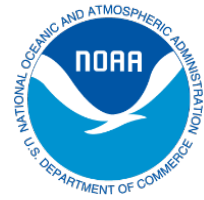


Exposure Data and Information



NOAA Office for Coastal Management
coast.noaa.gov/digitalcoast/tools/flood-exposure.html

These tables provide information on the data used in the Coastal Flood Exposure Mapper, map services available for use in ArcGIS Online or other online mapping platforms, and instructions on using map services within ArcGIS Online. You can [directly access all map services](#) as well.

Flood Hazards

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Coastal Flood Hazard Composite	Spatial extents of multiple flood hazard data sets combined. Flood hazard data sets include high tide flooding, Federal Emergency Management Agency (FEMA) flood data (V zones, A zones, and 500-year zones treated as individual layers), storm surge inundation for category 1, 2, and 3 hurricanes (from FEMA Hurricane Evacuation Studies), sea level rise scenarios for 1, 2, and 3 feet above mean higher high water (MHHW), tsunami run-up zones (where available*), and Great Lakes water levels for 1, 2, and 3 feet above long-term averages. *Tsunami run-up zones for the Atlantic Coast are not included in the composite due to incompatible resolution of the source data.	Coastal Flood Hazard Composite Map Service	Coastal Flood Exposure Mapper	Provides a quick visual assessment of areas most prone to flood hazard events.

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
High Tide Flooding	Areas that flood when coastal flood warning thresholds are exceeded. Derived from the flood frequency layer within the Sea Level Rise and Coastal Flooding Impacts Viewer.	High Tide Flooding Map Service	Sea Level Rise Viewer	Areas subject to high tide flooding.
FEMA Flood Zones	Flood zone data were developed with the best available digital flood data as of July 2020. Effective National Flood Hazard Layer (NFHL) data were used where available. Older digital flood data were used as supplements to NFHL where available.	FEMA Flood Zones Map Service	FEMA's Map Service Center	Areas at risk from flooding.
Storm Surge	Areas of near-worst-case storm surge flooding scenarios for coastal areas along the Gulf of Mexico, Continental U.S. Atlantic coasts, and select areas in the Caribbean and Pacific islands. Data were derived from storm surge inundation maps created by the National Hurricane Center (NHC) Storm Surge Unit with the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model.	Storm Surge Map Services	National Hurricane Program Center Storm Surge Unit	Areas at risk from storm surge.
Sea Level Rise	Sea level rise inundation scenarios ranging from zero to six feet above mean higher high water (MHHW).	Sea Level Rise Map Services	Sea Level Rise Viewer	Areas likely to be inundated by sea level rise.
Tsunami Inundation	Tsunami inundation zones modeled for states (East Coast and Hawaii) and U.S. territories.	Tsunami Map Service	National Tsunami Hazard Mitigation Program	Areas likely to be inundated by tsunamis.

Societal Exposure

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Population Density	<p>People per square mile. For Contiguous United States, Puerto Rico, and Hawaii – based upon 2014-2018 American Community Survey (ACS) 5-year estimates. Mapped to Census block groups. For U.S. territories in the Pacific and Caribbean – based upon 2010 Island Areas Census Summary Files. Mapped to Census block groups.</p>	<p>Population Density Map Service</p>	<p>Census ACS TIGER/Line Data</p>	<p>The more people living in areas exposed to hazards, the more potential there is for harm.</p>
Poverty	<p>Percent of population living below the poverty line. For Contiguous United States, Puerto Rico, and Hawaii – based upon 2014-2018 American Community Survey (ACS) 5-year estimates. Mapped to Census block groups. For U.S. territories in the Pacific and Caribbean – based upon 2010 Island Areas Census Summary Files. Mapped to Census block groups.</p> <p>Read more on defining poverty.</p>	<p>Poverty Map Service</p>	<p>Census ACS TIGER/Line Data</p>	<p>People who are living in poverty usually do not have adequate resources to prepare for or respond to hazards.</p>

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Elderly	Percent of population age 64 or older. For Contiguous United States, Puerto Rico, and Hawaii – based upon 2014-2018 American Community Survey (ACS) 5-year estimates. Mapped to Census block groups. For U.S. territories in the Pacific and Caribbean – based upon 2010 Island Areas Census Summary Files. Mapped to Census block groups.	Elderly Map Service	Census ACS TIGER/Line Data	Elderly may be more susceptible to hazard impacts because they often have limited mobility and continual medical and care needs.
Employees	Number of employees within an area. Data from Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW). Mapped to 2010 Census block groups.	Employees Map Service	Bureau of Labor Statistics	Some of the most devastating disaster impacts to a community include the loss of income associated with business interruption and the loss of jobs as a result of business closures. It is also important to know where people are located if a hazard event occurs during business hours.

Infrastructure Exposure

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Development	<p>For Contiguous United States – Development classes extracted from 2016 Coastal Change Analysis Program Regional land cover data, including high intensity (80-100 percent constructed materials), medium intensity (50-79 percent constructed materials), low intensity (21-49 percent constructed materials), and open space (less than 20 percent constructed materials) development. For U.S. territories in the Pacific and Caribbean – Impervious cover class (2) from Coastal Change Analysis Program high resolution land cover data (dates vary).</p>	<p>Development Map Service</p>	<p>Coastal Change Analysis Program Land Cover (C-CAP)</p>	<p>Development near areas likely to flood puts people in harm’s way and can lead to costly infrastructure repairs.</p>
Critical Facilities	<p>Points representing the locations of hospitals, law enforcement facilities, schools, and fire, or EMS stations extracted from the U.S. Geological Survey (USGS) Structures data set for The National Map. Data from Structures database downloaded in December 2020.</p>	<p>Critical Facilities Map Service</p>	<p>Structures Data Set The National Map</p>	<p>Critical facilities are lifelines for the community and need to be functional before, during, and after an event because of the services they provide (e.g., medical care, transportation.)</p>

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Development Changes	For Contiguous United States – Areas converted to development classes between 1996 and 2016. From Coastal Change Analysis Program Regional land cover data. For U.S. territories in the Pacific and Caribbean – areas converted from a non-impervious class to the impervious cover class between two different dates of land cover data (dates vary). From Coastal Change Analysis Program high resolution land cover data.	Development Changes Map Service	Coastal Change Analysis Program Land Cover (C-CAP)	Natural areas are often changed to developed areas, and this creates more exposure to hazards, increasing vulnerabilities.

Ecosystem Exposure

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Pollution Sources	Selection of facilities subject to regulation. Downloaded from U.S. Environmental Protection Agency’s Facility Registration Service (FRS) database in December 2020.	Pollution Sources Map Service	Facility Registration Service (FRS)	Pollution can be transferred during flood events, impacting natural areas and making them less resilient.

Name	Description	Get the Map Service	Access the Authoritative Source	Significance
Development	For Contiguous United States – Development classes extracted from 2016 Coastal Change Analysis Program Regional land cover data, including high intensity (80-100 percent constructed materials), medium intensity (50-79 percent constructed materials), low intensity (21-49 percent constructed materials), and open space (less than 20 percent constructed materials) development. For U.S. territories in the Pacific and Caribbean – Impervious cover class (2) from Coastal Change Analysis Program high resolution land cover data (dates vary).	Development Map Service	Coastal Change Analysis Program Land Cover (C-CAP)	Development adjacent to wetlands, beaches and dunes, and other natural areas and open space receives protection benefits during flood events.
Natural Areas and Open Space	Wetland classes include palustrine forested, palustrine scrub-shrub, palustrine emergent, estuarine forested, estuarine scrub-shrub, and estuarine emergent wetlands. Other natural areas and open space include forest (deciduous, evergreen, mixed), cultivated, pasture-hay, grassland, and scrub-shrub classes. Beaches and dunes were derived from extracting bare land and unconsolidated shore classes adjacent to coastal open water. For Contiguous United States, extracted from 2016 Coastal Change Analysis Program Regional land cover data. For U.S. territories in the Pacific and Caribbean, extracted from Coastal Change Analysis Program high resolution land cover data (dates vary).	Natural Areas and Open Space Map Service	Coastal Change Analysis Program Land Cover (C-CAP)	Natural areas and open spaces can be impacted during flooding events but can also provide protection to communities.