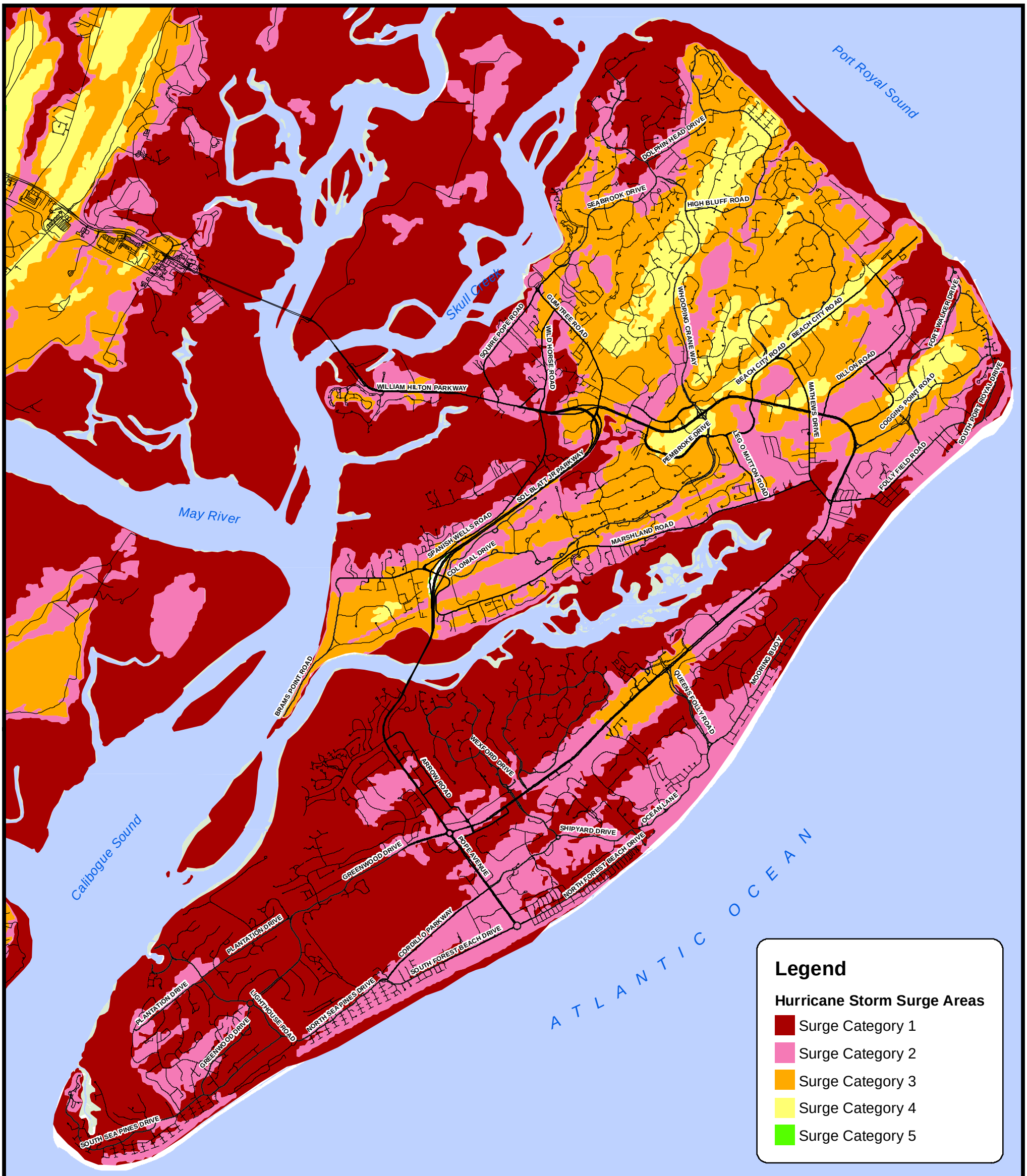

Purpose:

The purpose of this model is to provide maps of SLOSH-modeled heights of storm surge and extent of flood inundation, for various combinations of hurricane strength, forward speed of storm and direction of storm motion. Strength is modeled by use of the central pressure and storm eye size using the five categories of storm intensity developed by Saffir and Simpson. Seven storm-track headings and up to four forward speeds were selected as being representative of storm behavior in this region, on the basis of observations by forecasters at NOAA's National Hurricane Center.

This dataset summarizes surge calculations for the normal forward speed storms (05-15 mph) made using the SLOSH model initialized with observed values (depths of water and heights of terrain and barriers) in the in the South Carolina coastal region) centered on the Savannah, Georgia and Hilton Head, South Carolina area.

Storm surge is the abnormal rise in water level caused by wind and pressure forces of a hurricane. Storm surge produces most of the flood damage and drownings associated with tropical storms that make landfall or that closely approach a coastline. A numerical storm surge model developed by Jelesnianski (1967, 1972), Jelesnianski and Taylor (1973) and Jelesnianski et al (1984) has been applied to the Savannah-Hilton Head area of the Carolinas. The model calculates sea, lake and overland surges from hurricanes and has the acronym "SLOSH." It is a pairing of a model of a hurricane coupled to a model for storm surge.

The output for the Savannah/Hilton Head "SLOSH" model consists of maps of water heights. At each grid point, the water height is the maximum value that was computed at that point during the 72 (maximum) hours of model time. Thus, the map displays the highest water levels and does not display events at any particular instant in time. The analyzed envelopes of high water show shaded areas that represent dry land which has been inundated by water relative to mean sea level (MSL).

PLEASE NOTE:

Even if the model is supplied accurate data on storm positions, intensities and sizes, the computed surges may contain errors of ± 20% of observed water levels. These primarily stem from:
(1) Maps that are outdated: The maps which supplied heights of terrain and depths of water sometimes did not include changes, often man-made, that had been made to the heights and positions of barriers (e.g., highway and railway embankments) and depths and locations of channels. Inaccuracies of topography or bathymetry will contribute directly to errors in the modeling of all storm surges.
(2) Anomalous water heights: Sea level can be at an altitude different from "mean sea level," days or even weeks before a storm is actually affecting a basin. The value of the actual, local sea level--the "local datums" for pre-storm anomaly in the Atlantic Ocean--must be supplied to the model, before calculations are initiated.
(3) Local processes, such as waves, astronomical tides, rainfall and flooding from overflowing rivers: These processes are often included in "observations" of storm surge height, but are not surge and are not calculated by the SLOSH model. Factors such as the foregoing must be considered when comparisons are made between modeled and observed values of storm surge.

THE SURGE CATEGORIES ON THIS MAP ARE NOT DIRECTLY CORRELATED TO THE SAFFIR-SIMPSON HURRICANE WIND CATEGORIES.

TOWN OF HILTON HEAD ISLAND
ONE TOWN CENTER COURT
HILTON HEAD ISLAND, S.C. 29928
PHONE (843) 341 - 4600

Date Created: August 30, 2012

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Town of Hilton Head Island

Hurricane Storm Surge Areas

Source Data: 2011 SLOSH Model

3,100 1,550 0 3,100 Feet

1 inch = 5,000 feet

N W E S