

F00800

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: F00800

LOCALITY

State(s): Texas

General Locality: Galveston Bay

Sub-locality: Entrance to Galveston Bay

2020

CHIEF OF PARTY
Dan Jacobs

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

F00800

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State(s): **Texas**

General Locality: **Galveston Bay**

Sub-Locality: **Entrance to Galveston Bay**

Scale: **10000**

Dates of Survey: **02/14/2020 to 02/14/2020**

Instructions Dated: **02/13/2020**

Project Number: **S-K924-NRT4-20**

Field Unit: **NOAA Navigation Response Team 4**

Chief of Party: **Dan Jacobs**

Soundings by: **Multibeam Echo Sounder**

Imagery by:

Verification by: **Pacific Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

Any revisions to the Descriptive Report (DR) applied during office processing are shown in red italic text. The DR is maintained as a field unit product, therefore all information and recommendations within this report are considered preliminary unless otherwise noted. The final disposition of survey data is represented in the NOAA nautical chart products. All pertinent records for this survey are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>. Products created during office processing were generated in NAD83 UTM 15N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

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Descriptive Report to Accompany Survey F00800

Project: S-K924-NRT4-20

Locality: Galveston Bay

Sublocality: Entrance to Galveston Bay

Scale: 1:10000

February 2020 - February 2020

NOAA Navigation Response Team 4

Chief of Party: Dan Jacobs

A. Area Surveyed

The USCG reported a 16.5 ft depth at the position 29° 20.481'N and 094° 42.825'W near the Galveston Bay Entrance. NRT4 was assigned to develop the shoal area at that location.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 20' 39.56" N 94° 43' 5.66" W	29° 20' 19.36" N 94° 42' 33.81" W

Table 1: Survey Limits

The USCG has requested an OCS hydrographic survey in the Entrance to Galveston Bay near the G"9" buoy. The USCG is reporting a 16.5 ft. depth at the position of 29° 20.481'N and 094° 42.825'W, where a 26 ft. charted sounding is. The USCG is concerned that there may be shoaling in this area. NRT4 is assigned to develop the shoal area is this location. Survey data from this project is intended to supersede all prior survey data in the common area.

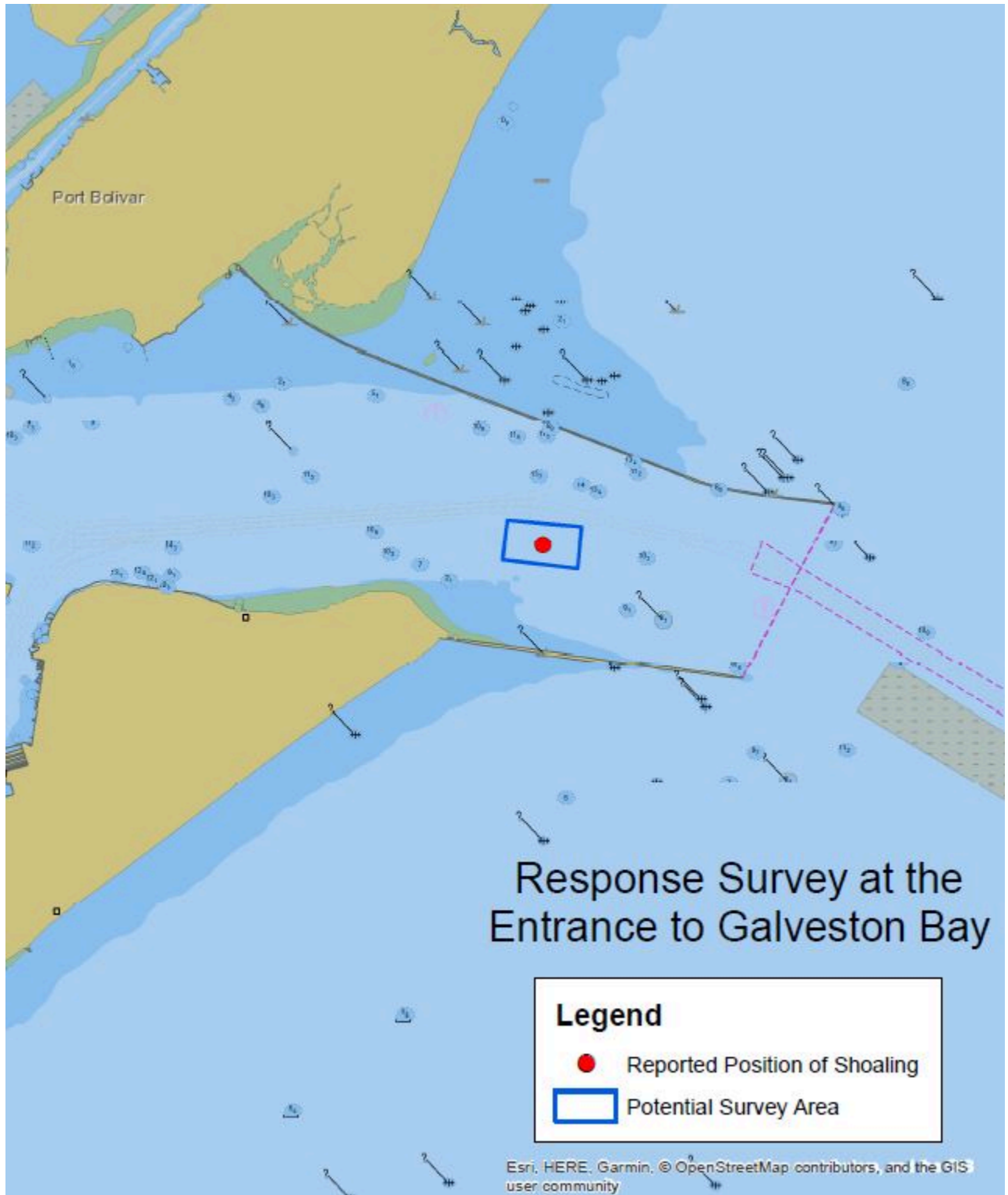


Figure 1: Survey Limits, Galveston Bay Entrance. Blue polygon is survey limits.

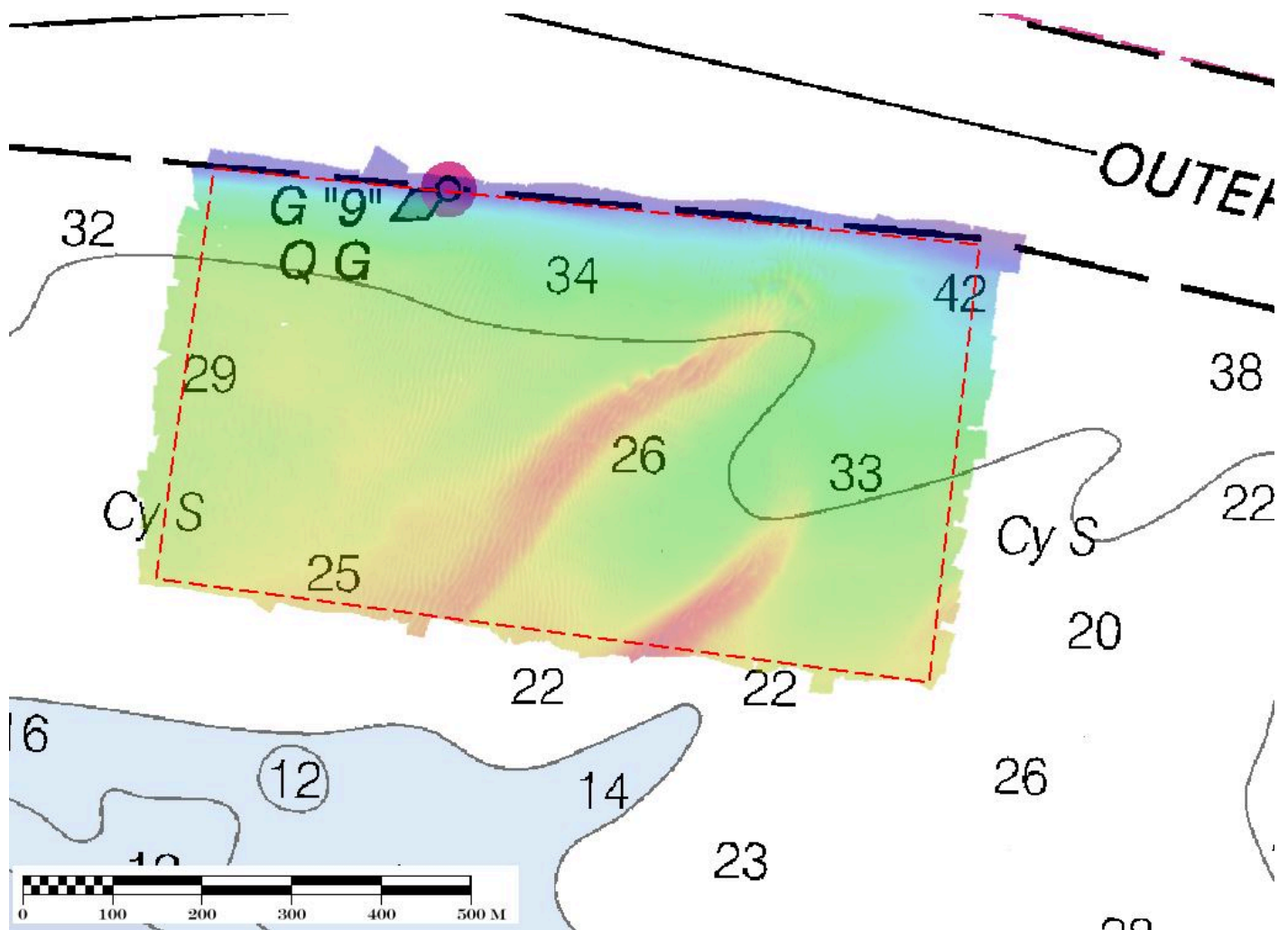


Figure 2: Survey limits (red dashed line) and Complete MBES Coverage, NOAA Chart 11324.

A.2 Survey Purpose

The USCG has requested for OCS to do a hydrographic survey in the Entrance to Galveston Bay near the G'9' buoy. The USCG is reporting a 16.5 ft. depth at the position of 29° 20.481'N and 094° 42.825'W, where a 26 ft. charted sounding is. The USCG is concerned that there may be shoaling in this area. NRT4 is assigned to develop the shoal area in this location. Survey data from this project is intended to supersede all prior survey data in the common area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

The entire survey is adequate to supersede previous data. Complete coverage was attained IAW project instructions and HSSD Section 5.2.2.3.

A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions:

Water Depth	Coverage Required
-------------	-------------------

Table 2: Survey Coverage

1 holiday existed at 29-20.540893N 094-43.030851W. Its approximately 18 meters square.

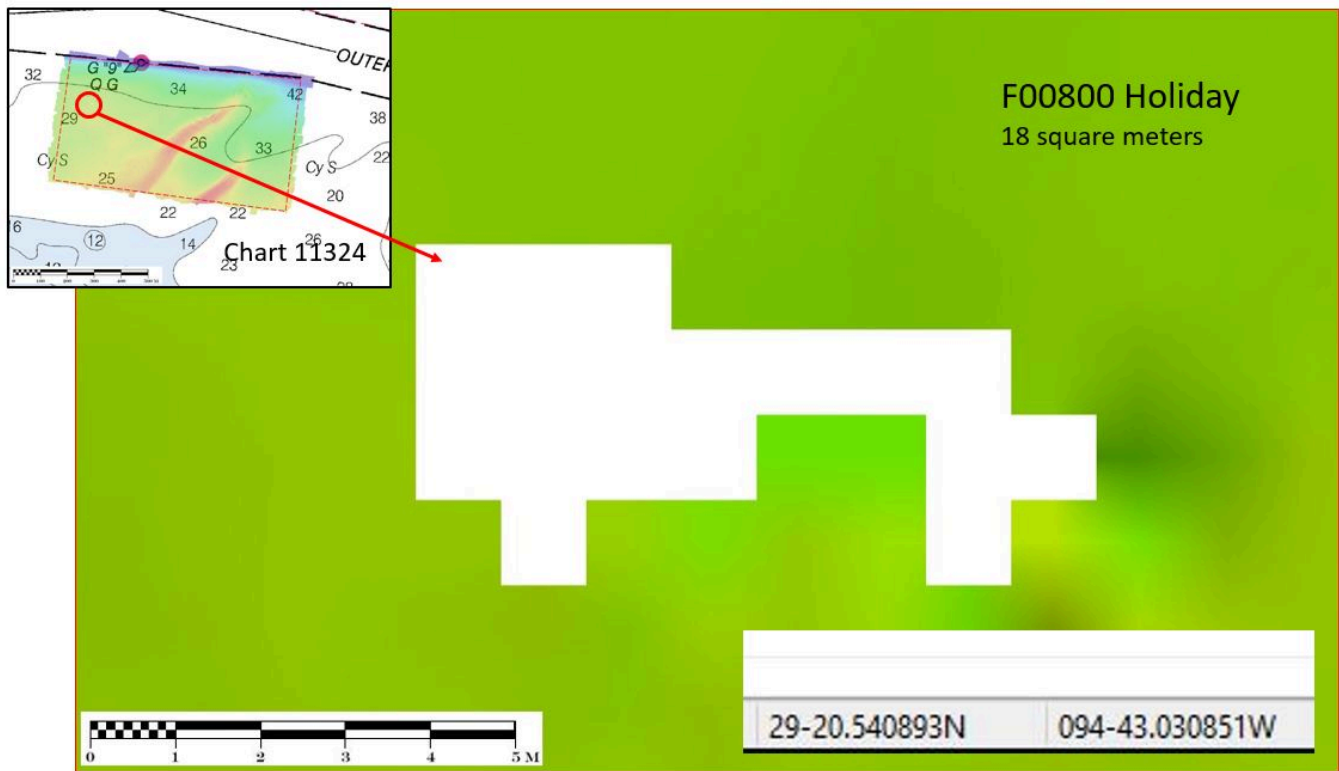
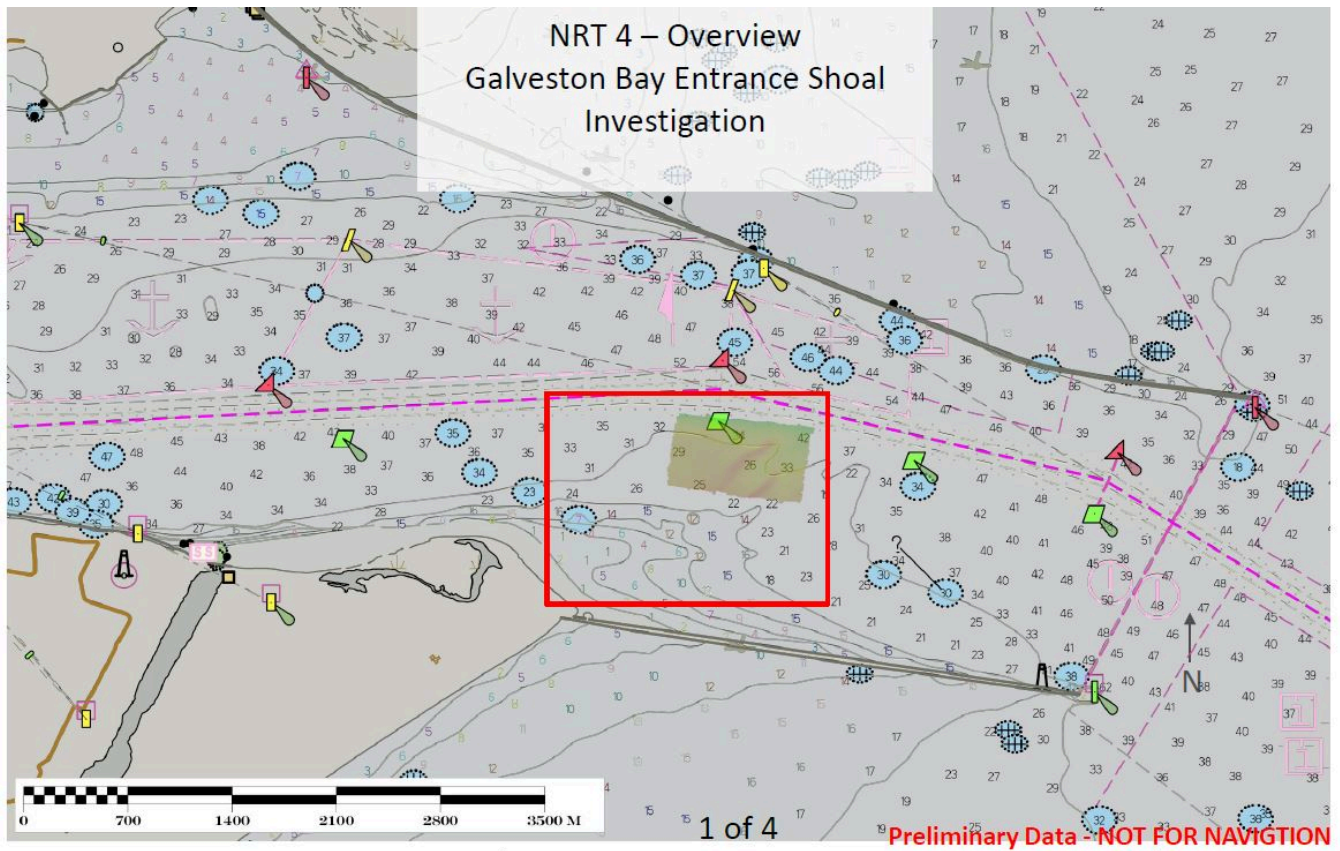


Figure 3: F00800 Holiday



NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project: S-K924-NRT4-20
Survey: F00800
State: Texas
Locality: Galveston
Sublocality: Galveston Bay
Survey Scale: 1:10000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
ENC Number: US5TX53
ENC Edition: 2020-01-30

NOAA NRT 4
D. Jacobs
Team Lead

Survey Date:
14/02/2020

Figure 4: Overview, F00800 Survey Coverage onto ENC US5TX53M.

A.6 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	<i>S3008</i>	<i>Total</i>
LNM	SBES Mainscheme	0	0
	MBES Mainscheme	16.4	16.4
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	0	0
	SBES/MBES Crosslines	1.11	1.11
	Lidar Crosslines	0	0
Number of Bottom Samples			0
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			0.14

Table 3: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
02/14/2020	45

Table 4: Dates of Hydrography

Survey dates occurred on DN045, Friday, February 14th, 2020. The project area was sized appropriately for a quick response survey as NRT4 staffing challenges precluded a larger project.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	<i>S3008</i>
LOA	10.5 meters
Draft	0.5 meters

Table 5: Vessels Used



Figure 5: NOAA S3008

NOAA Survey Vessel S3008 is a 30 foot, aluminum hulled fire boat modified for NOAA hydrographic survey operations. Its powered by dual 225 horsepower Honda outboard engines. A Kohler 7.5 EKD generator supplies AC power for two workstations, 5 monitors, one POS system, one multibeam echo sounder system, and one side scan sonar system.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Kongsberg Maritime	EM 2040C	MBES

Table 6: Major Systems Used



Figure 6: Kongsberg EM2040C Multibeam Echo Sounder

The Kongsberg EM2040C system is a digital recording multibeam echo sounder which is capable of operating at 200kHz, 300kHz, 400kHz, or in a Frequency Modulation (FM) Chirp. The system is comprised of a receiver unit that is hull mounted, a Hydrographic Work Station (HWS), and a Processor Unit (PU). The EM2040C is operated through Seafloor Information System (SIS) software; version 4.3.2. The EM2040C is used to acquire full and partial bottom bathymetric coverage throughout a survey area to determine least

depths over critical items such as wrecks, obstructions, dangers-to-navigation, and general object detection. The maximum depth range for a single head system in cold ocean water is 520 m at 200 kHz with a swath width up to 580 m. The angular coverage for 200 to 320 kHz is 130° with one sonar head, allowing coverage 4.3 times water depth. For frequencies above 320 kHz the angular coverage per head is gradually decreasing to 70° at 400 kHz. The nadir beam width is 1° x 1° at 400 kHz. The system has a maximum ping rate of 50 Hz with 400 soundings per ping.

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 6.77% of mainscheme acquisition.

Per 2019 HSSD paragraph 5.2.4.2 lineal mileage of crosslines exceeded 4 percent of main scheme mileage. 16.4 LNM of mainscheme survey lines were collected for F00800. Four MBES crosslines totaling 1.11 LNM were acquired at the end of DN045 totaling 6.7 percent of MBES mainscheme acquisition. A 1 meter crossline surface was compared to a 1 meter mainscheme surface invoking the Pydro Compare Surfaces script. The two surfaces were in excellent agreement with each other as 99 percent of the nodes passed the allowable error fraction. The analysis was performed on MBES data reduced to MLLW using ellipsoidally referenced RTX SBET methods. Please reference the folder named Crossline_Comparisons for all analysis outputs. See graphics, below.

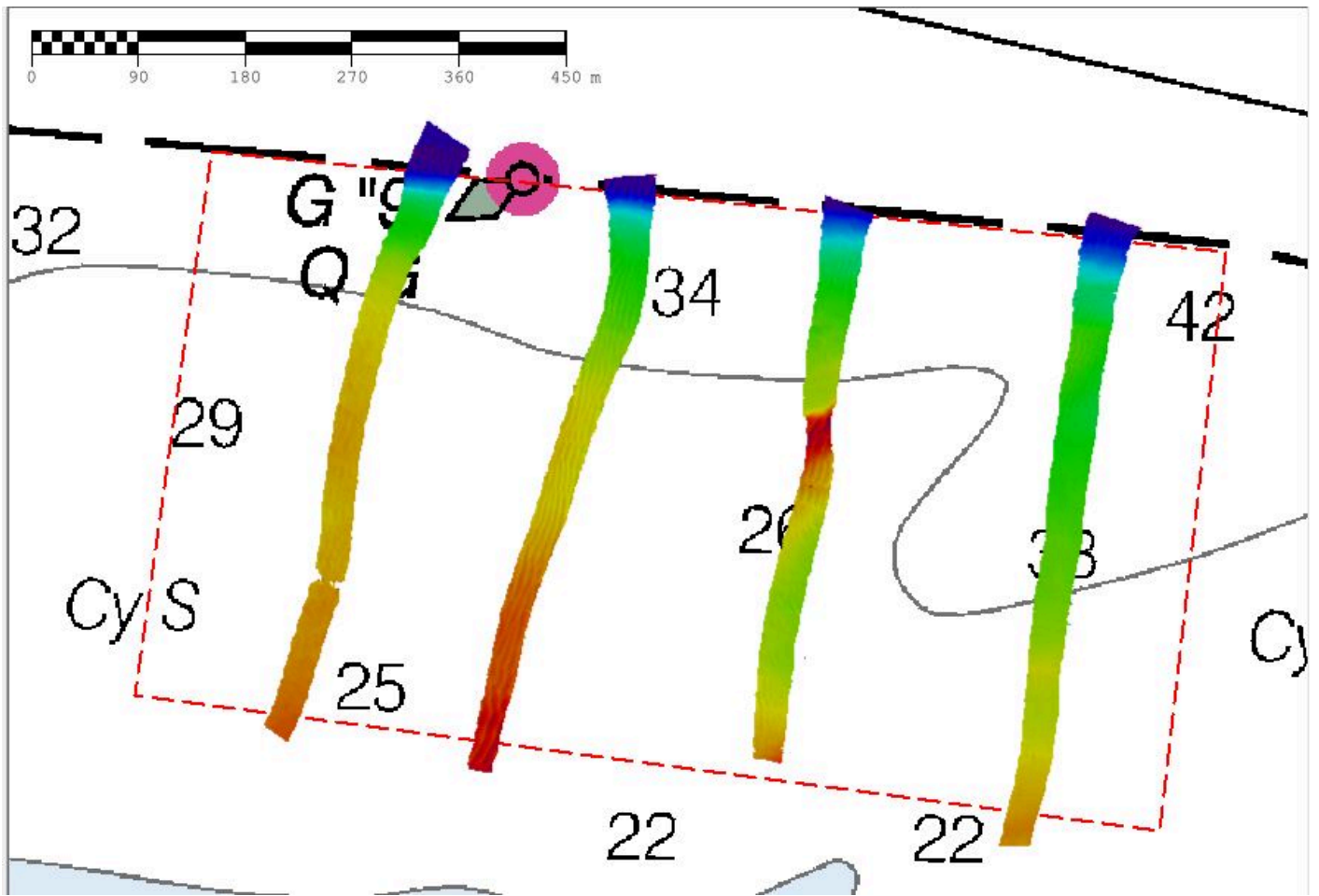


Figure 7: F00800 Crossline Coverage, 1m Surface.

Comparison Distribution

Per Grid: F00800_MB_1m_MLLW_Crosslines_Only-F00800_MB_1m_MLLW_MainScheme_Only_fracAllowErr.csar

99.5+% nodes pass (58237), min=0.00, mode=0.01 mean=0.04 max=4.86

Percentiles: 2.5%=0.00, Q1=0.01, median=0.03, Q3=0.04, 97.5%=0.13

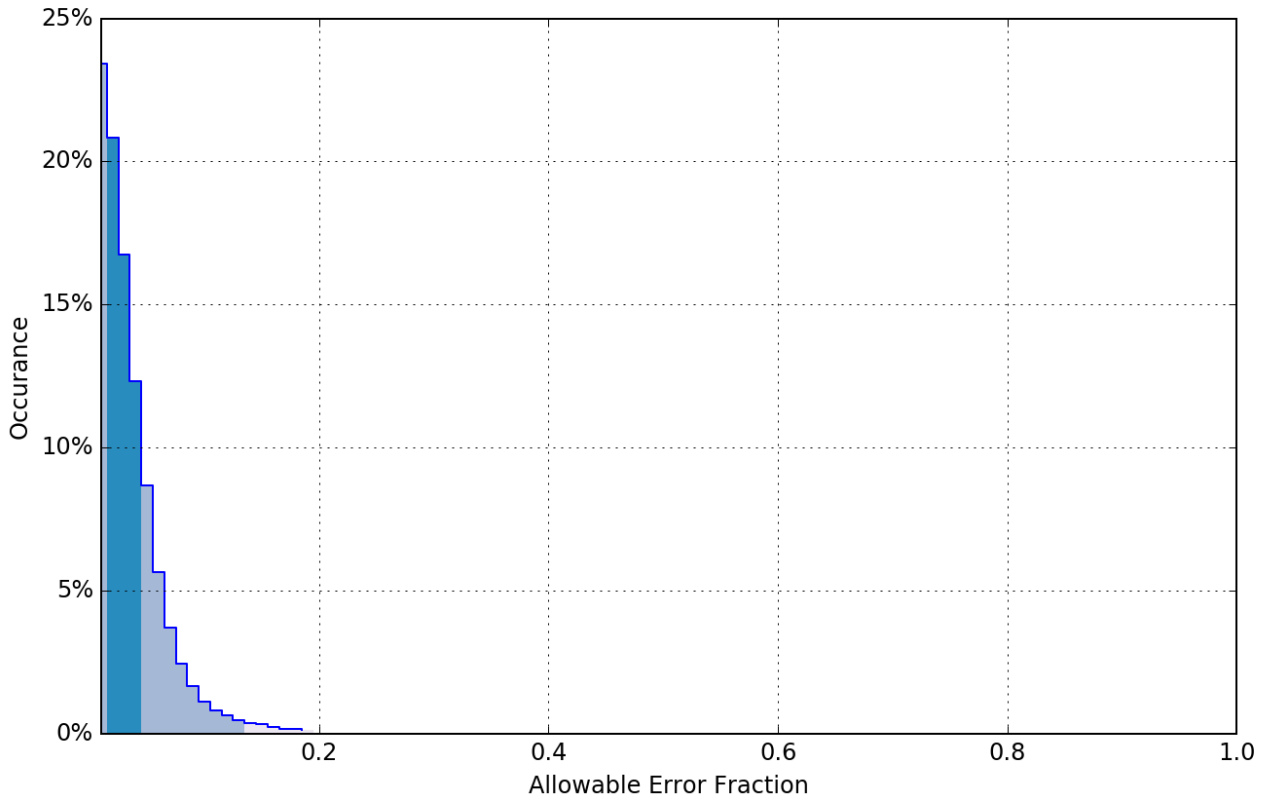


Figure 8: F00800 Crossline Coverage, 99 percent nodes pass allowable error fraction.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.126 meters	0 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Measured - XBT	Surface
S3008	4 meters/second	0 meters/second	0 meters/second	0.5 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

Per HSSD paragraph 5.2.3.6 the factors associated with this uncertainty estimate include (1) the ability to accurately measure sound speed or calculate sound speed from temperature, conductivity and pressure, (2) the spatial and temporal changes of sound speed throughout the survey area and (3) how the sound speed profile is used to convert measured time to depth. Commonly reported values range between 0.3 and 4 m/s.

B.2.3 Junctions

No junctions were assigned for S-K924-NRT4-20.

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

Kongsberg swath angle reduced.

Kongsberg swath angles were reduced from 65 degrees port and 65 degrees starboard to 55 degrees port and 55 degrees starboard in Kongsberg's Seafloor Information System (SIS) software. The reduction in swath angle was on account of noisy bubble sweep artifacts generated by wind waves. S3008 hull design with respect to MBES sonar location exacerbate such artifacts. Hull design modifications are being investigated by NRB/HSTB to mitigate the issue.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound speed cast frequency for F00800 was not less than 1 cast per every four hours of survey.

Cast frequency was 1 cast per every four hours of survey. Two casts were taken on the survey day, DN045.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter was not acquired for this survey.

During review, backscatter data was found to have been logged to the MBES .ALL files. NOAA's Navigation Response Branch field units are waived from producing backscatter mosaics for the 2020 field season. A backscatter mosaic was created during review.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: Version 5.7: CARIS_Support_Files_5_8.

Version 5.7: CARIS_Support_Files_5_8 was released on 05/17/2018. It updated the support files with the new version 5.8. Additionally, it modified environment and added the "hsdrec" attribute.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
F00800_MB_1m_MLLW_Final	CARIS Raster Surface (CUBE)	1 meters	4.75 meters - 16.26 meters	NOAA_1m	Complete MBES
F00800_MB_1m_MLLW	CARIS Raster Surface (CUBE)	1 meters	4.75 meters - 16.26 meters	NOAA_1m	Complete MBES

Table 9: Submitted Surfaces

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

ERS Datum Transformation

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	S-K924-NRT4-20_VDatum_10m_NAD83-MLLW_geoid12b

Table 10: ERS method and SEP file

The vertical datum for this project is Mean Lower Low Water. The vertical control method used was VDatum. The vertical uncertainty for this project is Mean Lower Low Water (MLLW). Soundings were reduced from NAD83 to MLLW using Vdatum file "S-K924_VDatum_10m_NAD83-MLLW_geoid12b.csar" located in the survey "Water_Levels" folder. The vertical uncertainty for this model was 12.5595cm. This value was applied in Charlene v3.1.5.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 15.

D. Results and Recommendations

D.1 Chart Comparison

Survey soundings with depths within 3 feet of charted (11324) depths were deemed to be acceptable taking into account sand waves and hydro dynamics in this constricted entrance area. All charted soundings on ENC US5TX53M and Raster 11324 are within two feet of survey soundings. However, shoaling trends are occurring in two regions, between charting soundings. Charted (11324) depths between 25-26 feet were surveyed at 19 to 21 feet. Likewise, charted (11324) depths between 22 to 26 feet were surveyed at 15 and 20. The shoaling is not deemed a danger to navigation (Dton) as vessel traffic bearing drafts greater than 12 feet do not occur outside of the shipping channel. Graphic of the shoals, below.

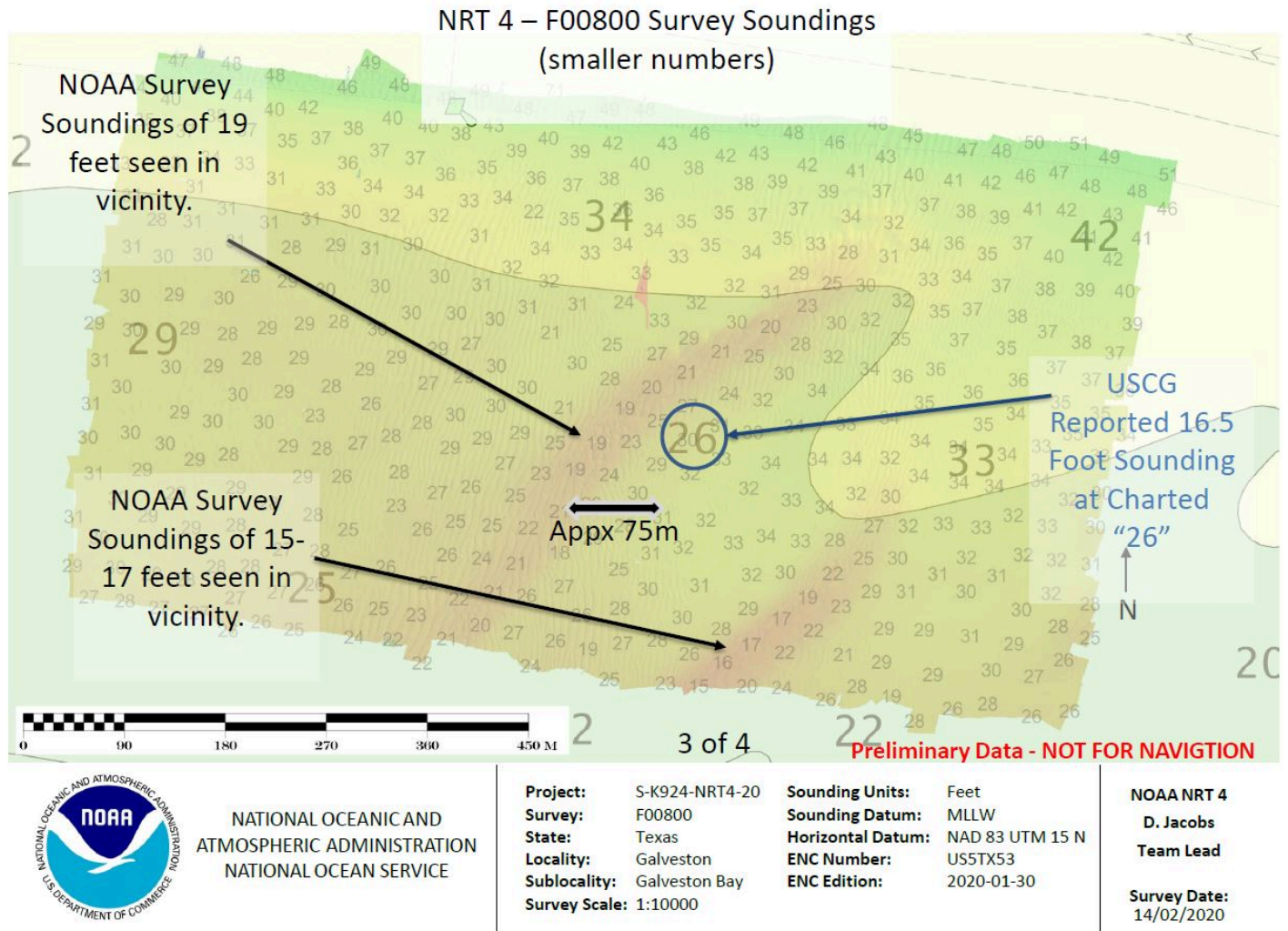


Figure 9: Shoaling occurring between ENC US5TX53M soundings.

D.1.1 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5TX53M	1:10000	58	11/05/2019	01/30/2020	NO

Table 11: Largest Scale ENCs

US5TX53M

Shoaling trends are occurring in two regions inside of the sheet limits, between charting soundings. Charted (11324) depths between 25-26 feet were surveyed at 19 to 21 feet. Likewise, charted (11324) depths between 22 to 26 feet were surveyed at 15 and 20. The shoaling is not deemed a danger to navigation (DtoN) as vessel traffic bearing drafts greater than 12 feet do not occur outside of the shipping channel. Graphic shown below. Graphics were provided to Western Gulf Navigation Manager, Chief NRB, Project Manager of NRB and crew member LTJG Collin Walker. See project correspondence folder for specific communication. A USCG Local Notice to Mariners chart correction was issued for Week 8 subsequent to the discovery of the shoaling and the discovery of a non-DtoN obstruction on 17FEB2020. See "Uncharted Features" section of this descriptive report for additional information about this obstruction.

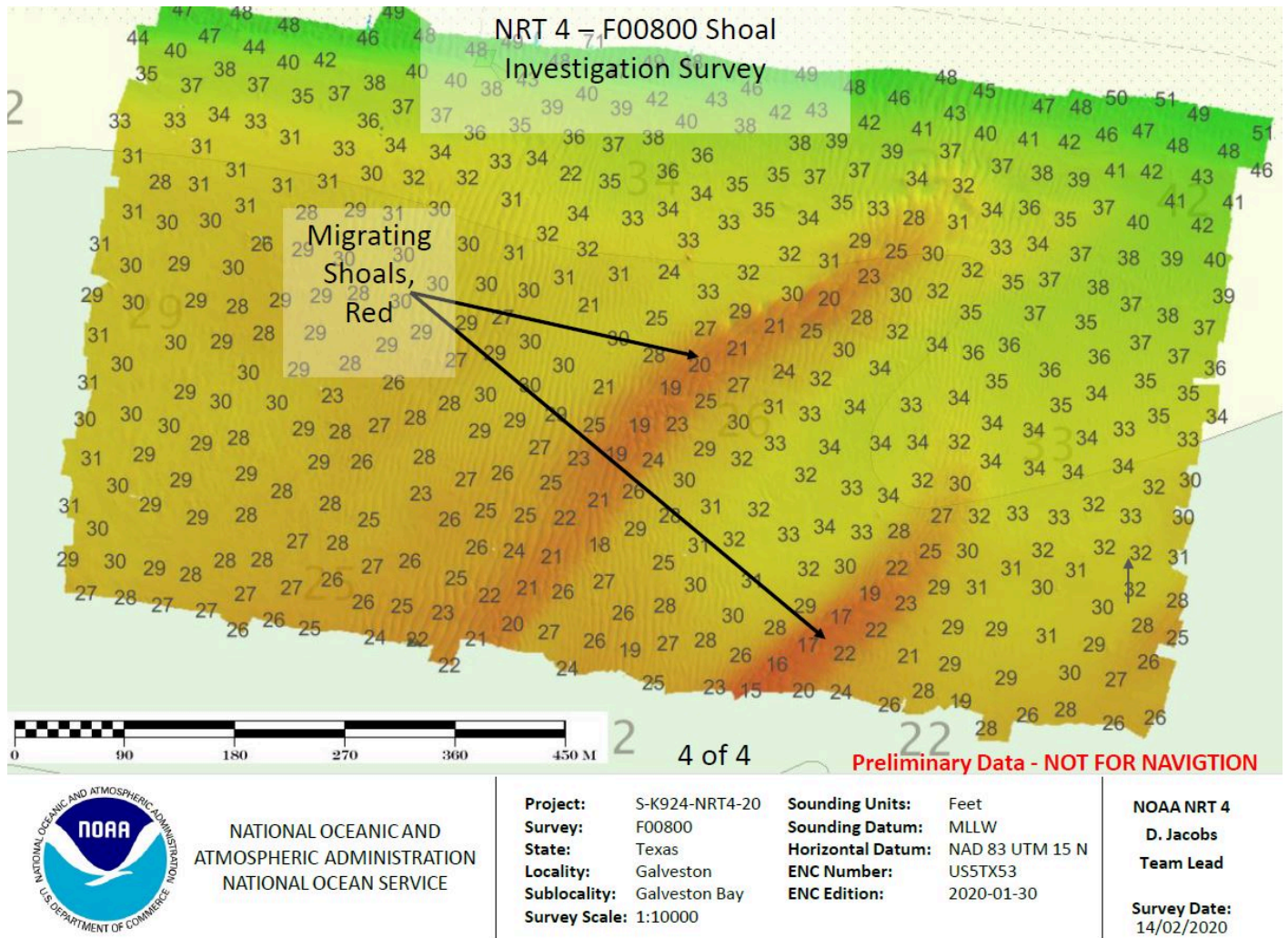


Figure 10: Shoaling in two places, ENC US5TX53M. Migrating shoals are reddish color on the 1 meter grid. Survey soundings in feet shown atop of survey grid.



U.S. Department
of Homeland Security
**United States
Coast Guard**

LOCAL NOTICE TO MARINERS

District 8 GULF

Week: 08/20

8TH DISTRICT LOCAL NOTICE TO MARINERS
GULF OF MEXICO
Econfinia River, FL to the Rio Grande, TX
LIGHT LIST VOLUME IV
NOTICE NUMBER 08/20
February 26, 2020

References: COMDTPUB P16502.4, Vol. IV, 2020 Edition and Coast Pilot 5.
Both publications, along with corrections, are available for download at:
<https://nauticalcharts.noaa.gov/publications/coast-pilot/index.html>
https://www.navcen.uscg.gov/pdf/lightLists/LightList_V4_2020.pdf

COAST GUARD DISTRICT 8, WATERWAYS, (504) 671-2327, 7:00 a.m. until 3:30 p.m. (CST)
NIS WATCHSTANDER PHONE (703) 313-5900 24-HOURS A DAY

INTERNET ADDRESS [HTTPS://www.navcen.uscg.gov](https://www.navcen.uscg.gov)
COMMENTS REGARDING SECTION VI - PROPOSED CHANGES MAY ALSO BE EMAILED TO: LocalNoticeFeedback@uscg.mil
GULF OF MEXICO LNM VIA INTERNET <https://www.navcen.uscg.gov/pageName=lnmDistrict®ion=8&ext=g>

BROADCAST NOTICE TO MARINERS COVERED IN THIS EDITION

ORIGINATING UNIT	BEGINNING BNMS		ENDING BNMS
CCGD8	BNM 0013 - 20 (D8)	THROUGH	BNM 0019 - 20 (D8)
SECTOR MOBILE (MO)	BNM 0099 - 20 (MO)		BNM 0112 - 20 (MO)
SECTOR NEW ORLEANS (NO)	BNM 0097 - 20 (NO)		BNM 0105 - 20 (NO)
SECTOR HOUSTON-GALVESTON (GA)	BNM 0091 - 20 (GA)		BNM 0108 - 20 (GA)
SECTOR CORPUS CHRISTI (CC)	BNM 0058 - 20 (CC)		BNM 0064 - 20 (CC)

11324 40th Ed. 01-MAR-17 Last LNM: 04/20 NAD 83 08/20
 ChartTitle: Galveston Bay Entrance Galveston and Texas City Harbors
 Main Panel 185 GALVESTON BAY ENTRANCE GALVESTON & TEXAS CITY HRBRS --. Page/Side: -
 ADD Symbol: "Submerged Obstruction (PA)" (CGD8 003-20) CGD08 29-20-28.800N 094-42-49.500W

Figure 11: Local Notice to Mariners, chart correction entry, Week 8, 2020.

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

No charted PA, ED, PD, or Rep features exist for this survey.

D.1.4 Uncharted Features

A sunken obstruction was discovered on 17FEB2020 during the cleaning phase of F00800. Conferring with USCG SFO Galveston, the object is thought to be Buoy "9" from a time not specified. The object is located at 29.-20.4878N 094-42.7612W with a height of 1.55 meters. Its least depth is 24 feet with a length of approximately 6 meters. Please reference the pdf entitled "Re_ USCG Report, Charted Depth Galveston" for additional information pertaining to this new object. A USCG Local Notice to Mariners

chart correction was issued for Week 8 subsequent to the discovery of the shoaling and the discovery of a non-DtoN obstruction on 17FEB2020. See "Uncharted Features" section of this descriptive report for additional information about this obstruction.

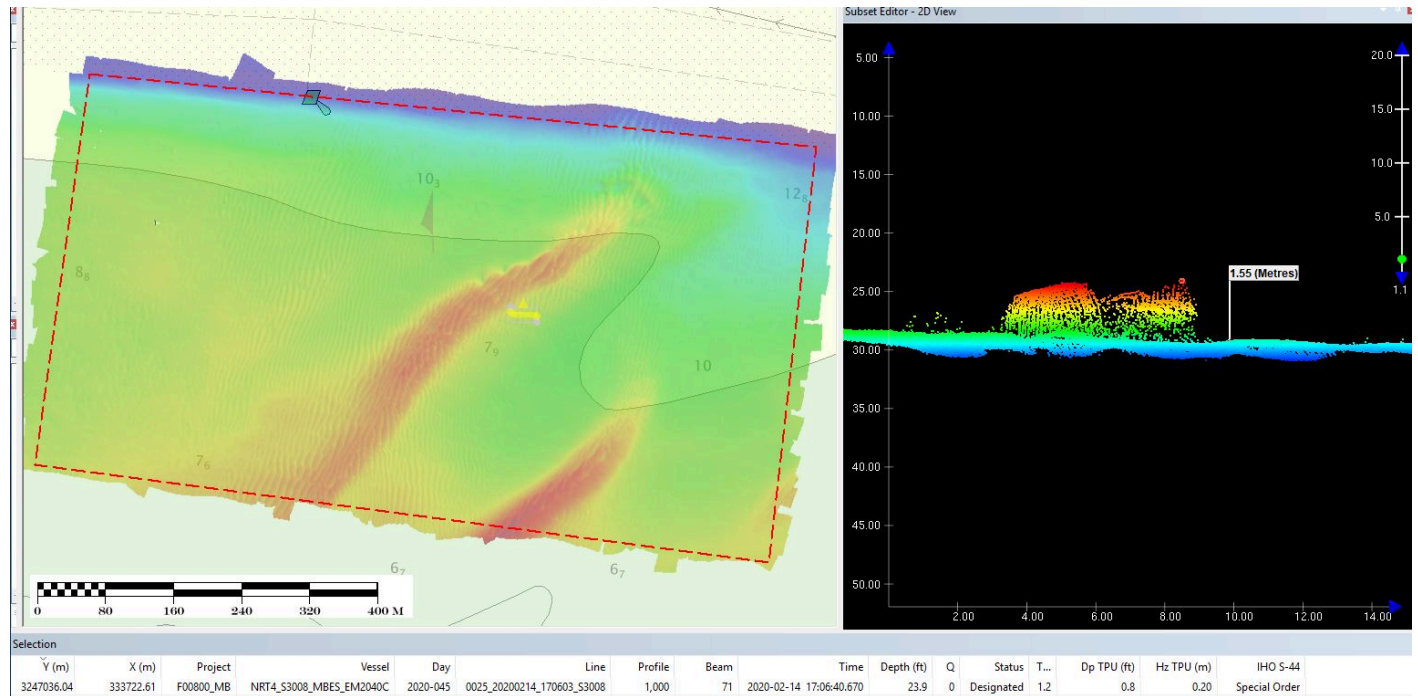


Figure 12: Non DtoN object seen in F00800 1 meter Bathy, 2D.

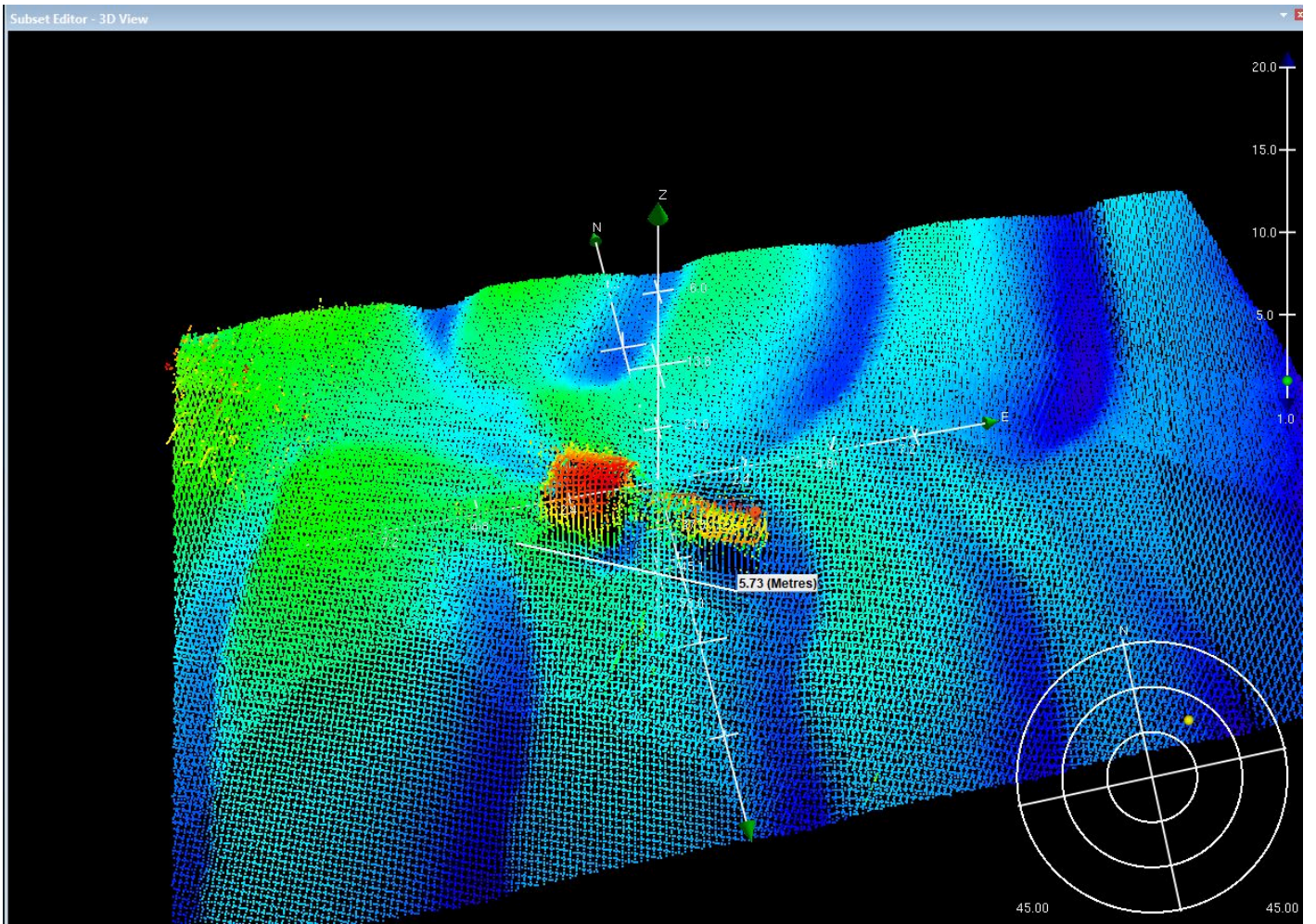


Figure 13: Non DtoN object seen in F00800 1 meter Bathy, 3D.



U.S. Department
of Homeland Security
**United States
Coast Guard**

LOCAL NOTICE TO MARINERS

District 8 GULF

Week: 08/20

8TH DISTRICT LOCAL NOTICE TO MARINERS
GULF OF MEXICO
Econfina River, FL to the Rio Grande, TX
LIGHT LIST VOLUME IV
NOTICE NUMBER 08/20
February 26, 2020

References: COMDTPUB P16502.4, Vol. IV, 2020 Edition and Coast Pilot 5.
Both publications, along with corrections, are available for download at:
<https://nauticalcharts.noaa.gov/publications/coast-pilot/index.html>
https://www.navcen.uscg.gov/pdf/lightLists/LightList_V4_2020.pdf

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INTERNET ADDRESS: [HTTPS://www.navcen.uscg.gov](https://www.navcen.uscg.gov)
COMMENTS REGARDING SECTION VI - PROPOSED CHANGES MAY ALSO BE EMAILED TO: LocalNoticeFeedback@uscg.mil
GULF OF MEXICO LNM VIA INTERNET <https://www.navcen.uscg.gov/-/pageName=lnmDistrict®ion=8&ext=g>

BROADCAST NOTICE TO MARINERS COVERED IN THIS EDITION

ORIGINATING UNIT	BEGINNING BNMS		ENDING BNMS
CCGD8	BNM 0013 - 20 (D8)		BNM 0019 - 20 (D8)
SECTOR MOBILE (MO)	BNM 0099 - 20 (MO)	THROUGH	BNM 0112 - 20 (MO)
SECTOR NEW ORLEANS (NO)	BNM 0097 - 20 (NO)		BNM 0105 - 20 (NO)
SECTOR HOUSTON-GALVESTON (GA)	BNM 0091 - 20 (GA)		BNM 0108 - 20 (GA)
SECTOR CORPUS CHRISTI (CC)	BNM 0058 - 20 (CC)		BNM 0064 - 20 (CC)

11324 40th Ed. 01-MAR-17 Last LNM: 04/20 NAD 83 08/20
 ChartTitle: Galveston Bay Entrance Galveston and Texas City Harbors
 Main Panel 185 GALVESTON BAY ENTRANCE GALVESTON & TEXAS CITY HRBRS --. Page/Side: -
 ADD Symbol: "Submerged Obstruction (PA)" (CGD8 003-20) CGD08 29-20-28.800N 094-42-49.500W

Figure 14: Local Notice to Mariners, chart correction entry, Week 8, 2020.

D.1.5 Shoal and Hazardous Features

Shoals discovered were discussed at the beginning of D.1 of this report.

D.1.6 Channels

No channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines within the survey limits.

D.1.7 Bottom Samples

No bottom samples were required for this survey.

D.2 Additional Results

D.2.1 Shoreline

Shoreline was not assigned in the Hydrographic Survey Project Instructions or Statement of Work.

D.2.2 Aids to Navigation

Galveston Entrance Buoy "9" resided on the edge of survey F00800. It was observed to be on station and serving its intended purpose. See the project's final feature file for additional information.

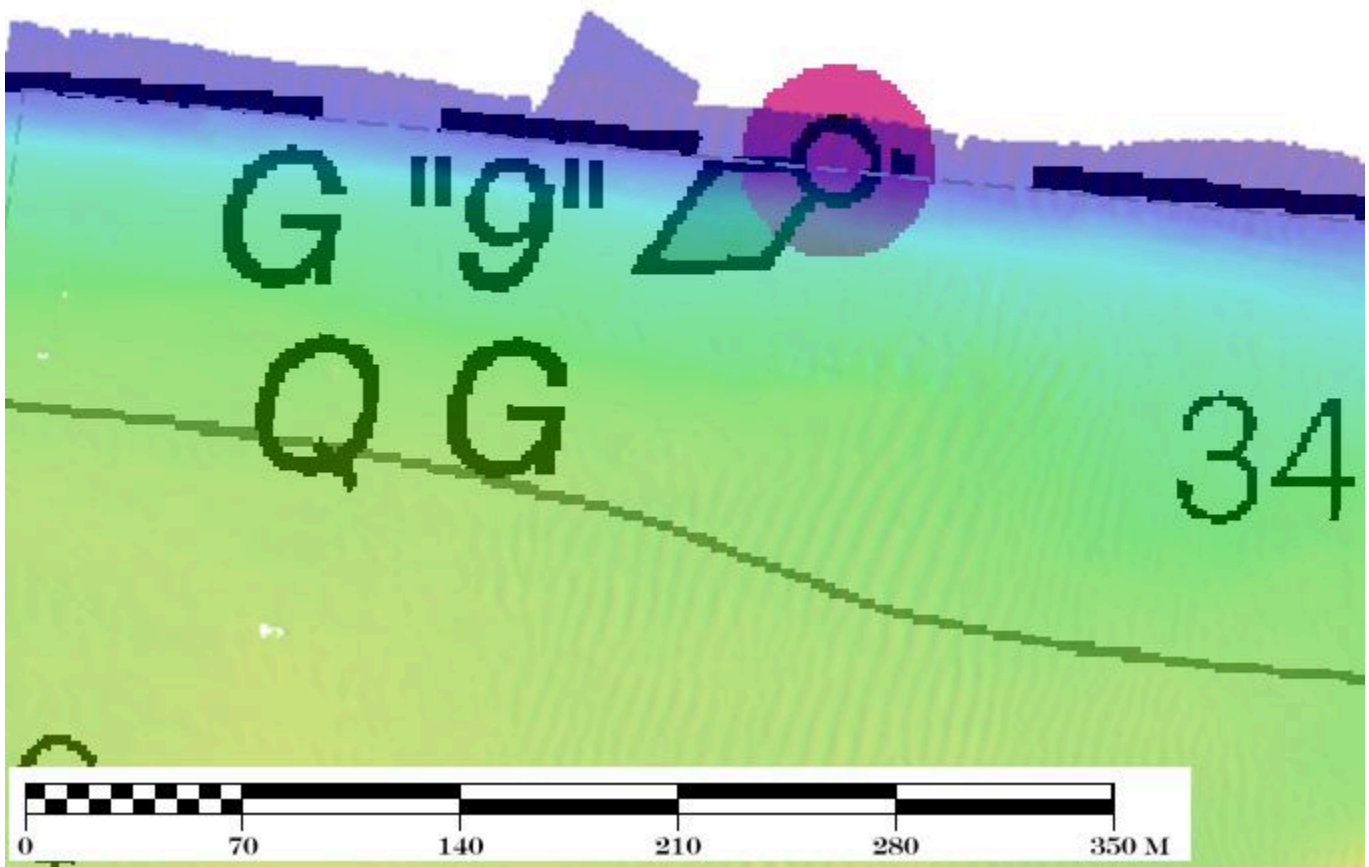


Figure 15: Buoy "9" observed to be on station and serving its intended purpose.

D.2.3 Overhead Features

No overhead features exist for this survey.

D.2.4 Submarine Features

No submarine features exist for this survey.

D.2.5 Platforms

No platforms exist for this survey.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

No abnormal seafloor and/or environmental conditions exist for this survey.

D.2.8 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

D.2.9 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.10 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys Specifications and Deliverables, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
Dan Jacobs	Chief of Party	02/26/2020	JACOBS.DAN.L.1151633478 Digitally signed by JACOBS.DAN.L.1151633478 Date: 2020.02.27 15:24:53 -06'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continuously Operating Reference Station
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERTDM	Ellipsoidally Referenced Tidal Datum Model
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division

Acronym	Definition
HSSD	Hydrographic Survey Specifications and Deliverables
HSTB	Hydrographic Systems Technology Branch
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Linear Nautical Miles
MBAB	Multibeam Echosounder Acoustic Backscatter
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NALL	Navigable Area Limit Line
NTM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Propagated Uncertainty
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDF	Zone Definition File



Dan Jacobs - NOAA Federal <dan.jacobs@noaa.gov>

Fwd: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

1 message

Quentin Stubbs - NOAA Federal <quentin.stubbs@noaa.gov>
To: Dan Jacobs - NOAA Federal <dan.jacobs@noaa.gov>

Wed, Feb 26, 2020 at 1:06 PM

----- Forwarded message -----

From: **Rousseau, Sarah K LCDR** <Sarah.K.Rousseau@uscg.mil>

Date: Wed, Feb 19, 2020 at 3:35 PM

Subject: RE: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

To: Quentin Stubbs - NOAA Federal <quentin.stubbs@noaa.gov>, Lucy Federal <Lucy.Hick@noaa.gov>

Cc: Gilbert, Ryan A LTJG <Ryan.A.Gilbert@uscg.mil>, Fonville, Matt E BOSN2 <Matt.E.Fonville@uscg.mil>, Nendza, Robert T BOSN3 <Robert.T.Nendza@uscg.mil>

Dr. Stubbs,

All of that is absolutely true! =) The only addition I have is that I just got off the phone with the Officer in Charge of the CLAIBORNE, our buoy tender down in Galveston. He said that the CYPRESS will not be able to come next week (as we were hoping), but CG District 8 (our boss' boss) is prioritizing the removal of the Buoy #9 obstruction. So, while we don't have an exact date of its removal, it should be considered a temporary obstruction.

Thanks for following up on this!

v/r,

LCDR Sarah Kristine Rousseau

Waterways Management and Facilities Inspections Division Chief

US Coast Guard Sector Houston-Galveston

13411 Hillard St

Houston, TX 77034

O: 281-464-4736 C: 713-398-5823

www.homeport.uscg.mil/port-directory/houston-galveston

From: Quentin Stubbs - NOAA Federal <quentin.stubbs@noaa.gov>
Sent: Wednesday, February 19, 2020 3:28 PM

To: Lucy Federal <Lucy.Hick@noaa.gov>
Cc: Rousseau, Sarah K LCDR <Sarah.K.Rousseau@uscg.mil>
Subject: Fwd: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

Hi everyone,

Sarah, please let me know if I left anything out in my summary. I think the only outstanding question is if you all will be placing a temporary buoy over Buoy 9.

Thank you,

Quentin

Sent from my iPhone

Begin forwarded message:

From: Quentin Stubbs - NOAA Federal <quentin.stubbs@noaa.gov>
Date: February 19, 2020 at 3:25:37 PM CST
To: "Rousseau, Sarah K LCDR" <Sarah.K.Rousseau@uscg.mil>
Subject: Re: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

I just spoke with Sarah.

1. The surveying for Buoy 9 is sufficient, and they do not need additional surveying.
2. They are planning to remove the buoy, but they do not have a confirmed timeline because 1) their vessel to remove buoys needs servicing and 2) they are waiting to obtain the availability of the Cypress from Mobile. She stated that the buoy will be marked as an obstruction until it is removed.
3. They are still interested in the potential surveying of the sunken oyster vessel. However, the depths around the vessel appear to be too shallow for the NRT4 vessel. An unmanned survey or Dr. Woods LiDAR project are potential options.

Sent from my iPhone

On Feb 19, 2020, at 3:09 PM, Rousseau, Sarah K LCDR <Sarah.K.Rousseau@uscg.mil> wrote:

LCDR Sarah Kristine Rousseau

Waterways Management and Facilities Inspections Division Chief

US Coast Guard Sector Houston-Galveston

13411 Hillard St

Houston, TX 77034

O: 281-464-4736 C: 713-398-5823

www.homeport.uscg.mil/port-directory/houston-galveston

From: Lucy Hick - NOAA Federal <lucy.hick@noaa.gov>

Sent: Wednesday, February 19, 2020 12:08 PM

To: Rousseau, Sarah K LCDR <Sarah.K.Rousseau@uscg.mil>

Cc: Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>; Michael Annis <michael.j.annis@noaa.gov>

Subject: Re: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

Hi Sarah,

I wanted to clarify a few things for our benefit in NOAA headquarters (and apologize if you've already provided this information).

1. I understand that you are working with your staff to determine if additional surveying is required. While our team did not find a 16.5' sounding, they did find evidence of migrating shoals to the south of the buoy. We can expand the survey area further south to determine the extent of the buoy, but that would really be covering a good distance outside of the channel. We are happy to do so if USCG deems this necessary. However, part of our crew came over from Stennis MS to conduct this survey. Expanding the survey area further south would require him to return to Galveston. In order to determine whether or not to tell him to stand down, we need confirmation as to whether or not the additional survey work is necessary.

2. We also still need confirmation from the USCG whether or not you plan to retrieve the sunken buoy that was identified in the survey area. If there are no plans to retrieve it, it will likely be charted on the ENC as an obstruction (although probably not on the raster/paper chart).

3. Regarding the sunken oyster boat near Eagle Point, we all agree that this is a separate request from the one to investigate the shoal in the entrance channel. Quentin will add a request to investigate this vessel to our database and coordinate with our survey team. What is the time sensitivity for investigating this wreck?

Just so that you are aware, once our survey operations are complete, the entire dataset will be submitted for QA/QC and then provided to our cartographers, who will make a determination on whether or not to update the soundings on the chart. Quentin should be able to follow up with to let you know if/when that happens.

Thank you,

Lucy

On Wed, Feb 19, 2020 at 11:41 AM Rousseau, Sarah K LCDR
<Sarah.K.Rousseau@uscg.mil> wrote:

Good morning, Lucy,

Thanks for the heads up! I apologize; I was out of town last week but my LT has been in touch with Dr. Stubbs. Many thanks for coordinating this!

v/r,

LCDR Sarah Kristine Rousseau

Waterways Management and Facilities Inspections Division Chief

US Coast Guard Sector Houston-Galveston

13411 Hillard St

Houston, TX 77034

O: 281-464-4736 C: 713-398-5823

www.homeport.uscg.mil/port-directory/houston-galveston

From: Lucy Hick - NOAA Federal <lucy.hick@noaa.gov>

Sent: Thursday, February 13, 2020 9:47 AM

To: Rousseau, Sarah K LCDR <Sarah.K.Rousseau@uscg.mil>

Cc: Texas NavManager - NOAA Service Account <texas.navmanager@noaa.gov>;
Quentin Stubbs - NOAA Federal <quentin.stubbs@noaa.gov>; William Winner
<william.winner@noaa.gov>; Brian Akers - NOAA Federal <brian.akers@noaa.gov>;
Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>; Tim Osborn -
NOAA Federal <tim.osborn@noaa.gov>

Subject: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

LCDR Rousseau,

I wanted to inform you that NOAA plans to have a team out surveying this area in the next day or so.

Once the survey is completed, the data will be submitted to our cartographer to update the chart if necessary.

Please reach out to Quentin Stubbs, our Texas Navigation Navigation Manager, if you have any questions or concerns.

Best regards,

Lucy

On Wed, Feb 12, 2020 at 4:24 PM Tim Osborn - NOAA Federal <tim.osborn@noaa.gov> wrote:

LCDR

Thank you for this report and inquiry.

Quentin Stubbs is copied on this email. He is covering this area. NSD and MCD are also copied as well. I believe you will hear back soon.

Thank you.

From: **Rousseau, Sarah K LCDR** <Sarah.K.Rousseau@uscg.mil>
Date: Wed, Feb 12, 2020 at 3:12 PM
Subject: FW: Charted Depth Galveston
To: Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>
Cc: Fonville, Matt E BOSN2 <Matt.E.Fonville@uscg.mil>, Calobreves, Jerad L BMC <Jerad.L.Calobreves@uscg.mil>

Good afternoon, Tim,

I just got a report from one of our CG cutters that there is a charted depth of 26 ft near the G "9" buoy between the two jetties in the Galveston Bay entrance channel, but they're showing a depth of 16.5 ft. It appears there may be some shoaling in that area. I've reached out to my ATON guy to get this into the LNM. Is there a way NOAA could survey it? And/or what do we need to do to get the chart updated? If you're not the right person, could you please point me in the right direction? Thanks!

V/r,

LCDR Sarah Kristine Rousseau
Waterways Management and Facilities Inspections Division Chief
US Coast Guard Sector Houston-Galveston
13411 Hillard St
Houston, TX 77034
O: 281-464-4736 C: 713-398-5823
www.homeport.uscg.mil/port-directory/houston-galveston

-----Original Message-----

From: Edwards, Zachery S CIV <Zachery.S.Edwards@uscg.mil>
Sent: Wednesday, February 12, 2020 9:34 AM
To: Rousseau, Sarah K LCDR <Sarah.K.Rousseau@uscg.mil>
Subject: Charted Depth Galveston

CGC Tiger Shark reported the Charted Depth between the Galveston Jetties indicates 26 Ft on the chart. They show a depth of ONLY 16.5 Ft. I verified CGC Tiger Sharks position and the "charted depth" (Attached)

Posn: 29-20.481 north
094-42.825 west

v/r Zack Edwards

--

Tim Osborn, NOAA
337-254-5933
tim.osborn@noaa.gov

--

Lucy Hick (she/her)

Chief, Customer Affairs Branch

[Office of Coast Survey](#)

National Oceanic & Atmospheric Administration
(240) 533-0066 | Lucy.Hick@noaa.gov



50 Years of Science, Service, and Stewardship

--

Lucy Hick (she/her)

Chief, Customer Affairs Branch

[Office of Coast Survey](#)

2/26/2020

National Oceanic and Atmospheric Administration Mail - Fwd: [Non-DoD Source] Re: USCG Report, Charted Depth Galveston

National Oceanic & Atmospheric Administration
(240) 533-0066 | Lucy.Hick@noaa.gov



50 Years of Science, Service, and Stewardship

--

Quentin Stubbs, PhD

Regional Navigation Manager - Texas

Customer Affairs Branch

[Office of Coast Survey](#)

National Oceanic & Atmospheric Administration

(202) 253-9180 | quentin.stubbs@noaa.gov

APPROVAL PAGE

F00800

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NCEI for archive

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

Peter Holmberg

Products Team Lead, Pacific Hydrographic Branch