Data Acquisition and Processing Report
OPR-~~G443~~*G381*-NRT2-06

NOAA Launch 1210, Navigation Response Team 2
David B. Elliott – Lead Hydrographer

A. Equipment

The following sections describe major operational systems used to acquire survey data or control survey operations:

HYPACK MAX was used for on-line data acquisition. Caris 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 launch 1210, a 27-foot SeaArk with a draft of 0.5 meters, was used to collect all survey data. The vessel DGPS was calibrated weekly to a known GPS reference point. There were no unusual vessel configurations or problems encountered with the vessel.

An ODOM EchotracCV Fathometer, Ser # 23031 was 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.

A Klein 3000 side scan sonar system was used throughout this survey. The Model # 3110 TPU (Topside Processing Unit) Ser# 315 and Model # 3210 Towfish Ser# 414 are part of this system. The side scan sonar equipment was used to conduct dual beam surveying and investigate AWOIS items. The system frequency used was 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.

A Trimble DGPS Beacon Receiver (S/N 0220261525) was used as the primary navigation station on launch 1210.

A Trimble Pathfinder ProXRS (S/N 0224010201) and antenna (S/N 0220170250) were used for all ENC high accuracy positioning and establishment of calibration points.

The instrument used for determining corrections for the speed of sound through the water column was a Seabird-Seacat Velocity Profiler, model 19-03, Ser# 198671-1477 and an ODOM Digibar Ser # 98295-020606 .

NOAA / NRB / NRT-2
Survey Acquisition Software:

SW Name	ver	SP/HF/Patches	Active Date Begins
Hypack	4.3	4.3.55.0	Dec 2005
Sonar Pro	9.6	None	Dec 2005
TerraSync	2.41	None	Dec 2005
EchoTrac CV	3.20	None	Jan 2006

NOAA / NRB / NRT-2
Survey Processing Software:

SW Name	ver	SP/HF/Patches	Active Date Begins
Caris Hips/Sips	5.6	SP-1/HF-14	Feb 2006
Pydro	5.9.4	None	Dec 2005
Hypack	4.3	4.3.55.0	Dec 2005
Velocity	8.77	None	Dec 2005
Digibar Pro	2.3	None	Dec 2005
SBE Data Processing	5.27a	None	Dec 2005
SBE Seaterm	1.30	None	Dec 2005
Pathfinder Ofc.	3.00	None	Dec 2005
MapInfo Pro	8.0	SP 1	Oct 2005
Hydro MI	5.11.1	None	Nov 2005
Vertical Mapper	3.1	None	Oct 2005
KapConv	5.7.3	None	Oct 2005
Chart Reprojector	2.0.2a	None	Dec 2005

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.

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.

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.

C. Corrections to Echo Soundings

The instrument used for determining corrections for the speed of sound through the water column was a Seabird-Seacat Velocity Profiler, model 19-03, S/N 198671-1477. The manufacturer calibrates this unit once a year. The last Calibration was conducted on Dec. 05, 2005. Data quality assurance tests were performed after each cast. Program VELOCITY was used for computing the correctors.

The secondary velocity probe was a ODOM Digibar Ser # 98295-020606. This unit was used for the dual cast technique to insure data quality. The manufacturer calibrates this unit once a year. The last Calibration was conducted on Feb. 06, 2006. Data quality assurance tests were performed after each cast. Program VELOCITY was used for computing the correctors.

The lead line for launch 1210 was calibrated using a steel tape on Feb. 1, 2006 (DN: 032). No corrections were necessary.

A static draft of 0.5 meters was entered into the Caris vessel configuration file for Launch 1210. The draft was measured by subtracting the difference from a punch mark on the side of launch 1210, 0.6 meter above the transducer, to the water surface.

Settlement and squat measurements for launch 1210 were taken on Feb. 1, 2006 (DN: 032). These measurements were conducted in Brunswick, GA using the level method. Settlement and squat correctors were entered into the Caris vessel configuration file for Launch 1210. There are no heave pitch and roll sensors on Launch 1210.

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.

E. APPROVAL SHEET

Data Acquisition and Processing Report

OPR-G443-NRT2-06
And Accompanying Surveys
For Calendar year 2006

The Data Acquisition and Processing Report information and all accompanying records and data are approved.

Submitted by:

David B. Elliott - Team Leader
Navigation Response Team 2