AERIAL MAPPING OF MARSH DIEBACK IN SALINE MARSHES IN THE BARATARIA-TERREBONNE BASINS

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An aerial survey of saline marshes was conducted in the Barataria-Terrebonne basins in southeast Louisiana in August 2000. The objective of the survey was to determine the location and severity of the brown marsh dieback and to map areas with the most severe vegetative damage. This survey was conducted from a 206 Bell Jet Ranger helicopter using techniques developed over the last 30 years while conducting similar vegetation surveys. Transects flown were oriented in a north-south direction and spaced 1.87 miles (3 km) apart. Sample stations were located at a spacing of 0.5 miles (.8 km) along these transects. The saline marshes surveyed were located between Four League Bay in the west and the Mississippi River in the east. The transects extended from large bays or the Gulf of Mexico on the south end, north through the saline marsh zone into the lower portion of the brackish marsh zone. Navigation along these transects and to each station was accomplished using a Trimble Global Positioning System (GPS) receiver (Ag 122) with differential correction and ArcView/GPSView software on a ruggedized laptop computer with a daylight readable screen. At each sample station, dominant vegetation was identified and classified using a color index, developed by Tommy Michot, U.S. Geological Survey, as an indicator of vegetation condition. The classification green indicated normal plant appearance. The classification green/brown indicated the presence of some brown (stressed plants). The classification brown/green indicated more stressed plants than normal plants. The classification brown indicated all plants appeared stressed and the classification brown lodged indicated one of several conditions: widely spaced brown plants, short brown/black plant stubble, or exposed soil. The data were entered, compiled, and analyzed at the USGS National Wetlands Research Center. Results indicated that in both basins combined, 35% of the stations were classified as normal (green), 38% were classified as moderately stressed (green/brown and brown/green), and 27% were classified as severely stressed (brown and brown lodged). The estimated area in each category was 137,655 acres with normal vegetation, 145,935 acres with moderate

vegetation damage, and 105,570 acres with severe vegetation damage. The GPS logged areas (most severely damaged) were located primarily in the Terrebonne Basin. These data provided decision makers and researchers with quantitative and spatial information to assist in planning short and long-term data collection, monitoring, and potential remediation.