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<tr>
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### LOCALITY

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<tr>
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<tr>
<td>Sub-locality:</td>
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**2017**

**CHIEF OF PARTY**  
Dan Jacobs, NOAA

**LIBRARY & ARCHIVES**

**Date:**
<table>
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<tr>
<th>State</th>
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<td>Multibeam Echo Sounder</td>
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<td>Side Scan Sonar</td>
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<tr>
<td>Soundings Acquired in</td>
<td>meters at Mean Lower Low Water</td>
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</table>

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via [http://www.ncei.noaa.gov/](http://www.ncei.noaa.gov/).
DESCRIPTIVE REPORT MEMO

October 12, 2017

MEMORANDUM FOR: Pacific Hydrographic Branch

FROM: Dan Jacobs
Team Lead, NRT4, Navigation Response Team 4

SUBJECT: Submission of Survey D00230

The purpose of this survey is to respond to requests for hydrographic surveys to reopen the channels in Galveston Bay and Vicinity due to the effects of Hurricane Harvey. The survey limits and methods will be determined by the Team Lead in consult with the NRB Chief and NOAA Navigation Manager. Data will be collected in the most efficient manner to provide USACE and USCG information that is critical to make real-time decisions on channel and/or port closures and openings. The data from this survey are not intended to meet NOAA charting specifications, and are not intended to be applied to the nautical chart with the exception of hazards to navigation (i.e., DToNs), subject to branch review. As such, the field unit submit a DR Memo in lieu of an XML Descriptive Report.

NRT4 created a power point of foreign objects that may interfere with future dredging operations. The objects included boats, posts, tires, abandoned structures, and elevated metal piping. Findings were included from Galveston Channel, Galveston anchorage areas A&B, and the Upper Houston Shipping Channel. The R/V Manta provided a PDF document that detailed all sidescan contacts. The USACE also requested XYZ ASCII centerline data from our survey areas. A XYZ ASCII file was created for each survey sheet. The data were exported using the State Plane Texas South Central Projection in US Survey Feet at MLLW. The R/V Manta's sidescan sonar data were gridded and placed in a geotiff for submission to the USACE, to be passed on to their dredging subcontractor. The USACE later requested the entire processed CARIS dataset. All information was submitted to Matthew Duke, Chief, Hydrographic Survey Section of the U.S. Army Corps of Engineers Galveston District. Additional personnel included on the e-mails included Michael Davidson, Ryan Wartick, Alan Bunn, Dan Jacobs, and Erin Diurba.

Soundings were reduced to Mean Lower Low Water (MLLW) using observed tides from tide stations 8770613, 8770777, 8771013, 8771341, 8771450, and TCARI grid K913NRT4KR2017.tc provided by CO-OPS from a 2017 survey of this area.

All survey systems and methods utilized during this survey were as described in NRT4_DAPR_2017. Most survey systems and methods utilized during this survey were described in the NRT4_HSRR_2017. Due to time constraints, the sidescan sonar system on the Universal Sonar Mount were not calibrated to FPM requirements prior surveying (Missing confidence radius test). However, NRT4 did complete a confidence
radius test on 9/26/2017 and found that their system was within the 5m radius requirements. The R/V Manta did not complete the HSRR, or a SSS confidence radius test, prior to the start of the response survey.

All data was reviewed for DTON and none were found.

All data were acquired by a NOAA or NOAA Contractor field unit

Anchorage Area A - Object Detection Coverage (200% sidescan coverage with concurrent multibeam data. The data were reviewed for DTON's and the detected contacts were investigated further with the multibeam system.) Anchorage Area B - Object Detection Coverage (200% sidescan coverage with concurrent multibeam data.) Morgan Point to San Jacinto State Park - Object Detection Coverage (200% sidescan coverage with concurrent multibeam data) were completed the entire length of the segment obtaining 100% multibeam coverage in most areas.) San Jacinto State Park to Patrick Bayou - Object Detection Coverage (200% side scan coverage concurrent with single beam). Patrick Bayou to Green Bayou - Object Detection Coverage with 200% side scan concurrent with single beam data. Green Bayou to Cotton Patch Bayou - Object Detection Coverage (200% side scan with concurrent single beam sonar). Cotton Patch Bayou to Sims Bayou Turning Basin - Object Detection Coverage (200% side scan concurrent with single beam sonar.) Galveston Channel object detection surveying was not completed on account of shifting priorities resultant from additional, follow up discussion between USCG and NSD.

This survey does not meet charting specifications and is not adequate to supersede prior data. All side scan targets were assessed with NRT4 multibeam and results forwarded to USACE Galveston personnel. Graphics and correspondence are provided in Appendix II - Supplemental Records and Correspondence.

Although not intended for chart application, portions of the Harvey response survey were brought up to NOAA specification for archival in the National Bathymetric Source (NBS) database. In addition, the surveyed anchorages will be sent to the Marine Charting Division (MCD) for chart update. The data produced by the Manta R/V (vessel of opportunity) is not being utilized because the uncertainty is too high, the survey data is located within a USACE channel, and the obstructions have since been removed resulting in outdated data. The survey data acquired by NRT4’s vessel S3008 in Bolivar Roads Anchorages A and B and Galveston Channel was deemed usable and brought up to specification by the processing branch. It will be archived at NCEI and in the NBS. In addition to archival, the Bolivar Roads Anchorage will be used to supersede prior chart data since this is the best data available for the area and the obstructions located post Hurricane Harvey have not been removed. See images below.
Bolivar Roads Anchorage Areas A/B and Galveston Channel have been brought up to specification in the processing branch and will be sent to NCEI and NBS for archival.

Bolivar Roads Anchorage Areas A/B will also be sent to MCD for chart update.
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<tr>
<td><strong>Project</strong></td>
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<td><strong>Locality</strong></td>
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NOAA Sounding Data Report

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<tr>
<td>Locality</td>
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<tr>
<td>Sublocality</td>
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Survey: D00230  
Locality: Galveston Bay  
Sublocality: Anchorage Area B  
Chart Number: 11324  
Sounding Units: Feet (NOAA rounded)  
Datum: MLLW  
Dates of survey: 2017

Height: 1.2m  
Width: 1.5m  
Least Depth: 27ft  
Coordinates: 29.352074N 94.756071W

Contact: Navigation Manager – Erin Diurba, NOAA
Erin.Diurba@noaa.gov
NOAA Navigation Response Team 4 (S3008)
Supplemental Obstruction Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE - OFFICE OF COAST SURVEY

Contact:
Navigation Manager – Erin Diurba, NOAA
Erin.Diurba@noaa.gov

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Height: 5.28ft
Least Depth: 33.1ft
Coordinates: 29.345606N, 94.749408W

PRELIMINARY PRODUCT - FOR USCG & NOAA DECISIONAL USE ONLY - NOT FOR USE IN NAVIGATION
**NOAA Navigation Response Team 4 (S3008)**
Supplemental Obstruction Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE - OFFICE OF COAST SURVEY

**Contact:**
Navigation Manager – Erin Diurba, NOAA
Erin.Diurba@noaa.gov

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- **Height:** 3.24
- **Least Depth:** 37.7ft
- **Coordinates:** 29.344979N 94.751331W

---

**PRELIMINARY PRODUCT - FOR USCG & NOAA DECISIONAL USE ONLY - NOT FOR USE IN NAVIGATION**
Least Depth: 111.5m (37.7ft)
Coordinates: 29.344979N  94.751331W
Possible abandoned buoy block.
NOAA Navigation Response Team 4 (S3008)
Supplemental Obstruction Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE - OFFICE OF COAST SURVEY

Contact:
Navigation Manager – Erin Diurba, NOAA
Erin.Diurba@noaa.gov

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NOAA Navigation Response Team 4 (S3008)
Supplemental Obstruction Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE - OFFICE OF COAST SURVEY

Contact:
Navigation Manager – Erin Diurba, NOAA
Erin.Diurba@noaa.gov

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</tr>
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PRELIMINARY PRODUCT - FOR USCG & NOAA DECISIONAL USE ONLY - NOT FOR USE IN NAVIGATION
Hey Mike,

The answer from our Operations Division is "They weren't salvaged because anchorage B and C are not USACE Anchorage Areas."

Have fun charting!

- Matt

Matthew Duke, GISP
Chief, Hydrographic Survey Section
U.S. Army Corps of Engineers Galveston District
Office: 409.766.3968
Cell: 409.795.0524

-----Original Message-----
From: Michael Davidson - NOAA Federal [mailto:michael.davidson@noaa.gov]
Sent: Tuesday, November 06, 2018 10:45 AM
To: Duke, Matthew A CIV USARMY CESWG (US) <Matthew.A.Duke@usace.army.mil>
Cc: Erin Diurba - NOAA Affiliate <erin.diurba@noaa.gov>; Laura Pagano <laura.pagano@noaa.gov>
Subject: [Non-DoD Source] Fwd: DANGERS TO NAVIGATION _ BOLIVAR ANCHORAGE B

Matt,

I hope all is going well. I received an inquiry regarding the status of features that NOAA reported to USACE during the Hurricane HARVEY response. These were not immediately sent to the chart via our Dangers to Navigation process for one of two reasons: we anticipated these items would be salvaged, or they did not meet Danger to Navigation criteria and were routed for regular priority charting following a full office review. I have included the email below that contains the original report for Anchorage B that we sent to USACE. I have also attached the report that we submitted for the item that we found and reported to USACE for Anchorage A.

I don't have any records indicating that these items were salvaged by USACE. Will you please confirm whether or not USACE salvaged these? If these items have not been salvaged, then NOAA will move forward with charting them.

I have copied Erin Diurba (acting Navigation Manager for the Western Gulf, and Laura Pagano (physical scientist conducting the office review for Coast Survey). Please reply all when you respond.

Thank you for your time and attention to this matter.

Best regards,
Mike
Matt,

Attached are two dangers to navigation found in Bolivar Anchorage B. There are many other contacts that we are still combining through, but I wanted to get these to you ASAP. I may send another batch of features for your information from Bolivar B.

Will send the XYZ as soon as it is ready. Sending 1 feature from Anchorage A for your information shortly as well.

Best regards,
Mike

--

Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, SSMC3, Sta 6216 ***new station number***
Silver Spring, MD  20910
240-533-0058 office ***new office number***
757-771-5305 work cell

michael.davidson@noaa.gov <mailto:michael.davidson@noaa.gov>

--

Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, SSMC3, Sta 6216 ***new station number***
Silver Spring, MD  20910
240-533-0058 office ***new office number***
757-771-5305 work cell

michael.davidson@noaa.gov <mailto:michael.davidson@noaa.gov>
Houston Ship Channel Debris Removal Information

Location A:
29 43 52.9N / 95 02 36.1W
Approximate height off the bottom: 4.75 feet
Location B:
29 44 6.9N / 95 07 33.5W
Approximate height off the bottom: 4 feet (Boat-shaped, appx. 25ft x 5ft).
Location C:
29 44 46.8N / 95 10 10.9W
Approximate height off the bottom: 4 feet

C1:

C2:
Location D:
29 44 30.5N / 95 11 52.6W
Approximate height off the bottom: 3.5 feet

D1:

D2:
Location E:
29 43 31.9N / 95 13 34.0W
Approximate height off the bottom: 4 feet (Appx 74 ft long).

E1:

E2:
Location F:
29 43 30.7N / 95 16 17.3W
Approximate height off the bottom: 6 feet (Appx 180 ft long).
Location G:
29 44 33.1N / 95 16 55.2W
Approximate height off the bottom: 3.5 feet
Location H:
29 44 44.7N / 95 17 07.8W
Approximate height off the bottom: 4.25 feet
Location I:
29°45' 0.8"N / 95°17' 17.1"W
Approximate height off the bottom: 6.5 feet

I1:

I2:
Location J:
29 46 3.6N / 95 17 16.5W
Approximate height off the bottom: 4 feet

J1:

J2:
Debris Field:
29 43 52.9N / 95 02 36.1W
Approximate area of 50 meters x 100 meters.

DF1:

DF2:
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<th>Project:</th>
<th>Hurricane Harvey</th>
<th>Sounding Units:</th>
<th>Feet</th>
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Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 1 of 5: Contacts

Preliminary Data - NOT FOR NAVIGATION

Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

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NOAA NRT 4
D. Jacobs
Commanding
Survey Date: 09/05/2017

Length: Largest is 32ft
Width: 11 - 18ft
Height: None above 3ft
Least Depth: 26ft
Coordinates: 29.750900N 95.288148W
Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 2 of 5: Contacts
Preliminary Data - NOT FOR NAVIGATION

Project: Hurricane Harvey
Survey: Turning Basin to Cotton Patch Bayou
State: Texas
Locality: Houston
Sublocality: Houston Ship Channel
Survey Scale: 1:25,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
Chart Number: 11325 11329

Survey Date: 09/05/2017

NOAA NRT 4
D. Jacobs Commanding
Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 3 of 5: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

- **Project:** Hurricane Harvey
- **Survey:** Turning Basin to Cotton Patch Bayou
- **State:** Texas
- **Locality:** Houston
- **Sublocality:** Houston Ship Channel
- **Survey Scale:** 1:25,000
- **Sounding Units:** Feet
- **Sounding Datum:** MLLW
- **Horizontal Datum:** NAD 83 UTM 15 N
- **Chart Number:** 11325
- **Survey Date:** 09/05/2017
- **NOAA NRT 4**
- **D. Jacobs**
- **Commanding**

**Coordinates:**
- Coordinates: 29.742531N 95.282217W
- Coordinates: 29.742561N 95.282014W
- Coordinates: 29.742388N 95.281980W

**Longest Length:** 35ft
**Widest Width:** 10ft
**Tallest Height:** 5.83ft
**Least Depth:** 29ft
Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

This area was missed during the investigation stage. Only sidescan data exists for this area.

**Chartlet 4 of 5: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

**Project:** Hurricane Harvey

**Survey:** Turning Basin to Cotton Patch Bayou

**State:** Texas

**Locality:** Houston

**Sublocality:** Houston Ship Channel

**Survey Scale:** 1:25,000

**Sounding Units:** Feet

**Sounding Datum:** MLLW

**Horizontal Datum:** NAD 83 UTM 15 N

**Chart Number:**
- 11325
- 11329

**NOAA NRT 4**

**D. Jacobs**

**Commanding**

**Survey Date:** 09/05/2017

**Data based on sidescan only.**

- **Length:** 180ft
- **Width:** >50ft
- **Height:** 6ft
- **Least Depth:** Unknown

**Coordinates:** 29.725225N 95.271446W
Bathymetry data were acquired and inspected from the Lynchburg Landing to the Turning Basin. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 5 of 5: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

<table>
<thead>
<tr>
<th><strong>Project:</strong></th>
<th>Hurricane Harvey</th>
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</thead>
<tbody>
<tr>
<td><strong>Survey:</strong></td>
<td>Turning Basin to Cotton Patch Bayou</td>
</tr>
<tr>
<td><strong>State:</strong></td>
<td>Texas</td>
</tr>
<tr>
<td><strong>Locality:</strong></td>
<td>Houston</td>
</tr>
<tr>
<td><strong>Sublocality:</strong></td>
<td>Houston Ship Channel</td>
</tr>
<tr>
<td><strong>Survey Scale:</strong></td>
<td>1:25,000</td>
</tr>
<tr>
<td><strong>Sounding Units:</strong></td>
<td>Feet</td>
</tr>
<tr>
<td><strong>Sounding Datum:</strong></td>
<td>MLLW</td>
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<tr>
<td><strong>Horizontal Datum:</strong></td>
<td>NAD 83 UTM 15 N</td>
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<tr>
<td><strong>Chart Number:</strong></td>
<td>11325 11329</td>
</tr>
<tr>
<td><strong>Coordinates:</strong></td>
<td>29.725529N 95.226133W</td>
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NOAA NRT 4
D. Jacobs
Commanding

Survey Date: 09/05/2017
<table>
<thead>
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<td></td>
<td>Cotton Patch Bayou</td>
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<td><strong>State:</strong></td>
<td>Texas</td>
<td><strong>Horizontal Datum:</strong></td>
<td>NAD 83 UTM 15 N</td>
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<td><strong>Locality:</strong></td>
<td>Houston</td>
<td><strong>Chart Number:</strong></td>
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<tr>
<td><strong>Sublocality:</strong></td>
<td>Houston Ship Channel</td>
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<tr>
<td><strong>Survey Scale:</strong></td>
<td>1:25,000</td>
<td></td>
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</tr>
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</table>
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Length: 23.5ft – May extend much further
Width: 10.5ft
Height: 2.8ft
Least Depth: 48.9ft
Coordinates: 29.735240N 95.126053W
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 2 of 7: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

<table>
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<td>State:</td>
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<tr>
<td>Locality:</td>
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<tr>
<td>Sublocality:</td>
<td>Houston Ship Channel</td>
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</tbody>
</table>

**NOAA NRT 4**

D. Jacobs  
Commanding

Survey Date: 09/07/2017

Length: 26ft  
Width: 7.8ft  
Height: 3.38ft  
Least Depth: 48ft  
Coordinates: 29.745201N 95.102810W
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 3a of 7: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

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<td></td>
<td>Cotton Patch Bayou</td>
<td>Horizontal Datum:</td>
<td>NAD 83 UTM 15 N</td>
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<tr>
<td>State:</td>
<td>Texas</td>
<td>Chart Number:</td>
<td>11325</td>
</tr>
<tr>
<td>Locality:</td>
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</tr>
<tr>
<td>Survey Scale:</td>
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<td></td>
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</tbody>
</table>

- Project: Hurricane Harvey
- Survey: Lynchburg Landing to Cotton Patch Bayou
- State: Texas
- Locality: Houston
- Sublocality: Houston Ship Channel
- Survey Scale: 1:25,000
- Soundings Units: Feet
- Soundings Datum: MLLW
- Horizontal Datum: NAD 83 UTM 15 N
- Chart Number: 11325, 11329
- Survey Date: 09/07/2017
- NOAA NRT 4 D. Jacobs Commanding

---

Length: 35ft
Width: 9ft
Height: 5.5ft
Least Depth: 44ft
Coordinates: 29.743068N 95.106189W

Length: 10.5ft
Width: 8.7ft
Height: 3ft
Least Depth: 48.3ft
Coordinates: 29.740294N 95.111915W
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 3b of 7: Contacts
Preliminary Data - NOT FOR NAVIGATION

<table>
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<th>Feet</th>
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<td>State:</td>
<td>Texas</td>
<td>Horizontal Datum:</td>
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<td>Locality:</td>
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<tr>
<td>NOAA NRT 4</td>
<td>D. Jacobs</td>
<td>Commanding</td>
<td></td>
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</tbody>
</table>

Data reflects state of seafloor on the date surveyed.
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

- **Length:** 23.5ft – May extend much further
- **Width:** 10.5ft
- **Height:** 2.8ft
- **Least Depth:** 48.9ft
- **Coordinates:** 29.735240N 95.126053W

**Chartlet 3c of 7: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

**Project:** Hurricane Harvey  
**Survey:** Lynchburg Landing to Cotton Patch Bayou  
**State:** Texas  
**Locality:** Houston  
**Sublocality:** Houston Ship Channel  
**Survey Scale:** 1:25,000

**Sounding Units:** Feet  
**Sounding Datum:** MLLW  
**Horizontal Datum:** NAD 83 UTM 15 N  
**Chart Number:** 11325  
**Survey Date:** 09/07/2017

**NOAA NRT 4**  
**D. Jacobs**  
**Commanding**
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 4 of 7: Contacts
Preliminary Data - NOT FOR NAVIGATION

NOAA NRT 4
D. Jacobs
Commanding
Survey Date: 09/07/2017

<table>
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<td>Survey Scale: 1:25,000</td>
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</table>
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 5 of 7: Contacts
Preliminary Data - NOT FOR NAVIGATION

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

<table>
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<td>Survey Date: 09/07/2017</td>
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<tr>
<td>D. Jacobs</td>
<td>Commanding</td>
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</table>
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

Chartlet 6a of 7: Contacts
Preliminary Data - NOT FOR NAVIGATION

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<tr>
<td>NOAA NRT 4</td>
<td>D. Jacobs</td>
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<td>Commanding</td>
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<tr>
<td>Survey Date:</td>
<td>09/07/2017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 6b of 7: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

- **Project:** Hurricane Harvey
- **Survey:** Lynchburg Landing to Cotton Patch Bayou
- **State:** Texas
- **Locality:** Houston
- **Sublocality:** Houston Ship Channel
- **Survey Scale:** 1:25,000
- **Sounding Units:** Feet
- **Sounding Datum:** MLLW
- **Horizontal Datum:** NAD 83 UTM 15 N
- **Chart Number:** 11325 11329
- **Survey Date:** 09/07/2017
- **Commanding:** D. Jacobs

**NOAA NRT 4**
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.
Bathymetry data were acquired and inspected from the Lynchburg Landing to Cotton Patch Bayou. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar then later developed by NRT4. Data reflects state of seafloor on the date surveyed.

**Chartlet 7b of 7: Contacts**

**Preliminary Data - NOT FOR NAVIGATION**

<table>
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<td>Chart Number</td>
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<tr>
<td></td>
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</table>

NOAA NRT 4
D. Jacobs
Commanding

Survey Date: 09/07/2017

Length: 16ft
Width: 7ft
Height: 1.65ft
Least Depth: 44.5ft
Coordinates: 29.741832N 95.197983W
NRT 4 – Section 3
Lynchburg Landing to Barbours Terminal Channel

Project: Hurricane Harvey
Survey: Lynchburg Landing to Barbours Terminal
State: Texas
Locality: Houston
Sublocality: Houston Ship Channel
Survey Scale: 1:25,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
Chart Number: 11328 11329

NOAA NRT 4
D. Jacobs
Commanding
Survey Date: 09/03/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Project:** Hurricane Harvey
**Survey:** Lynchburg Landing to Barbours Terminal
**State:** Texas
**Locality:** Houston
**Sublocality:** Houston Ship Channel
**Survey Scale:** 1:25,000

**Survey Date:** 09/03/2017
**Survey Date:** 09/05/2017

**Chart Number:** 11328
**Chart Number:** 11329

**Sounding Units:** Feet
**Sounding Datum:** MLLW
**Horizontal Datum:** NAD 83 UTM 15 N

**NOAA NRT 4**
**D. Jacobs**
**Commanding**

**Note:** See brick or stone driveway and remnants of wood plank walkway.
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 2 of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

- **Length:** 41ft
- **Width:** 6.5
- **Least Depth:** 37ft
- **Coordinates:** 29.756302N 95.070070W

**Project:** Hurricane Harvey

**Survey:** Lynchburg Landing to Barbours Terminal

**State:** Texas

**Locality:** Houston

**Sublocality:** Houston Ship Channel

**Survey Scale:** 1:25,000

**Sounding Units:** Feet

**Sounding Datum:** MLLW

**Horizontal Datum:** NAD 83 UTM 15 N

**Chart Number:** 11328 11329

---

**NOAA NRT 4**

**D. Jacobs**

**Commanding**

**Survey Date:**

- 09/03/2017
- 09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

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<th>Project</th>
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<td>09/03/2017</td>
</tr>
<tr>
<td></td>
<td>09/05/2017</td>
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</table>
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 5a of 11: Bathymetry**

*Preliminary Data - NOT FOR NAVIGATION*

<table>
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<th>Length: 40ft</th>
<th>Width: 2ft</th>
<th>Least Depth: 50ft</th>
<th>Coordinates: 29.734966N 95.048653W</th>
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<tbody>
<tr>
<td>Length: 35ft</td>
<td>Width: 2.5ft</td>
<td>Height: 2.5ft</td>
<td>Least Depth: 45.5ft</td>
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</table>

**NOAA NRT 4**

D. Jacobs

Commanding

**Survey Date:** 09/03/2017

09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 5b of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

**Project:** Hurricane Harvey

**Survey:** Lynchburg Landing to Barbours Terminal

**State:** Texas

**Locality:** Houston

**Sublocality:** Houston Ship Channel

**Survey Scale:** 1:25,000

**Sounding Units:** Feet

**Sounding Datum:** MLLW

**Horizontal Datum:** NAD 83 UTM 15 N

**Chart Number:** 11328 11329

**NOAA NRT 4**

**D. Jacobs**

**Commanding**

**Survey Date:**

09/03/2017
09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 5c of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

---

**Project:** Hurricane Harvey

**Survey:** Lynchburg Landing to Barbours Terminal

**State:** Texas

**Locality:** Houston

**Sublocality:** Houston Ship Channel

**Survey Scale:** 1:25,000

**Sounding Units:** Feet

**Sounding Datum:** MLLW

**Horizontal Datum:** NAD 83 UTM 15 N

**Chart Number:** 11328 11329

**NOAA NRT 4**

D. Jacobs

Commanding

**Survey Date:**

09/03/2017

09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Project: Hurricane Harvey  
Survey: Lynchburg Landing to Barbours Terminal  
State: Texas  
Locality: Houston  
Sublocality: Houston Ship Channel  
Survey Scale: 1:25,000  
Sounding Units: Feet  
Sounding Datum: MLLW  
Horizontal Datum: NAD 83 UTM 15 N  
Chart Number: 11328  
NOAA NRT 4  
D. Jacobs  
Survey Date: 09/03/2017 09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 7 of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

- **Project:** Hurricane Harvey
- **Survey:** Lynchburg Landing to Barbows Terminal
- **State:** Texas
- **Locality:** Houston
- **Sublocality:** Houston Ship Channel
- **Survey Scale:** 1:25,000
- **Sounding Units:** Feet
- **Sounding Datum:** MLLW
- **Horizontal Datum:** NAD 83 UTM 15 N
- **Chart Number:** 11328 11329

**Survey Date:**
- 09/03/2017
- 09/05/2017

**NOAA NRT 4**
- **Commanding:** D. Jacobs
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Preliminary Data - NOT FOR NAVIGATION**

**Chart Number:** 11328, 11329

**Survey Scale:** 1:25,000

**Sounding Units:** Feet

**Sounding Datum:** MLLW

**Horizontal Datum:** NAD 83 UTM 15 N

**Survey Date:** 09/03/2017, 09/05/2017

**Survey:** Lynchburg Landing to Barbour's Terminal

**Project:** Hurricane Harvey

**State:** Texas

**Locality:** Houston

**Sublocality:** Houston Ship Channel

**NOAA NRT 4 Commanding:**

D. Jacobs
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Several tall posts were found in the location of the day marker. However additional posts were found to the east. The shadow lengths of these posts suggest they are the same height as the ones near the current day marker.
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 9b of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

**Survey Scale:** 1:25,000

<table>
<thead>
<tr>
<th>Project</th>
<th>Hurricane Harvey</th>
<th>Sounding Units: Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>Lynchburg Landing to Barbours Terminal</td>
<td>Sounding Datum: MLLW</td>
</tr>
<tr>
<td>State</td>
<td>Texas</td>
<td>Horizontal Datum: NAD 83 UTM 15 N</td>
</tr>
<tr>
<td>Locality</td>
<td>Houston</td>
<td>Chart Number: 11328</td>
</tr>
<tr>
<td>Sublocality</td>
<td>Houston Ship Channel</td>
<td></td>
</tr>
<tr>
<td>Survey Date</td>
<td>09/03/2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>09/05/2017</td>
<td></td>
</tr>
</tbody>
</table>

**NOAA NRT 4 D. Jacobs Commanding**
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Project: Hurricane Harvey  
Survey: Lynchburg Landing to Barbours Terminal  
State: Texas  
Locality: Houston  
Sublocality: Houston Ship Channel  
Survey Scale: 1:25,000  
Sounding Units: Feet  
Sounding Datum: MLLW  
Horizontal Datum: NAD 83 UTM 15 N  
Chart Number: 11328, 11329  
Survey Date: 09/03/2017, 09/05/2017  
Commanding Officer: D. Jacobs  
NOAA NRT 4
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Chartlet 10a of 11: Bathymetry
Preliminary Data - NOT FOR NAVIGATION

<table>
<thead>
<tr>
<th>Project</th>
<th>Hurricane Harvey</th>
<th>Sounding Units:</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>Lynchburg Landing to Barbours Terminal</td>
<td>Sounding Datum:</td>
<td>MLLW</td>
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<tr>
<td>State</td>
<td>Texas</td>
<td>Horizontal Datum:</td>
<td>NAD 83 UTM 15 N</td>
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<tr>
<td>Locality</td>
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<td>Chart Number:</td>
<td>11328</td>
</tr>
<tr>
<td>Sublocality</td>
<td>Houston Ship Channel</td>
<td></td>
<td>11329</td>
</tr>
<tr>
<td>Survey Scale</td>
<td>1:25,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

No bathymetry data were collected over this contact.

Length: 
Width: 
Least Depth: Unknown 
Coordinates: 29.698187N 94.995377W
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Hurricane Harvey</th>
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</thead>
<tbody>
<tr>
<td>Survey:</td>
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<tr>
<td>State:</td>
<td>Texas</td>
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<td>Sounding Units:</td>
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</tr>
<tr>
<td>Sounding Datum:</td>
<td>MLLW</td>
</tr>
<tr>
<td>Horizontal Datum:</td>
<td>NAD 83 UTM 15 N</td>
</tr>
<tr>
<td>Chart Number:</td>
<td>11328 11329</td>
</tr>
</tbody>
</table>

NOAA NRT 4
D. Jacobs
Commanding

Survey Date: 09/03/2017 09/05/2017
R/V Manta – Transit Survey
Section 4
Galveston Bay - Houston Ship Channel
At markers 45/46
Bathymetry data were acquired and inspected along the Houston Shipping Channel. Possible obstructions were found in the channel by the R/V Manta using sidescan sonar. Data reflects state of seafloor on the date surveyed.

This area has not been investigated by NRT4 yet.

Only sidescan data exists for this area.
<table>
<thead>
<tr>
<th>Project:</th>
<th>Hurricane Harvey</th>
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</thead>
<tbody>
<tr>
<td>Survey:</td>
<td>Anchorage A</td>
</tr>
<tr>
<td>State:</td>
<td>Texas</td>
</tr>
<tr>
<td>Locality:</td>
<td>Galveston</td>
</tr>
<tr>
<td>Sublocality:</td>
<td>Galveston Bay</td>
</tr>
<tr>
<td>Survey Scale:</td>
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<td>Sounding Units:</td>
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<td>Chart Number:</td>
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<tr>
<td>NOAA NRT 4</td>
<td></td>
</tr>
<tr>
<td>D. Jacobs</td>
<td></td>
</tr>
<tr>
<td>Commanding</td>
<td></td>
</tr>
<tr>
<td>Survey Date:</td>
<td>09/01/2017</td>
</tr>
</tbody>
</table>

NRT 4 – Section 5
Anchorage Area A – Galveston Bay
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.

**Chartlet 3 of 4: Object Detection**

**Preliminary Data - NOT FOR NAVIGATION**

**Length:** 14ft  
**Height:** 4.46ft  
**Width:** 8ft  
**Least Depth:** 39ft  
**Coordinates:** 29.350938N 94.14476W

---

**Project:** Hurricane Harvey  
**Survey:** Anchorage A  
**State:** Texas  
**Locality:** Galveston  
**Sublocality:** Galveston Bay  
**Survey Scale:** 1:25,000

**Sounding Units:** Feet  
**Sounding Datum:** MLLW  
**Horizontal Datum:** NAD 83 UTM 15 N  
**Chart Number:** 11324  
**Chart Edition:** 40

---

**NOAA NRT 4**  
**D. Jacobs**  
**Commanding**  
**Survey Date:** 09/01/2017
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay.

The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.

Height: 3.15ft
Least Depth: 35.7ft
Coordinates: 29.346412N 94.745021W

Project: Hurricane Harvey
Survey: Anchorage A
State: Texas
Locality: Galveston
Sublocality: Galveston Bay
Survey Scale: 1:25,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
Chart Number: 11324
Chart Edition: 40

NOAA NRT 4
D. Jacobs
Commanding
Survey Date: 09/01/2017
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<td>MLLW</td>
</tr>
<tr>
<td><strong>State:</strong></td>
<td>Texas</td>
<td><strong>Horizontal Datum:</strong></td>
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<td><strong>Locality:</strong></td>
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<td><strong>Chart Number:</strong></td>
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<td><strong>Sublocality:</strong></td>
<td>Galveston Bay</td>
<td><strong>Chart Edition:</strong></td>
<td>40</td>
</tr>
<tr>
<td><strong>Survey Scale:</strong></td>
<td>1:25,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NRT 4 – Section 6
Anchorage Area B – Galveston Bay
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.

Height: 5.28ft  
Least Depth: 33.1ft  
Coordinates: 29.345606N, 94.749408W

<table>
<thead>
<tr>
<th>Project:</th>
<th>Hurricane Harvey</th>
<th>Sounding Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey:</td>
<td>Anchorage B</td>
<td>Feet</td>
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<tr>
<td>State:</td>
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<tr>
<td>Locality:</td>
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<td>NAD 83 UTM 15 N</td>
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<tr>
<td>Sublocality:</td>
<td>Galveston Bay</td>
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</tr>
<tr>
<td>Survey Scale:</td>
<td>1:25,000</td>
<td>40</td>
</tr>
</tbody>
</table>

NOAA NRT 4  
D. Jacobs  
Commanding  
Survey Date: 09/02/2017

Preliminary Data - NOT FOR NAVIGATION
Bathymetry with concurrent side scan were acquired and inspected for Anchorage Area “A” in Galveston Bay. The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
The soundings show the surveyed depth in feet. No obstructions were found in the anchorage area. Data reflects state of seafloor on the date surveyed.
NRT 4 – Section 7
Galveston Channel

Project: Hurricane Harvey
Survey: Anchorage A
State: Texas
Locality: Galveston
Sublocality: Galveston Bay
Survey Scale: 1:25,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
Chart Number: 11324
Chart Edition: 40

NOAA NRT 4
D. Jacobs
Commanding

Survey Date: 08/31/2017
Bathymetry with concurrent side scan were acquired and inspected for Galveston Channel. Some objects were found in the channel. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Galveston Channel. Some objects were found in the channel. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Galveston Channel. Some objects were found in the channel. Data reflects state of seafloor on the date surveyed.
Bathymetry with concurrent side scan were acquired and inspected for Galveston Channel. Some objects were found in the channel. Data reflects state of seafloor on the date surveyed.

Chartlet 1c of 1: Object Detection
Preliminary Data - NOT FOR NAVIGATION

- Length: 30ft
- Width: 8ft
- Height: 1.2ft
- Least Depth: 36.8 ft
- Coordinates: 29.334449N 94.774965W
Name: Possible DTON - 1
Length: Approx. 47ft
Width: Approx. 15ft
Shadow Length: 3ft
Interpretation: Boat?
Coordinates: 29.731572N 95.043407W

Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Chartlet 1 of 1: SSS Contacts
Preliminary Data - NOT FOR NAVIGATION

NOAA NRT 4
D. Jacobs
Commanding
Survey Date: 09/03/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Length: 48.36ft
Width: 11.5ft
Least Depth: 44.5ft
Coordinates: 29.731519N 95.043239W

<table>
<thead>
<tr>
<th>Project</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>San Jacinto Bay</td>
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<tr>
<td>State</td>
<td>Texas</td>
</tr>
<tr>
<td>Locality</td>
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<td>Sublocality</td>
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<td>Horizontal Datum</td>
<td>NAD 83 UTM 15 N</td>
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<tr>
<td>Chart Number</td>
<td>11328 11329</td>
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</table>

Survey Date: 09/03/2017 to 09/04/2017

NOAA NRT 4
D. Jacobs
Commanding
Fwd: ATTENTION REQUIRED: Harvey DTON

Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>

To: "Duke, Matthew A CV UDAAM" CWSW QG5, "Duke, Matthew A, Duke@usace.army.mil", "Trinetta, Christopher SWG" "Christopher C Trinetta@usace.army.mil"
Cc: Alan Burn <alanburn@noaa.gov>, Ryan Walford <Ryan.Walford@noaa.gov>, NESCCS NES Response <red.response@noaa.gov>, Mike Armit <michael.j.armit@noaa.gov>

Matt,

As discussed, I am forwarding what appears to be a dredge pipe or potentially an exposed pipeline in the Upper HSC.

Let me know if you have any questions.

VT
Mike

-- Forwarded message ----

From: Michael Armit <NOAAFederal <michael.j.armit@noaa.gov>
Date: Sun, Sep 3, 2017 at 10:03AM
Subject: ATTENTION REQUIRED: Harvey DTON

To: "NESCCS NES Response <red.response@noaa.gov>, Mike Armit <michael.j.armit@noaa.gov>
Cc: Alan Burn <NOAAFederal <alanburn@noaa.gov>

Houston Ship Channel
9/2/2017
Lat: 29°43'52.3N
Lon: 95°02'36.1W

Geodetic Information: NAD83 Texas State Plane South Central

Approximate height of the bottom: 4.75 ft (measured in Caris SPS)

---

Michael J. Armit
Physical Scientist
NOAA Office of Coastal Survey
1315 East Whale Highway
SSMCC Room 6210
Silver Spring, MD 20910
Office: 240-622-0361

https://mail.google.com/mail/u/0/?ui=2&ik=22f1aeb4&sv=ERWX3hyASk.en&source=et&as_to=Matthew.A.Duke%40usace.army.mil&as_sub=ATTention...
\[\text{Disclaimer of Endorsement}\]

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---

Michael C. Davison
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1215 East Veitch Hwy, S5A013, Ste 6216
Silver Spring, MD 20910
240-833-3605 office
301-717-3355 work cell
michael.davison@noaa.gov
Forwarded from a cryptic message. The information provided indicates possible obstructions in the channel, likely due to the non-navigable areas or debris, affecting navigation. The warning emphasizes the importance of understanding the channel's conditions for safe passage.

**Message:**

```
Forwarded from a cryptic message. The information provided indicates possible obstructions in the channel, likely due to the non-navigable areas or debris, affecting navigation. The warning emphasizes the importance of understanding the channel's conditions for safe passage.
```
"Disclaimer of Endorsement"

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Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, SOLARICS, Suite 200
Silver Spring, MD 20910
240-432-4000 office
240-432-4025 fax
michael.davidson@noaa.gov
MAF located what appears to be a small boat in the Upper HRC in the federal project on the north side of the channel NE of Boggy Bayou. Imagery and description included in the email thread below.

VOL,
Mike

From: Michael Arnts <NOAA Federal <michael.arnts@noaa.gov>>
Date: Sun, Sep 3, 2017 at 4:45 PM
Subject: ATTENTION REQUIRED: Harvey DTON
To: NOS/COAST SURVEY Response <,response@noaa.gov>>
Cc: Alan Bum <alan.bum@noaa.gov>>

Houston Ship Channel
9/30/17
Lat: 29 44 05.9N
Lon: 95 07 33.5W

Geodetic information: NAED Texas State Plane South Central

Approximate depth of the bottom: 4 feet (measured in CTS SF5)

Object is backwelled, approximately 24 ft high, 5 ft above the bottom.
Fwd: ATTENTION REQUIRED: Harvey DTON

From: Michael Annis  
NOS/DCS NSD Repones <annis.michael@noaa.gov>
Date: Sun, Sep 3, 2017 at 4:38 PM
Subject: ATTENTION REQUIRED: Harvey DTON

Hi,

Mike

--- Forwarded message ---
From: Michael Annils  
NOS/DCS Federal <annis.michael@noaa.gov>
Date: Sun, Sep 3, 2017 at 4:51 PM
Subject: ATTENTION REQUIRED: Harvey DTON

To: NOS/DCS NSD Repones <annis.michael@noaa.gov>
Cc: Alan Burn <burn.alan@noaa.gov>

Possible dredge pipes across the channel.

MNDT found another linear feature in the upper HEC on the south side of the federal channel, V/O Greens Bayou - imagery and description included in the email below.

VIR

Mike
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---

Michael C. Davison  
Operations Manager  
NOAA Office of Coast Survey  
Navigation Response Branch  
1315 East West Hwy, Suit 16, Silver Spring, MD 20910  
301-713-3300 (office)  
703-776-6282 (work cell)  
michael.davison@noaa.gov
Fwd: ATTENTION REQUIRED: HARVEY DTON

To: "Duke, Matthew A CIV USDARARMY"/DIGITAL USE
CC: Matthew A. Duke@usace.army.mil, Ted Fradella, Christopher SWG@christopher.c.fradella@usace.army.mil
Co: Ryan Wiltick <Ryan.Wiltick@usace.army.mil>, Ann Burn <Ann.Burn@usace.army.mil>, PACGS NSD Reps <nsd.reps@usace.army.mil>, Mike Armitage <Michael.J.Armitage@usace.army.mil>

Matt,

Below are 3 additional features spotted today in the MANIT. These objects are from the Upper HCS. Please review and disseminate as necessary. For all of these features, we are forwarding for your review. Please forward a USACE plan to remove any of these items. Items that are not going to be removed will go through our internal process for potential Dangers to Navigation.

Potential Dangers:

Houston Ship Channel
3/30/17
Lat: 39°34'36.0N
Lon: 096°36'36.0W

Geodetic Information: NAVD Texas State Plane South Central
Approximate height of the bottom: 4 feet (Measured in Carl's SPS)
Pipe-shaped object in the channel. Approximatley 74 ft long.

https://mail.google.com/mail/u0/?ui=2&ik=22f1ae9b4c&view=pt&label=INBOX&ui=22f1ae9b4c&sh stret=1&attredirects=0&attbid=x2mt0iuqldm50kwa4375&attredirects=0&attbid=x2mt0iuqldm50kwa4375
Houston Ship Channel
9/3/2017
Lb: 28 4 30.7N
Ln: 95 16 17.3W

Geodetic Information: NAD83 Texas State Plane South Central

Approximate height off the bottom: 6 feet (measured in Chart SPS)

Sunken Dry Dock, well marked by buoys. Approximately 1/2 MI long.

https://mail.google.com/mail/u/0/feed/22f1eab4c?view=alpha&attredirects=0&ind=1&attkey=0&ui=2&ind=1&attredirects=0&ui=2
This is the last email for the evening. Please let me know if you have any questions or concerns about any of these items.

Best Regards,
Mike

Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
National Response Branch
1325 East-West Hwy, Silver Spring, MD 20910

240-833-3266 (office) **new** 301-713-3223 (work)

Michael.Davidson@noaa.gov
Fwd: ATTENTION REQUIRED: Harvey DTON

Michael Davisson - NOAA Federal <michael.davison@noaa.gov>

To: "Duke, Matthew A" <DUKE.VIC@USNAVY.DESKTOP>, "Duke, Matthew A" <Matthew.A.Duke@usace.army.mil>, "Trubetsk, Christopher" <Christopher.C.Trubetsk@usace.army.mil>
Cc: Warren Wetzel <Wetzel.Private.125645.MIL>, Alan Bann <alan.bann@noaa.gov>, NOAA/OC DOD Response <red.response@noaa.gov>, Mike Anns <mike.anms@noaa.gov>, Eli Smith - NOAA Federal <eli.smith@noaa.gov>, Joshua Bergeoni - NOAA Federal <joshua.bergeoni@noaa.gov>

Feb. 6, 2017

I am bringing to your attention the following issue from MANTA that is of concern. I have been monitoring DTON, and it appears that this situation may require additional action.

Subject: ATTENTION REQUIRED: Harvey DTON

Cc: Alan Bann - NOAA Federal <alan.bann@noaa.gov>

1. Fwd message

From: Michael Anns - NOAA Federal <michael.anns@noaa.gov>
Date: Mon, Sep 4, 2017 at 7:26 PM

Subject: ATTENTION REQUIRED: Harvey DTON

To: NOAA/OC DOD Response <red.response@noaa.gov>
Cc: Alan Bann - NOAA Federal <alan.bann@noaa.gov>

Housten Ship Channel - Turning Basin
3/16/17
Lot: 20
Loc: 098 17 17 17W

Geosub Information: NAD83 Texas State Plane South Central

Approximate height off the bottom: 6.5 feet (measured in Caris SIPS)

https://mail.google.com/mail/u/0?ui=2&ik=22f1aeb4&sv=eFWGXYsYAS%k.en&view=pt&as_to=Matthew.A.Duke%40usace.army.mil&as_hash=Attention... 12/
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---

Michael G. Schildon
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1319 East-West Highway
Silver Spring, MD 20901

Office: 301-827-6360
Cell: 202-334-6769

michael.schildon@noaa.gov
Att: ATTENTION REQUIRED: Harvey DTON

Subject: ATTENTION REQUIRED: Harvey DTON

From: Michael J. Arviso <michael.j.arviso@noaa.gov>

Date: Mon, Sep 4, 2017 at 7:05 PM

CC: Michael Davidson <michael.davidson@noaa.gov>


--- Forwarded message ---

From: "Duke, Matthew A CIV USARMY DESK" <Matthew.A.Duke@usace.army.mil>

To: "FRAV, Christopher SWG" <Christopher.C.FRAV@noaa.gov>

Cc: Ryan White <Ryan.White@noaa.gov>, Alan Burn <alan.burn@noaa.gov>, NOS/NOS NSR Response <nsr.response@noaa.gov>, Mike Arviso <michael.j.arviso@noaa.gov>

Geodetic Information: NAD83 Texas State Plane South Central

Approximate Height off the bottom: 4.0 ft (measured in Chart SPS)

---

Best Regards,
Mike

Michael J. Arviso
Physical Scientist
NOAA Office of Coast Survey
1315 East West Highway
Silver Spring, MD 20910
Attn: ATTENTION REQUIRED Harvey DTON

From: Michael J. Ansis  
NOAA Federal 

Subject: ATTENTION REQUIRED Harvey DTON

To: NOS/OC/DSS Regional

Hi,

#3 of 4 from MANTA,

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A note from Michael Ansis.

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To: Michael J. Ansis
From: Michael J. Ansis

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A diagram showing a map with a specific location marked.

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Disclaimer of Endorsement

Reference to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring.
I will send a last depth from the obstruction VO 11:45 a.m. as soon as I get that. Hopefully it will be soon.

VIR
Mike

From: Michael J. Amis - NOAA/ESCI
To: Richard H. (Rik) Warch, Alan Burn
Subject: National Oceanic and Atmospheric Administration

Hi,

I am sending the last depth from the obstruction VO 11:45 a.m. as soon as I get that. Hopefully it will be soon.

VIR
Mike

Houma Ship Channel - Turning Basin
SW 2017
Lat: 29 54 45.1' N
Lon: 90 07 08.8' W

Geodetic information: NAD83 Texas State Plane South Central

Approximate height of the bottom: 4.25 ft (measured in Carl's SPS)

Small object, obscured from the screen grab.
Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, Suit 16-313
Silver Spring, MD 20910
202-632-3230 office **new office number**
703-777-0355 work cell
michael.davidson@noaa.gov
ATTENTION DTON: Hurricane Harvey - areas of shoaling

I believe that you all are aware of some of these areas already, but considering the 4/2 draft restriction on the Upper HCS, I wanted to see the multibeam data for the area from Morgan's Point to San Jaco to supplement any cross section data that you may have already. We will get you some XYZ data on this shortly.

Areas of particular concern are:
1) Shoaling into the high 2/2s at the north end of Lynchburg Inbound Range
2) Shoaling into high 3/0s along west side of HCS between 9/1 and 9/1 (NE corner of Spillmans island)
3) Shoaling to the high 3/0s in the north part of Barbour's Cut Flats
4) Depth-limited channel edges for much of the HCS area (or near the current 4/2 draft restriction).

See attached sounding plots for details.

VIR,
Mike

---
Michael C. Davidson
Coastal Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, 555K3, Ste 6215 ***federal number***
Silver Spring, MD 20910
410-305-8103 ***local office***
410-774-9323 ***work cell***
michael.davidson@noaa.gov

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Morgan Pitts San Jac multibeam_coverage_overview.pdf
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http://
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Project:** Hurricane Harvey  
**Survey:** San Jacinto Bay  
**State:** Texas  
**Locality:** Houston  
**Sublocality:** San Jacinto Bay  
**Survey Scale:** 1:25,000  
**Sounding Units:** Feet  
**Sounding Datum:** MLLW  
**Horizontal Datum:** NAD 83 UTM 15 N  
**Chart Number:** 11327  
**NOAA NRT 4**  
D. Jacobs  
**Commanding**  
**Survey Date:** 09/03/2017  
09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Preliminary Data - NOT FOR NAVIGATION**

**Chartlet 2 of 11: Bathymetry**

**National Oceanic and Atmospheric Administration**

**National Ocean Service**

**Project:** Hurricane Harvey  
**Survey:** San Jacinto Bay  
**State:** Texas  
**Locality:** Houston  
**Sublocality:** San Jacinto Bay  
**Survey Scale:** 1:25,000  
**Sounding Units:** Feet  
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**NOAA NRT 4**  
**D. Jacobs**  
**Commanding**  
**Survey Date:** 09/03/2017  
**09/05/2017**
Bathymetry with concurrent side scan were acquired and inspected from Barbour's Terminal Channel at Morgan's Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Chartlet 3 of 11: Bathymetry
Preliminary Data - NOT FOR NAVIGATION

NOAA NRT 4
D. Jacobs
Commanding

Survey Date:
09/03/2017
09/05/2017

| Project: | Hurricane Harvey | Sounding Units: | Feet |
| State: | Texas | Sounding Datum: | MLLW |
| Locality: | Houston | Horizontal Datum: | NAD 83 UTM 15 N |
| Sublocality: | San Jacinto Bay | Chart Number: | 11327 |
| Survey Scale: | 1:25,000 | | 11328 |
| | | | 11329 |
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Chartlet 4 of 11: Bathymetry
Preliminary Data - NOT FOR NAVIGATION
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

Preliminary Data - NOT FOR NAVIGATION

NOAA NRT 4
D. Jacobs
Commanding

Survey Date:
09/03/2017
09/05/2017
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Survey Date: 09/03/2017
09/05/2017

NOAA NRT 4
D. Jacobs
Commanding

Survey Scale: 1:25,000

Chart Number: 11327
11328
11329

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.

**Chartlet 8 of 11: Bathymetry**

**Preliminary Data - NOT FOR NAVIGATION**

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<th>Sounding Datum: MLLW</th>
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<td>Survey Scale</td>
<td>1:25,000</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Survey Date:** 09/03/2017

**Survey Date:** 09/05/2017
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Chartlet 10 of 11: Bathymetry
Preliminary Data - NOT FOR NAVIGATION

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project: Hurricane Harvey
Survey: San Jacinto Bay
State: Texas
Locality: Houston
Sublocality: San Jacinto Bay
Survey Scale: 1:25,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83 UTM 15 N
Chart Number:
11327
11328
11329

NOAA NRT 4
D. Jacobs
Commanding

Survey Date:
09/03/2017
09/05/2017
Bathymetry with concurrent side scan were acquired and inspected from Barbour’s Terminal Channel at Morgan’s Point to Lynchburg Landing. Possible obstructions were found in the channel. Data reflects state of seafloor on the date surveyed.
Data partially meet 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 specific areas as delineated during office processing.

The following products will be sent to NCEI for archive
- Descriptive Report Memo
- 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. The survey has been approved for dissemination and limited usage of updating NOAA’s suite of nautical charts.

Approved:  
Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch