

## NOTES TO USERS OF MISSISSIPPI'S HURRICANE KATRINA SURGE INUNDATION AND ADVISORY BASE FLOOD ELEVATION MAPS

**Preliminary Coastal High Water Marks (HWMs)** – Identified and surveyed in September and October 2005, using global positioning systems (GPS) methods with an accuracy of  $\pm 0.25$  feet vertically and  $\pm 10$  feet horizontally. Coastal HWMs included mud lines, water stains, debris, and eye witness testimony. Based upon the location and type, each HWM was classified as either “indoor” (I), “outdoor” (O), or “debris” (D). The field crews identifying the coastal HWMs attempted to identify storm surge elevations only, but in some cases, particularly for “outdoor” and “debris” HWMs, wave heights and runup may have been captured and were described as such in the database.

**Limit of Katrina Surge Inundation** – Created by mapping surveyed coastal HWMs to digital, pre-storm Light Detecting and Ranging (LIDAR) topographic data. Each HWM was analyzed using statistical methods to assess whether it matched the general trend of elevations in the immediate area. Those HWMs that did not pass this statistical test were not considered in the inundation-limit mapping. In addition, HWMs that were identified as having wave effects or were described to be of poor quality or have a low confidence were also excluded from the analysis. ***The mapped Katrina surge inundation limits, as well as the Estimated Katrina Surge Elevations range listed in the map title block, do not include wave effects.***

**Katrina Storm Surge Elevation Contours** (shown on regional Overview Map, [www.fema.gov/hazards/floods/recoverydata/pdf/katrina\\_ms\\_overview.pdf](http://www.fema.gov/hazards/floods/recoverydata/pdf/katrina_ms_overview.pdf)) – Interpreted from the surveyed coastal HWMs, as well as general knowledge of storm surge characteristics and National Oceanic and Atmospheric Administration (NOAA)'s Sea, Lake and Overland Surge from Hurricane (SLOSH) computer model output. Because of the inherent uncertainty and the random and irregular spacing of coastal HWMs, the surge contours required professional judgment in their creation, and represent a generalized picture of the maximum storm surge elevations. Therefore, there may be coastal HWMs that are higher or lower than the contour elevations if they did not fit the overall pattern.

**Advisory Base Flood Elevations (ABFEs)** – Estimated 1%-annual-chance (100-year) coastal flood levels, including waves. ABFEs are based on a frequency analysis of tide and storm water levels that updates the analysis used to create the existing Flood Insurance Rate Maps (FIRMs). This new analysis incorporates water levels measured during the 25+ years since the existing FIRMs were developed, including (but not limited to) the effects of Hurricane Katrina. The analysis establishes advisory 1%-annual-chance stillwater elevations (SWELs) or surge levels, but wave effects must be added to the SWELs to generate ABFEs that are comparable to the flood elevations shown on FIRMs. Based on these SWELs, the ABFEs are calculated as follows:

$$\text{ABFE} = \text{Advisory SWEL} + \text{Wave Height}$$

where **Wave Height** =  $\frac{1}{2}$  stillwater flooding depth (relative to the ground surface)

Two SWELs were developed for each county, one for open coast areas and one for back bay areas. The Advisory SWELs for each county are:

Hancock:	Open Coast:	20 feet	Harrison:	Open Coast:	18 feet	Jackson:	Open Coast:	14 feet
	Back Bay:	18 feet		Back Bay:	16 feet		Back Bay:	12 feet

ABFEs are the best-available coastal flood risk information to use during the reconstruction process until more detailed data are developed.

All elevations shown on the maps are relative to the North American Vertical Datum of 1988 (NAVD88).

**For a more detailed discussion of the methods used to prepare the Hurricane Katrina Surge Inundation and Advisory Base Flood Elevation Maps, please see the report titled, “Hurricane Katrina Surge Inundation and Advisory Base Flood Elevation Maps, Summary of Methods,” available at [www.fema.gov/hazards/floods/recoverydata/pdf/katrina\\_ms\\_methods.pdf](http://www.fema.gov/hazards/floods/recoverydata/pdf/katrina_ms_methods.pdf).**