

## **FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) HAZUS - CRITICAL FACILITIES**

### **TABLE OF CONTENTS**

1. GEOGRAPHIC COVERAGE
2. REQUEST FOR ACKNOWLEDGEMENT
3. ABSTRACT
4. DATASET PARAMETERS
5. DATASET ANALYSIS AND MANIPULATIONS
6. DATA DESCRIPTION
7. GEOGRAPHIC AND SPATIAL INFORMATION
8. QUALITY CONTROL AND QUALITY ASSURANCE
9. DATA ACCESS AND DISTRIBUTION
10. TABLE OF ACRONYMS
11. CONTACT INFORMATION

### **GEOGRAPHIC COVERAGE**

#### **Coastal Shoreline Counties**

A county is considered a Coastal Shoreline County if it is directly adjacent to the open ocean, major estuaries, or the Great Lakes. These counties are considered to be most directly affected by issues pertaining to the coast. [Click here](#) for more information.

#### **Coastal Watershed Counties**

A county is considered a Coastal Watershed County if one of the following criteria is met: (1) at a minimum, 15 percent of the county's total land area is located within a coastal watershed or (2) a portion of, or an entire county accounts for at least 15 percent of a coastal watershed. The 15-percent rule was selected as an appropriate level for capturing counties with a significant impact on coastal and ocean resources. [Click here](#) for more information.

#### **Coastal States**

All states (30) that are directly adjacent to the open ocean or the Great Lakes, as well Washington DC, Puerto Rico, and US Virgin Islands.

#### **Coastal Portion of Coastal States**

A state by state aggregation of all Coastal Shoreline Counties (see definition above)

#### **Coastal Zone Boundaries**

The area contained within the Coastal Zone as defined by each state participating in the Coastal Zone Management Act (subject to change). For a complete description of the methods used by each state with a Coastal Zone Management Program see the [coastal zone definition for each state](#).

#### **FEMA Special Flood Hazard Area**

Areas subject to 1-percent annual chance (100-year) coastal floods as determined by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP). [Click here](#) for more information.

### **USGS 8-Digit Hydrologic Unit Code (HUC)**

USGS has subdivided hydrologic units into a series of successively smaller levels, with the 8-digit HUC as the smallest. The 8-digit HUC is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature, often referred to as a watershed (<http://water.usgs.gov/GIS/huc.html>).

### **National Estuary Research Reserve System (NERRS) Target Watersheds**

The [National Estuarine Research Reserve System](#) (NERRS) is a network of reserves dedicated to long-term research, monitoring, education and resource stewardship. Most NERRS units have delineated an associated target watershed that most directly impacts reserve. The remaining five NERRS units do not have a target watershed; they are: Kachemak Bay, Mission Aransas, Narragansett Bay, Waquoit Bay, and Lake Superior.

### **National Estuary Research Reserve System (NERRS) Large Watersheds**

For each of [National Estuarine Research Reserve System](#) (NERRS) units and their target watersheds (where applicable), large estuarine watersheds have been delineated using a flow analysis based on a 30-meter digital elevation model corresponding most closely to the boundaries of USGS 8-digit Hydrologic Unit Code (HUC) watersheds.

### **US EPA National Estuary Program Study Areas**

The mission of the [National Estuary Program](#) (NEP) is to protect and restore America's nationally significant estuaries. Each NEP has a designated study area and develops and implements a Comprehensive Conservation and Management Plan for that area. Each NEP has a single study area, with the exception of the Puget Sound NEP, which has divided its study area into seven sub-systems.

### **US EPA National Estuary Program Watersheds**

The [National Estuary Program](#) (NEP) has identified the estuarine and fluvial drainage areas associated with each of their program unit study areas. These larger watersheds were delineated so the NEPs can better understand pressures created upstream of their study areas, providing critical information to successfully implement their Comprehensive Conservation and Management Plans.

### **50-Mile Buffer Area from the Coastline**

The area within a 50 mile fixed-distance from the coastline.

### **Hurricane Prone Areas**

The American Society of Civil Engineers (ASCE) delineates hurricane prone areas of the eastern U.S. that are vulnerable to hurricane-force winds (90 mph or greater basic wind speed).

### **REQUEST FOR ACKNOWLEDGMENT**

NOAA requests that all individuals who download data acknowledge the source of these data in any reports, papers, or presentation. If you publish these data, please include a statement similar to: "Some or all of the data described in this article were produced by the U.S. National Oceanic and Atmospheric Administration, National Ocean Service.

## **ABSTRACT**

The critical facilities data came from FEMA's HAZUS database and represent available information circa 2011. A critical facility is defined as a structure that, if flooded, would present an immediate threat to life, public health, and safety. The data may not be exhaustive, more thorough data exist both nationally and at the local level. HAZUS breaks critical facilities into two groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications.

For STICS purposes, the lifeline inventory systems are also called critical facilities. In total, STICS has selected 18 systems or critical facilities to obtain counts of them in all of the STICS jurisdictions. In alphabetical order, these systems are:

Airport facilities, bus facilities, medical facilities, communication facilities, dams, electrical power facilities, emergency operation facilities, fire stations, hazardous material sites, highway bridges, oil systems facilities, police stations, port facilities, potable water facilities, railways facilities, railways bridges, schools, wastewater facilities.

For more information about the FEMA HAZUS Critical Facility Inventory and the Transportation and Utility Lifeline Inventory, refer to the [HAZUS](#) document (The ShakeOut Scenario - Supplemental Study) prepared by MMI engineering, Inc.

Many of the goals of those involved in environmental management and policy include finding the balance in the coexistence of natural ecosystems and human society, therefore a complete picture of the geographic patterns of human activity and its relationship to the coastal environment is needed. Critical facilities play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information and development planning helps communities get back on their feet.

### **Keywords**

socioeconomic, HAZUS, Critical Facilities, flooding

## **DATA ANALYSIS AND MANIPULATIONS**

The Critical Facilities data were obtained in several ESRI geo-database tables by State. A python script was developed to create a single national shapefile for each of the 18 critical facilities selected for STICS. An ESRI Model builder script was then developed to tag each of the 18 national critical facilities to each of the STICS jurisdictions. A SAS macro was then written to read the .dbf file of the shapefiles to obtain both the counts

of critical facilities on each of the STICS jurisdictions and to develop the final data tables.

## **QUALITY CONTROL AND QUALITY ASSURANCE**

Counts of certain critical facilities in certain counties were compared against similar counts found in Internet sites. The differences found were in the range of 0.5% difference.

All of the data reported in these data files met the QA specifications.

## **DATA ACCESS**

Data can be downloaded from the web at <http://csc.noaa.gov/digitalcoast/dataregistry/#/>

A full data dictionary can be found from the web at

[http://csc.noaa.gov/htdata/SocioEconomic/CriticalFacilities/CriticalFacilities\\_DataDictionary.pdf](http://csc.noaa.gov/htdata/SocioEconomic/CriticalFacilities/CriticalFacilities_DataDictionary.pdf)

## **CONTACT INFORMATION**

For more information, contact Jeffery Adkins at [jeff.adkins@noaa.gov](mailto:jeff.adkins@noaa.gov)