

# Experimental Potential Coastal Flood Extent Overlays - Product Description Document (PDD) June 2022

## Part 1 - Mission Connection

a. **Background** - NWS Weather Forecast Offices (WFOs) along the U.S. east coast are currently using a regionally consistent Coastal Flood Webpage to provide impact-based services to coastal users. A significant aspect to these web pages is that the local NWS weather forecasts, in collaboration with local partners, have defined flood thresholds (Minor, Moderate, Major) at water level gauges (tide gauges) along the U.S. East Coast. This web display pulls together NOAA resources at the over 80 coastal gauge locations with daily water level forecasts from Eastern Region (ER) WFOs to enhance the communication of flood impacts.

Approximately three years ago, NOAA's Office of Coastal Management (OCM) and NWS ER started a collaborative, exploratory project to use the NOAA Digital Coast information combining that information/methodology with the coastal gauge Flood Category Thresholds established by NWS offices and partners to produce "Potential Coastal Flood Extent" layers. This Product Description Document (PDD) describes the Geographic Information System (GIS) services for the "Potential Coastal Flood Extent" layers.

**b. Purpose** – During the extratropical storm season, NWS stakeholders and partners need coastal flood scenario maps for effective decision making and planning. By implementing these "Potential Coastal Flood Extent" layers in the ER Coastal Flood Web pages, NWS partners and stakeholders will be able to visualize the areas that may be potentially impacted during coastal flood events - with the information coming from an authoritative source. While useful for planning the layers do not provide depth information and are not a dynamic forecast.

Stakeholders may use these layers in conjunction with the ER Total Water Forecast hydrographs relating water levels to potential impacts. The layers may be used with the coastal flood warnings (CFW text products) and WFOs may include this information in briefings to enhance impact-based decision support services (IDSS) briefings and communication.

c. **Audience** - The audience includes:

- emergency managers;

- water managers;
- stakeholders;
- NOAA, NWS, U.S. Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA); and
- other federal, state, and local government agencies, weather enterprise and the general public.

d. **Presentation Format** - The GIS services will be made available to various users via the ER Coastal Flood Web pages (<https://www.weather.gov/erh/coastalflood>) and/or briefings for local WFOs. Figure 1 below provides a sample of a using the layers with a coastal flood event hydrograph.

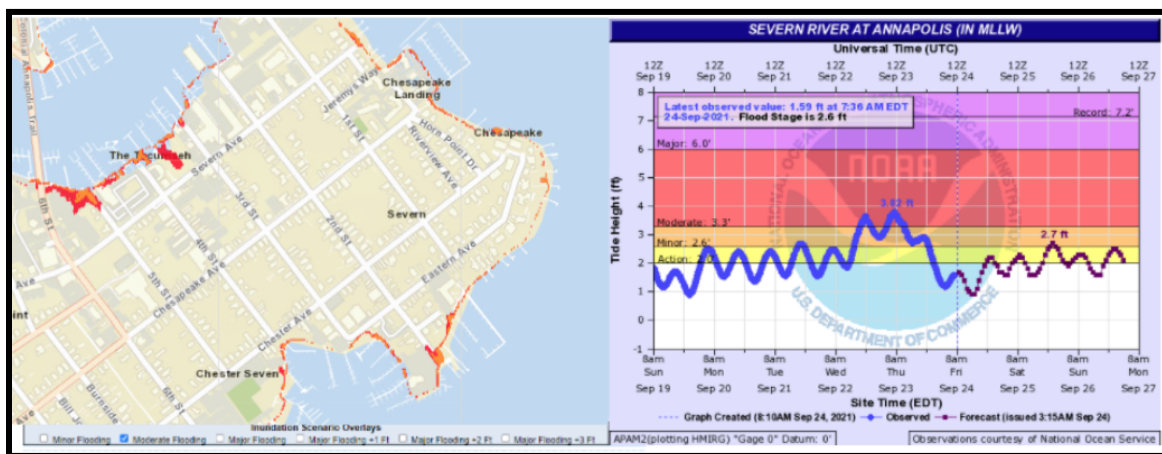


Figure 1. Depiction of the moderate “Potential Coastal Flood Extent” layer from September 23, 2021, along with the observed Advanced Hydrologic Prediction System (AHPS) hydrograph.

**Note:** When the “Potential Coastal Flood Extent” layers are selected, the user will see a popup box to read. The purpose of the popup is to ensure that users are directed to [www.hurricanes.gov](http://www.hurricanes.gov) for authoritative tropical season information and products.

e. **Feedback Method** - Users may provide feedback on this experimental GIS service via the NWS survey at: [https://www.surveymonkey.com/r/ExpPotentialCoastalFloodExtentOverlaysforER\\_2022](https://www.surveymonkey.com/r/ExpPotentialCoastalFloodExtentOverlaysforER_2022)

For additional questions or comments, please contact:  
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Policy questions regarding this experimental forecast product may be addressed to:

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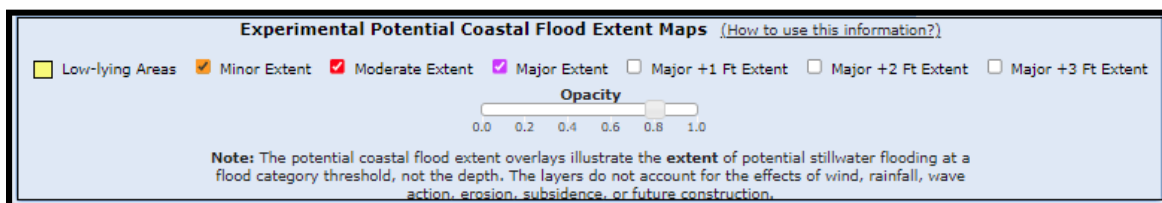
**Part II – Technical Description**

**a. Format and Science Basis** - This mapping methodology uses [NOAA’s Digital Coast](#) elevation data sets and methodologies along with the empirical tide gauge flood thresholds determined by the National Weather Service WFOs. The empirical flood category thresholds (Minor, Moderate, and Major) were developed by the WFOs in conjunction with local stakeholders and partners based on impacts. The category thresholds are also guided by [ER Coastal Flood Categories policy](#) and established in NWS Directive 10-950. The GIS layers are being provided by Office of Coastal Management’s (OCM’s) cloud Representational State Transfer (REST) services.

The layers will depict the potential extent of “wet” ground based on the threshold. Users should make note of other factors not included in the production of the layers. Users with low risk tolerance may want to look at several of the layers to plan for flood events. Table 1 provides a list of the developed layers as well as the symbology. Figure 2 provides an example of the layers with a map background.

Name	Color	Name	Color
Minor		Major+1 ft	
Moderate		Major+2 ft	
Major		Major+3 ft	
Low-Lying Areas			

**Table 1. “Potential Coastal Flood Extent” layers developed by OCM and ER.**



**Figure 2.** A sample of the Potential Coastal Flood Extent Layers in the Jamaica Bay area of Queens, NY. Low lying area layers (in yellow) - are turned on in this image. These layers represent areas of poor drainage, at or below category thresholds, that may also be flooded, but not directly from salt water sources (e.g., may be due to levees/sewer backups).

**b. Availability** of this experimental information will be via the [Eastern Regional Coastal Flood Web pages](#). The layers are being provided by OCM's cloud [REST services](#).