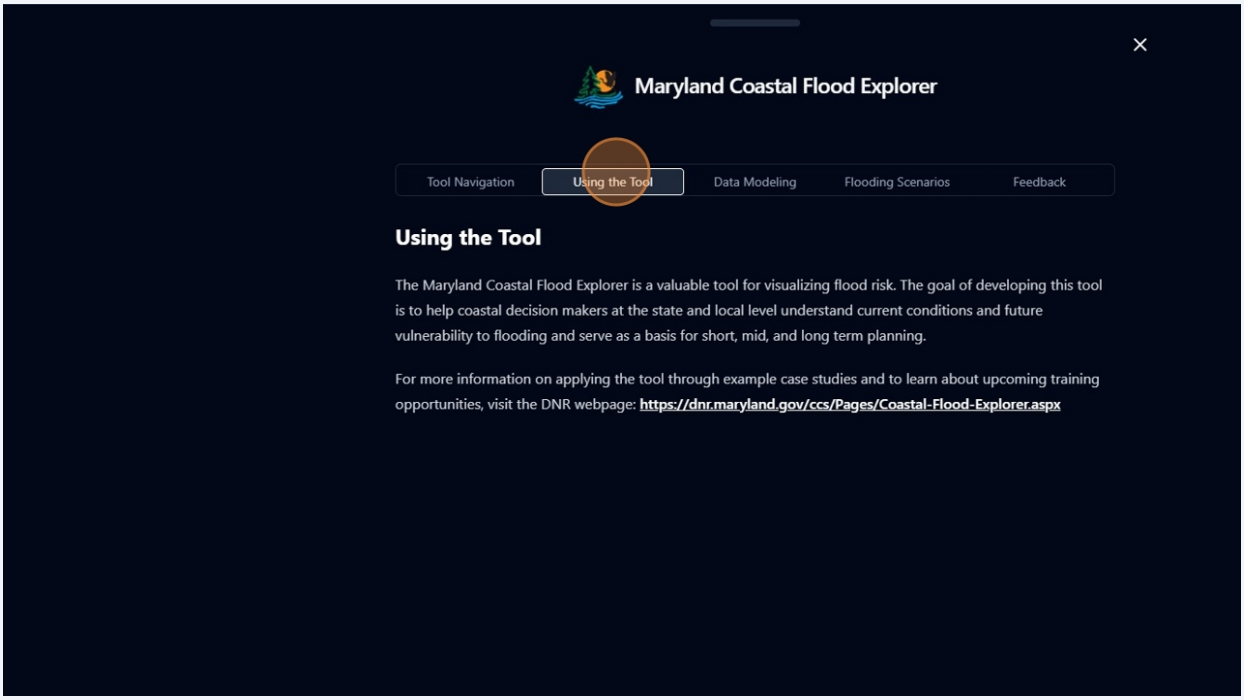
Top Navigation Bar

17 Now we will explore the features of the navigation bar at the top right hand corner of the screen. Click this icon to pull up background on the explorer.

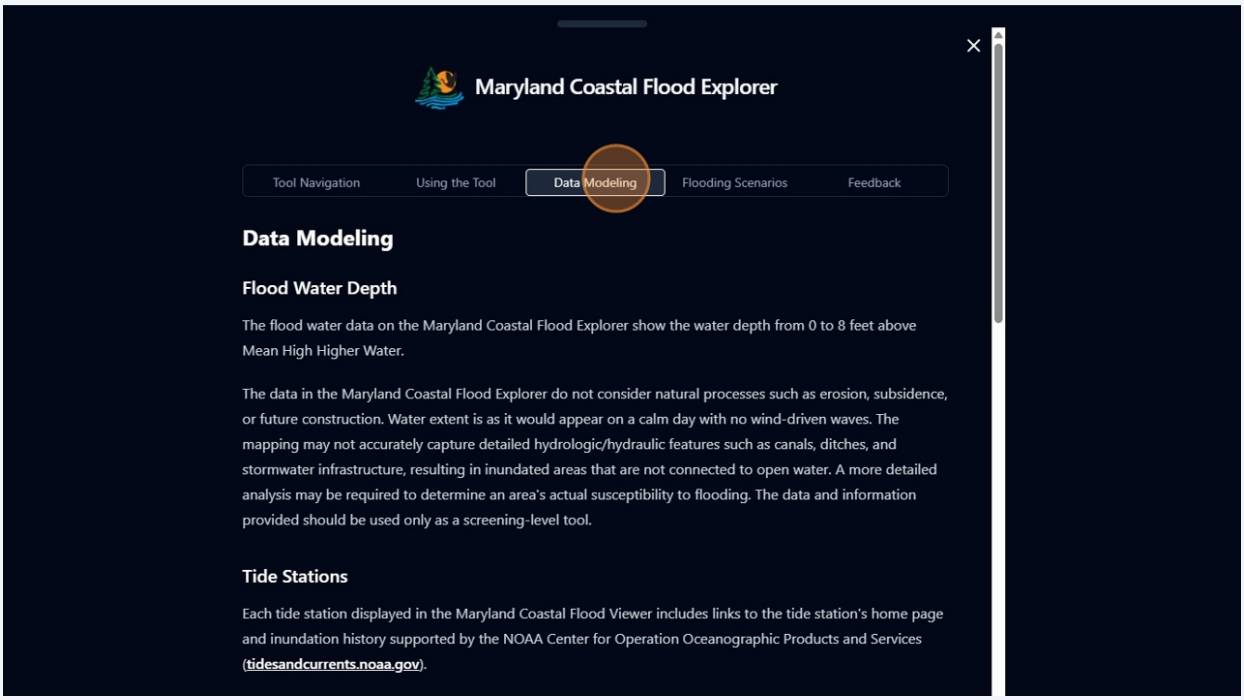
18 "Tool Navigation" provides a little more detail than this guide does on the individual features of the tool.



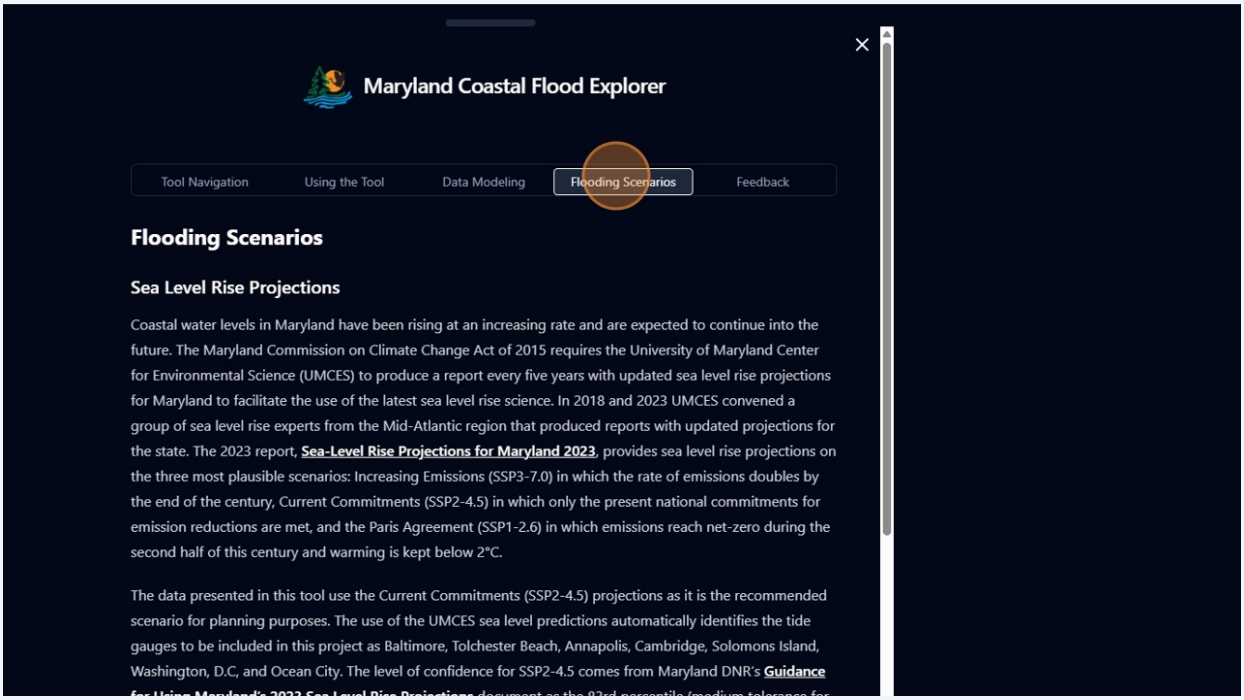
19 "Using the Tool" will direct users to the DNR website where there's information on putting the tool into action such as "how to" videos and case studies.



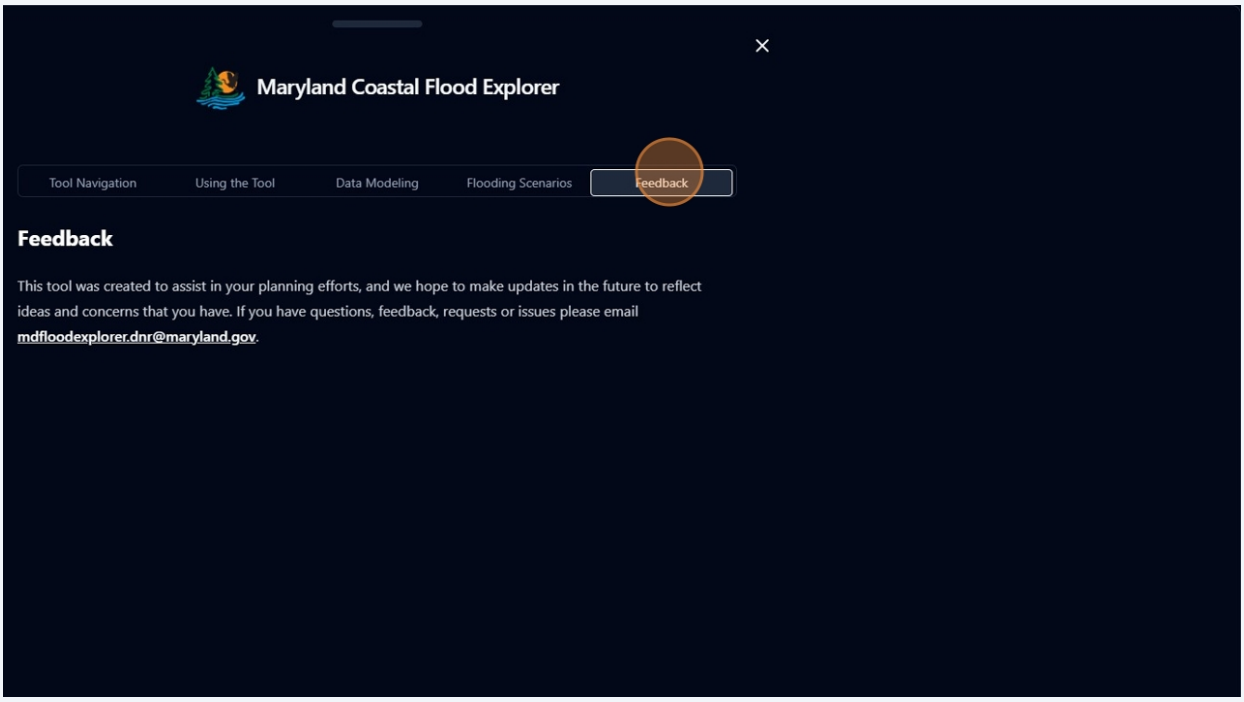
20 "Data Modeling" provides more background on the modeling approach used to develop the layers and the geographic extent of the explorer.



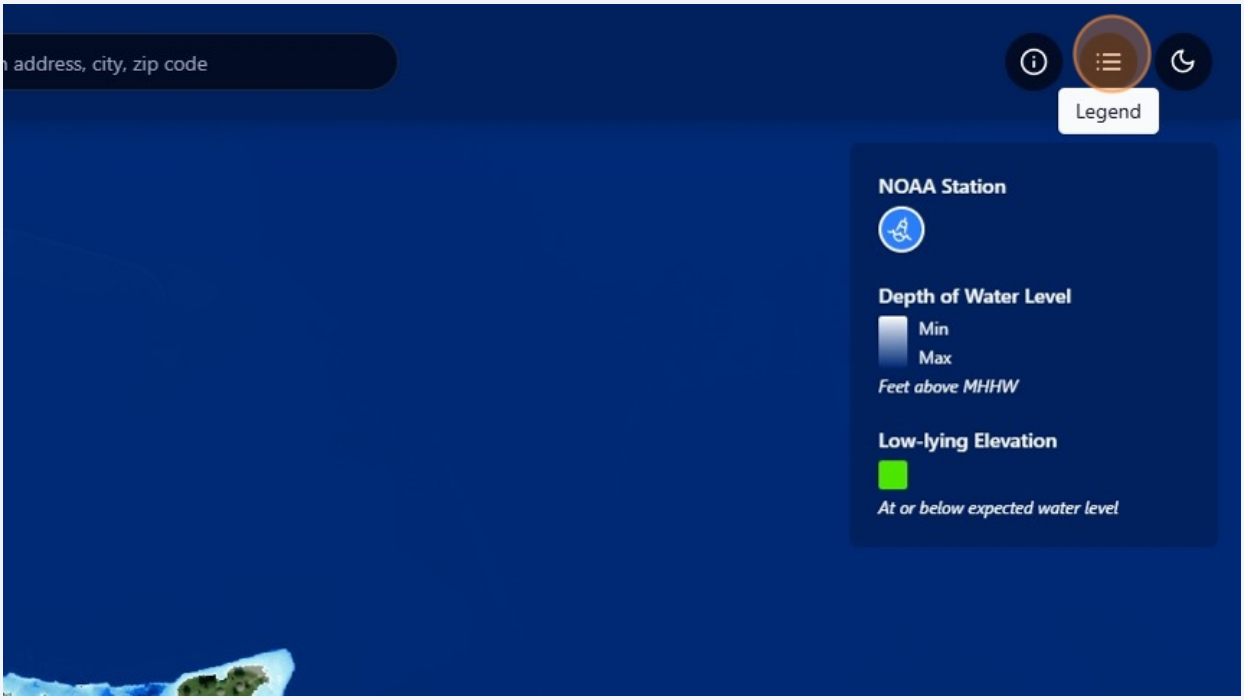
21 "Flooding Scenarios" provides more background on the data used to create the SLR projects, high tide flooding thresholds, and historic event thresholds.



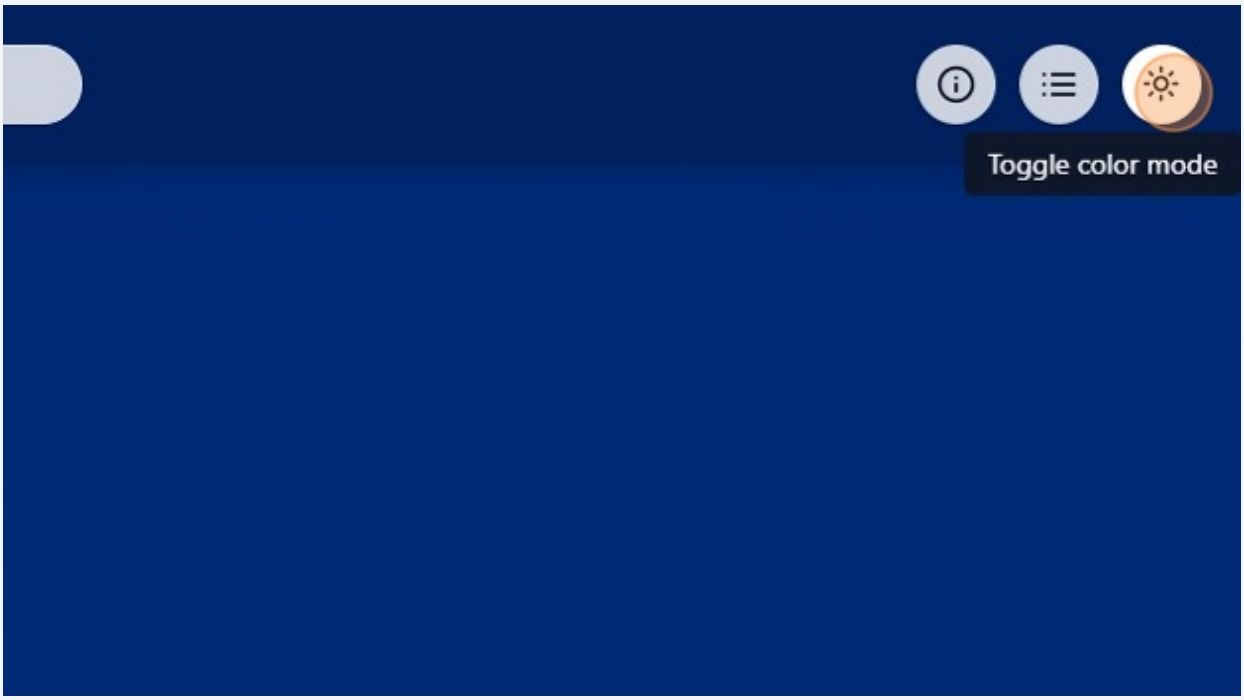
22 "Feedback" tab provides an email address where you can share your feedback on the tool, how you're using it, and ask questions: mdfloodexplorer.dnr@maryland.gov



23 Moving across the navigation bar. This icon will bring up the legend. It can be clicked on or off at any time.



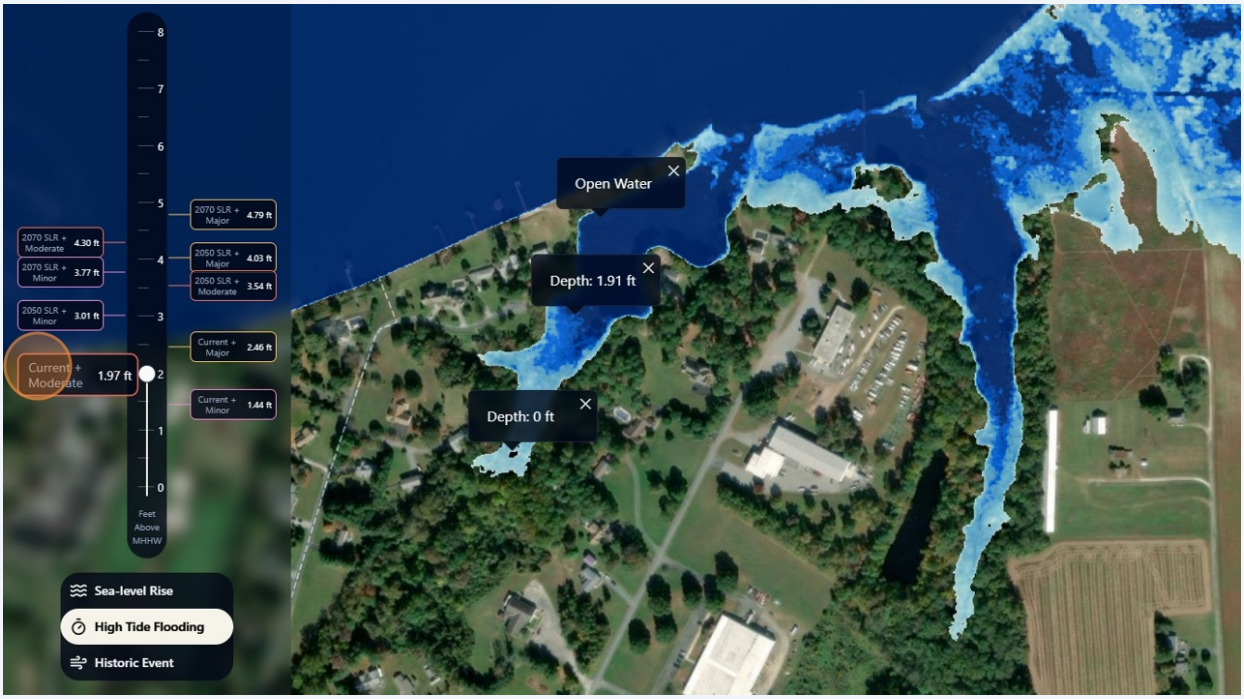
24 Finally, this icon is either a sun or moon. It allows the user to switch back and forth between light mode and dark mode according to personal preference.



MD Flood Explorer Tools

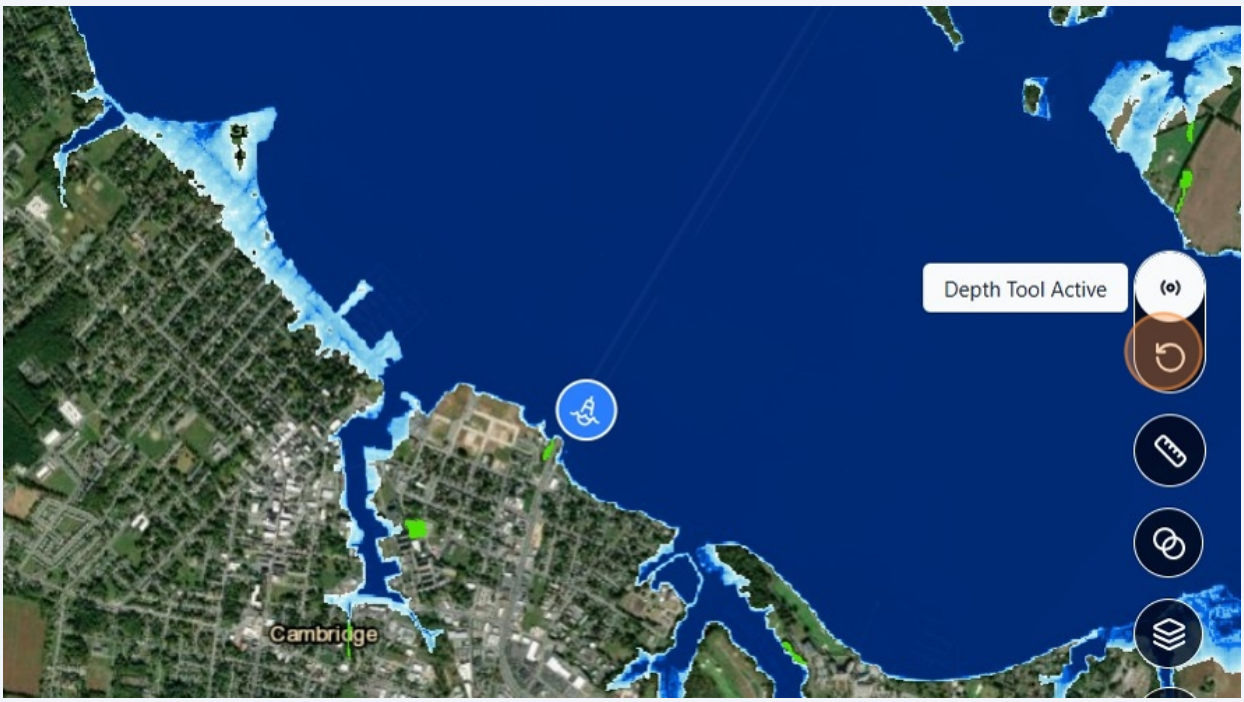
25 Now we will explore the features of the built in tools on the bottom right hand corner of the screen. This icon pulls up the depth query tool.

26 Click anywhere on the map to see the predicted depth in feet. The depth numbers will stay up on the screen until the user clicks the "x" in the corner of an individual point or the reset button on the depth query tool.



27 Now, move the slider up or click "2070 SLR + Major" to see how the water levels at each point changes.

28 All of the depth queries can be cleared at the same time by clicking this button.



29 The measure tool allows you to draw a line for a distance measurement in feet or a polygon for an area measurement in acres. Simply click along to trace your line or polygon and then double click to create your endpoint and get the measurement.

30 The water opacity tool pulls up a slider which will change the opacity of just the water layers.

31 Reducing the opacity will allow for a better visual of the imagery beneath the water layers. In this case, showing that much of the flooding in this image will occur on marsh land and the edge of the agricultural fields.

Additional Layers

32 This icon will bring up the option to change the basemap below the imagery as well as toggle prepopulated layers on and off as well as add your own layers.

33 **Example:** To visualize flooding on roadways, selecting the "Streets" basemap may be useful. To return to the original background, simply click streets again to turn it off.

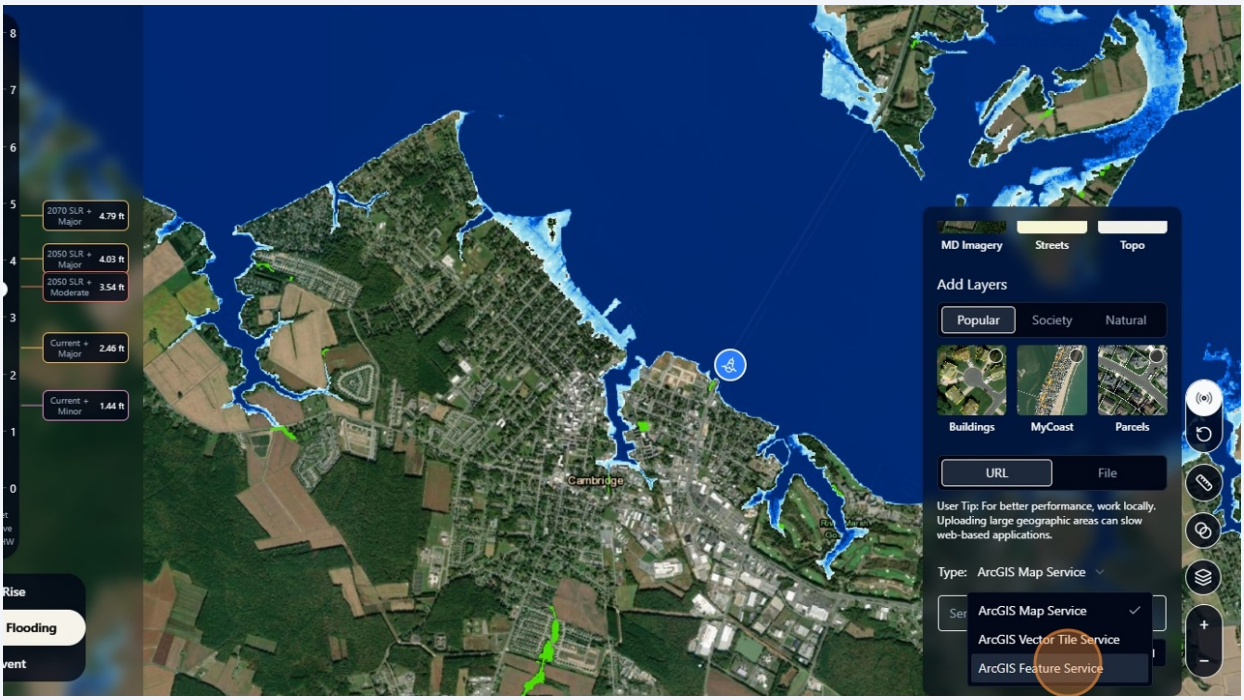
34 The tool includes a curated selection of prepopulated layers including building footprints, MyCoast photos, parcel data, land use land cover data, and critical area boundaries.

35 When these layers are added to the viewer, they will also appear in the legend.

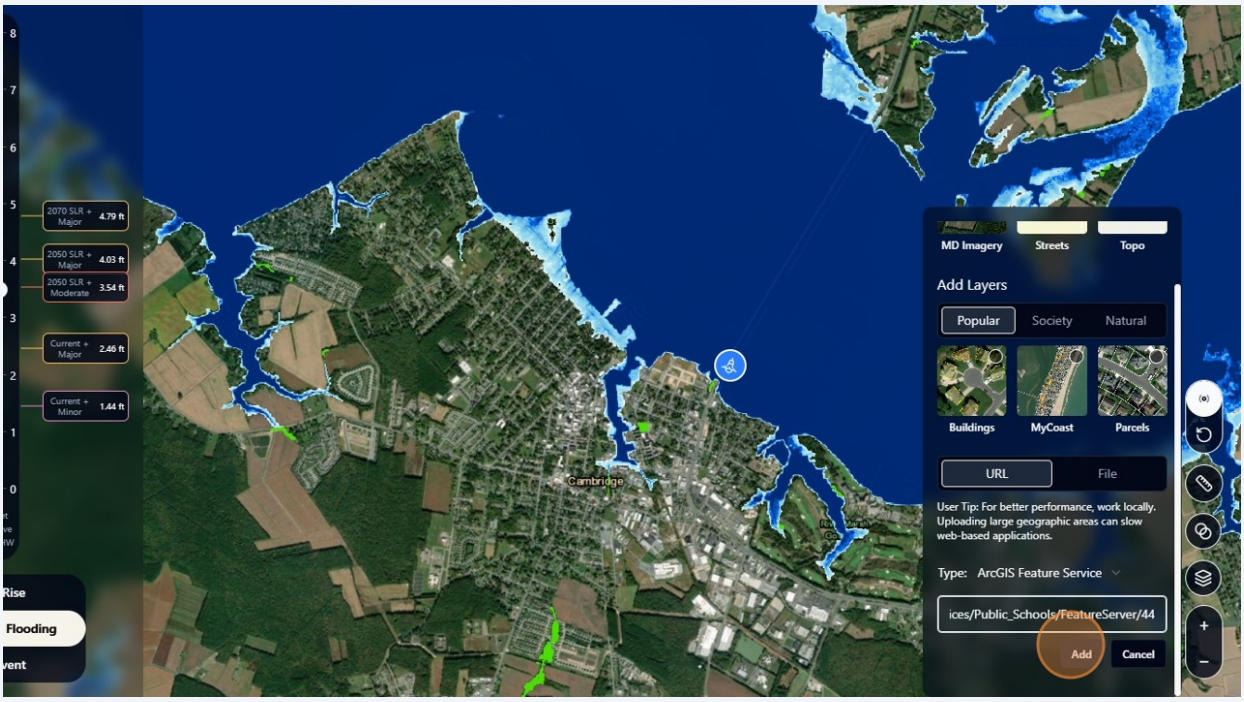
36 **Example:** Add the MyCoast layer and notice that there are multiple different icons. These are further explained with the legend.

37 The explorer has a limited collection of prepopulated layers. DNR has provided an additional suite of ArcGIS layers which may be helpful on their [website.](#) These can be added here.

38 **Example**: To add schools, copy the url for the service layer from the list provided on the DNR website. Then select "ArcGIS Feature Service" from the drop down menu and paste the URL in the box.



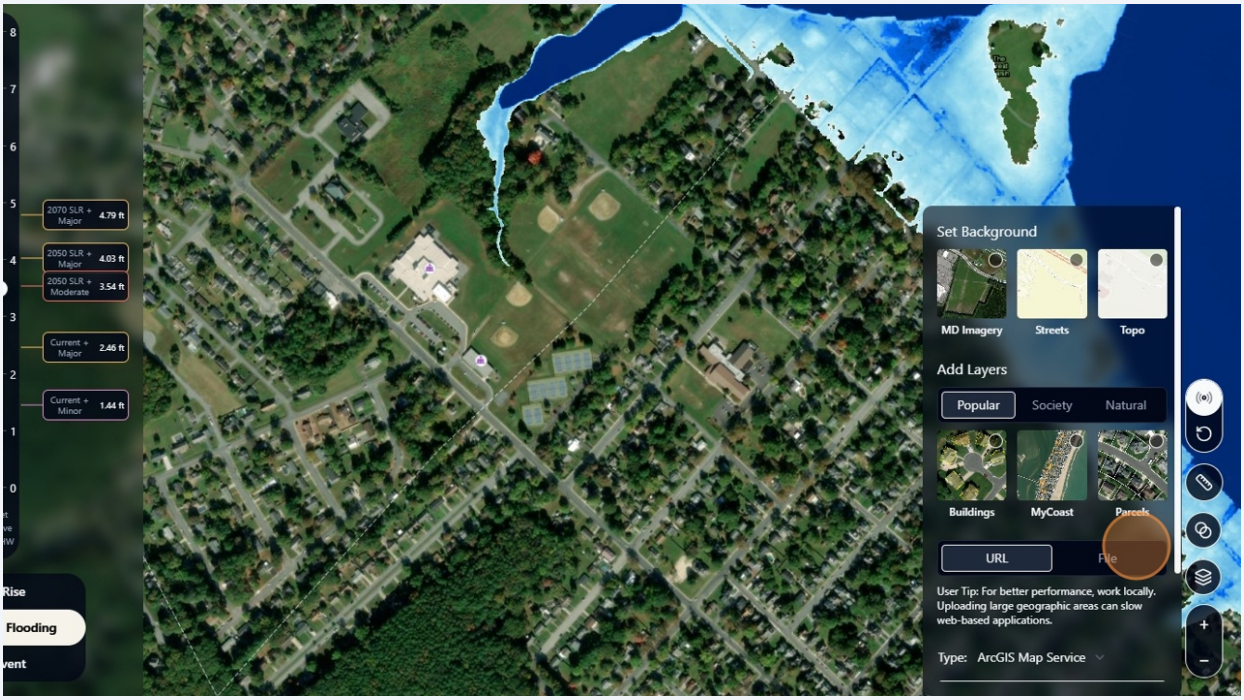
39 Click "Add"



Tip! If nothing is showing on the map, double check that you've selected the right option between map service, vector tile service, and feature service.

40 Two purple school house icons show up.

41 Finally, a user may want to add their own data. To do that, go back to the Basemaps and Layers icon and then select "File."



42 From here you can upload files. Note the size limit. The explorer does not currently have a way to adjust symbology of files uploaded by the users.