STRENGTHENING NEW ORLEANS LEVEES FROM OVERTOPPING USING HIGH PERFORMANCE TURFGRASS REENFORCEMENT MATS

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During Hurricane Katrina levees throughout the New Orleans Metropolitan area were subject to erosion and thus failure from intense wave overtopping. To develop a stronger levee system, the United States Army Corps of Engineers supported research concerning wave overtopping at the Colorado State University (CSU) Wave Overtopping Test Facility in conjunction with the Louisiana State University Agricultural Center. Early tests focused on the ability of bermudagrass and bahiagrass vegetated slopes to withstand vary overtopping rates. It was found that grasses with robust root systems provided a high resistance to overtopping erosion while less dense vegetation with poorer rooting had reduced overtopping resistances. The second set of tests examined HPTRMs vegetated at lower canopy coverages and rooting parameters. It was found that HPTRMs could increase higher overtopping resistances compared to vegetation alone. As a result of this research, five HPTRMs mat from differing manufacturers were evaluated at specific vegetative parameters to determine suitability for application in the USACE New Orleans District. Three HPTRMs were found to be suitable. Beginning Spring 2015, the USACE will armouring ~80 miles of levees at a cost of ~$300 million using one of three HPTRM products vegetated with bermudagrass sod.