The capacity of coastal wetlands to stabilize shorelines and reduce erosion is a critical ecosystem service, and it is uncertain how changes in dominant vegetation may affect coastal protection. As part of a long-term study comparing ecosystem functions of marsh and black mangrove vegetation, we have experimentally maintained marsh and black mangrove patches (3 m x 3 m) along a plot-level (24 m x 42 m) gradient of marsh and mangrove cover in coastal wetlands near Port Aransas, Texas. In August 2017, this experiment was directly in the path of Hurricane Harvey, a Category 4 storm. This extreme disturbance event provided an opportunity to quantify differences in resistance between mangrove and marsh vegetation, and the recovery trajectories following the storm. We collected data on changes in plant cover and height from 2014-2019.