

Personnel at the Underwater Archaeology Unit of the Division of Archives and History at Kure Beach, North Carolina were contacted for shipwreck data associated with Bogue Inlet and the White Oak River area. TAR personnel also contacted and interviewed area archaeologists and other individuals knowledgeable in maritime history and shipwreck research to solicit their assistance in generating wreck data.

Remote Sensing Survey

Field investigation of the study areas was designed to accomplish two major research goals. The first was to employ magnetic and acoustic remote sensing equipment to identify anomalies with signature characteristics similar to those previously demonstrated to be associated with historically significant submerged cultural resources. The second objective was to assess each target signature and identify those that required avoidance procedures and those that could be dismissed as indicative of modern debris. To accomplish these objectives, TAR personnel collected data with a proton precession magnetometer and a 600 kHz side scan sonar.

Working from 24-foot and 20-foot survey vessels, TAR personnel collected magnetic data with an 866 Geometrics proton precession magnetometer capable of plus or minus 0.1 gamma resolution. To produce the most comprehensive magnetic record the sensor was deployed approximately 30 feet aft of the GPS antenna and maintained in the water column at a depth of 5 to 10 feet above the bottom surface. In shoal areas, the sensor was mounted on a spar off the bow of the survey vessel. Magnetic data was recorded as a data file associated with the computer navigation system and contour plotted using QUICKSURF[®] computer software to facilitate anomaly location and definition of target signature characteristics. Acoustic data was collected using a 600 kHz Marine Sonics digital side scan sonar. The side scan sonar transducer was towed just below the water surface approximately 3 feet aft and 6 feet to starboard of the differential antenna. Lane spacing during the survey was maintained at 50 feet and vessel speed at 3 to 4 knots to ensure sufficient data would be available to locate any potentially significant targets in the survey areas.

During the survey, positioning and lane spacing were maintained with a Furuno GP-35 differential global positioning system [DGPS] interfaced with a Compaq 500mhz laptop computer. Navigation was controlled and data recorded by Coastal Oceanographics HYPACK[®]Max Navigation software. This navigation system affords a positioning accuracy of plus/minus 3 feet. The positioning system was preset with a layback and data generated was correlated to magnetometer and sonar records by annotations to facilitate target location and anomaly analysis. Annotations included lane number, date and target identification. At the completion of the general survey, significant anomalies identified during the magnetometer survey were re-surveyed using a lane spacing of 20 feet to help in target analysis and interpretation. All data were plotted to North Carolina State Plane Transverse Mercator Coordinate System, East Zone, NAD 83.