

Case Example: Visualizing Flooding to Support Grant Applications for Adaptation Projects

Using the Tool

The Maryland Flood Explorer can be a supportive tool in the development of competitive grant applications by demonstrating how proposed adaptation projects account for future conditions, such as sea level rise and high tide flooding. This tool, paired with the [Maryland Sea Level Rise Guidance document](#) can help applicants to identify appropriate design goals to align with expected project life spans. This process is particularly helpful when applying for funding opportunities that require justification of long-term resilience.

Example Scenario

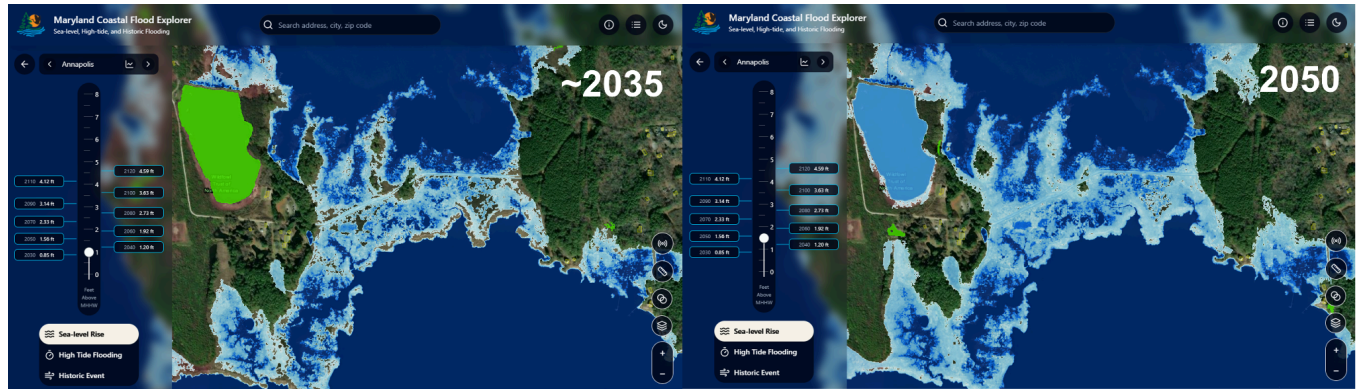
An environmental center on a peninsula experiences flooding of their only access road at high tide, a condition projected to worsen due to sea level rise. They've developed a project to elevate the degraded marsh along the road thus restoring the marsh and protecting the road. They are putting together a grant application and want to use the MD Flood Explorer to demonstrate the current and future need for this project. The project team plans to use the tool to visualize the risk and justify the need for adaptation measures in their grant applications.



The access road connecting the environmental education center to the mainland is surrounded by marsh on either side. In particular, the marsh on the northern side of the road is fragmenting leaving the road vulnerable to flooding.

Tool in Action

- Open the [Maryland Flood Explorer](#) and enter the address of the environmental center.
- On the slider bar, drag the slider bar up or select "2030", then "2040", then "2050".

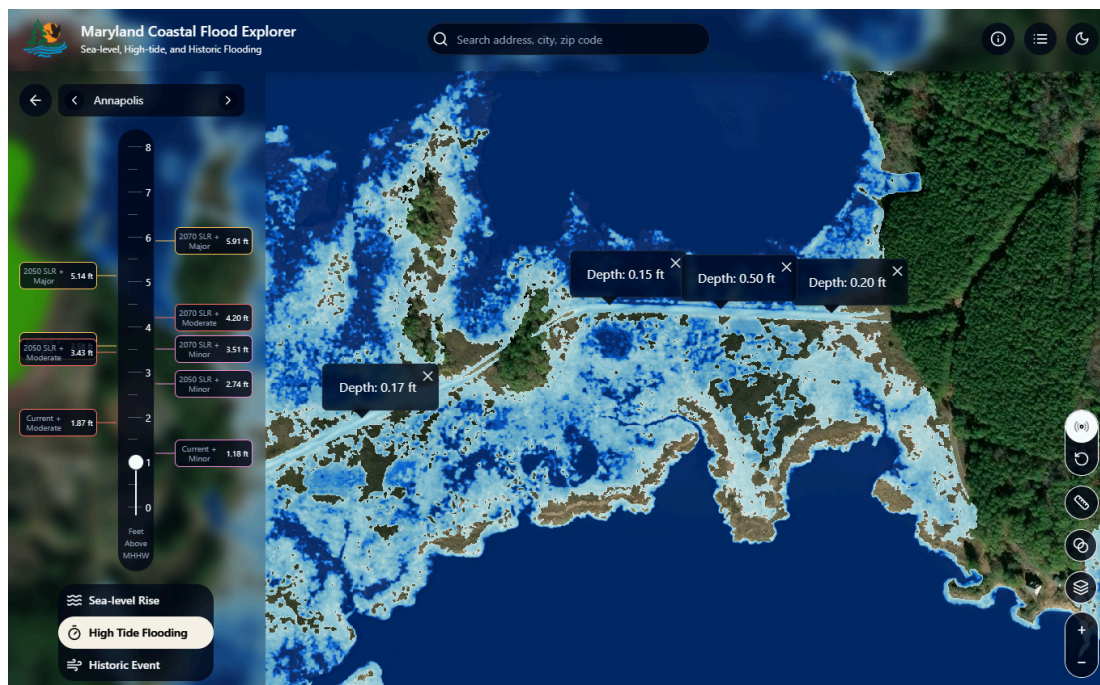


Based on the Maryland SLR projections, some time between 2030 and 2040 the road will become flooded in place most of the time and by 2050 the whole road is flooded.

Visualizing current conditions:

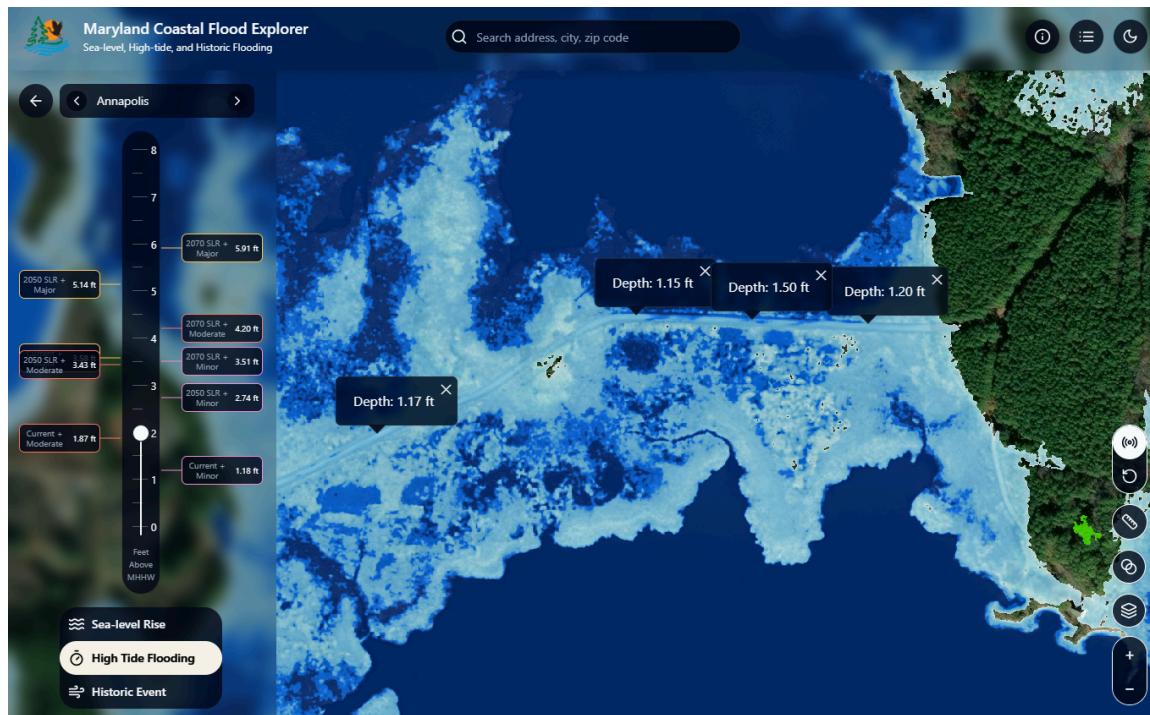
Flooding on the road at high tide is already a nuisance for the environmental center which has members of public and school groups coming and going each day. Driving through salt water is not good for vehicles and the deep water can pose a hazard. To demonstrate the challenges already impacting the property, turn on “**High Tide Flooding**” which will visualize the combined impacts of sea level rise and tidal flooding.

- Raise the slider to the “Current + Minor” level to see which parts of the road are at risk with the current sea level and a minor high tide event.
- Click the **Measure Depth** tool (located on the right side of the screen).
- Click point along the access road to estimate water depth during minor high tide flooding events.



The screenshot below shows that the property is experiencing road flooding of 0.2-0.5 feet currently with a minor high tide.

- Leave the depth measurements on the road and select “Current + Moderate” on the slider bar to show flooding in the present day with moderate high tide flooding events.



- Now depths along the road are over a foot deep making access to and from the visitor center unsafe.

The environmental center can use these images in their grant application to demonstrate that the need is already great at this site.

Tip! The environmental center could also use the historic event feature to show high tide flooding on the road experienced during 2021 and 2024. This paired with photos submitted from MyCoastMD could further showcase how vulnerable this site already is.

Visualizing Future Conditions

Restoration projects often plan for a 25 to 30 year life span. The environmental center should be accounting for what the water depths will be like in 2050 as they develop a project plan.

- Leave the depth measurements on the road and select “2050 + Minor” on the slider bar to show minor tidal flooding in 2050.



This screenshot shows that water depths in 2050 even with minor high tide is approaching two feet at some locations along the road.

The environmental center can use this information in their project proposal to show that placement of dredge material will likely need to happen multiple times after this initial placement to continue helping the marsh maintain its elevation. By including this information in their grant proposal, they can show how they are planning long term for this site.

Key Takeaways

- Access to the environmental center is currently threatened during various degrees of high tide flooding.
- Future projections show these conditions to increase 0.85 ft by 2030 and 1.56 ft by 2050 due to sea level rise, and continue to impact the access road.
- High tide flooding events, even minor, will exacerbate these conditions.
- The proposed project to elevate the marsh will improve the resilience of the surrounding marsh and maintain access to infrastructure.
- Flood visualizations and flood depth measurements can be visual aids to justify the project's urgency and design in grant applications.