Data Acquisition and Processing Report
OPR-J376-NRT1-04

NOAA Launch 1211 & 3001, Navigation Response Team 1
Mark J. McMann – Lead Hydrographer

A. Equipment

HYPACK MAX was used for on-line data acquisition. Caris 5.4 was used for data processing, and MapInfo Professional, were used to support processing and plotting.
The Trimble Pathfinder DGPS Backpack was used for collecting and processing the ENC high accuracy position data. The NOS program Velocity, and MS Word were also used during this survey.

NOAA launches 1211 and 3001 are 27-foot SeaArk's with drafts of 0.5 meters, used to collect all survey data. There were no unusual vessel configurations or problems encountered with the vessels.

Two Klein 3000 side scan sonar systems were used throughout this survey. The side scan sonar equipment was used to conduct dual beam surveying and investigate AWOIS items using NOAA launches 1211 and 3001. The system frequencies used were 100 & 500 kHz. The recorder was set on one of either 50/75/100-meter range scales. The confidence checks were performed daily at 100kHz.

An Innerspace model 455 Fathometer S/N 193 and an Odom Echosounder S/N 23005, were used to collect all echo soundings on this survey. A standard lead line calibrated in meters, was used during this survey for depth comparison checks with the echo sounder. No problems were encountered with any of the sounding equipment.

B. Quality Control

Survey data for single beam and side scan sonar Hydrography was transferred to a removable hard drive on the launch and entered into the post processing system in the Office trailer. Data is check scanned and edited through Caris software.

The High accuracy DGPS positions for ENC (Electronic Navigational Chart) are transferred to Trimble Pathfinder Office software on the post processing system in the Office trailer. The data points are then plotted via MapInfo and processed into shape files for MCD. The data upon completion is posted on the FTP site for the Navigation Response Branch.

NOAA Remote Sensing Division provides the Chart Evaluation File (CEF) to the NRT. This file contains polygons for the NRT to make visual investigations and record field notes and recommendations for the digital shoreline compiler at RSD. This file on completion is returned

to RSD for placement in the Shoreline Update Notice (SUN) for cartographers at MCD in Raster and ENC work environments. The fieldwork conducted by the NRT is submitted as "Information Only" and does not require processing at the Marine Center.

Coverage of 200% was obtained in the required survey areas and AWOIS items where water depth and/or hazards permitted. Side scan sonar coverage was conducted to the 12-foot depth curve and single beam reduced line spacing was performed in other areas where warranted. The towfish was deployed off the starboard quarter of the vessel, which proved very stable. Distorted images caused by strong tidal currents were seen periodically.

C. Corrections to Echo Soundings

The instruments used for determining corrections for the speed of sound through the water column was a Seabird-Seacat Velocity Profiler, model 19-03, S/N 192276-287 and two Odom Hydrographic Digibar Pro's S/N 98294 and S/N 98510. The manufacturer calibrates these units once a year. The last Calibration was conducted on April 10, 2005. Data quality assurance tests were performed after each cast. Program VELOCITY was used for computing the correctors.

The lead line for launches 1211 and 3001 were calibrated using a steel tape on April 18, 2005 (DN: 108). No corrections were necessary. A static draft of 0.5 meters was applied to the sounding plots by the HPS REAPPLY program. The draft was measured by subtracting the difference from a punch mark on the side of launches 1211 and 3001, 0.6 m above the transducer, to the water surface.

Settlement and squat measurements for launch 1211 were taken on April 18, 2005 (DN: 108). These measurements were conducted in Pascagoula, MS using the level method. Settlement and squat correctors were applied to the sounding plots using the Caris program.

There are no heave pitch and roll sensors on Launch 1211 and 3001.

Field soundings are corrected by unverified actual heights from NOAA/CO-OPS.
The Real Time Actual 6 min Tides are downloaded from:
"http://co-ops.nos.noaa.gov/data_res.html", for all gauges required in the given projects defined by the ZDF file provided in the project letter, and instruction. Tide values are downloaded in blocks of data that covers the Times of Hydrography, and saved in a text file format. The MapInfo program is then used with the "HYDRO_MI" pre-Survey function, of "Create Cowlis", this function converts the text file into a Caris tide file (.tid).

Values and correctors were applied at the perspective locations of Hydrography from the Port Instructions.