

H13186

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

**DESCRIPTIVE REPORT**

Type of Survey: Navigable Area

Registry Number: H13186

**LOCALITY**

State(s): Texas

General Locality: Port Lavaca, TX

Sub-locality: 9 NM WSW of Pass Cavallo

**2018**

CHIEF OF PARTY  
Andrew Orthmann

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H13186**

**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: **Port Lavaca, TX**

Sub-Locality: **9 NM WSW of Pass Cavallo**

Scale: **40000**

Dates of Survey: **09/27/2018 to 12/15/2018**

Instructions Dated: **07/18/2018**

Project Number: **OPR-K376-KR-18**

Field Unit: **Terrasond, Ltd.**

Chief of Party: **Andrew Orthmann**

Soundings by: **Multibeam Echo Sounder**

Imagery by: **Side Scan Sonar**

Verification by: **Atlantic 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 14N, 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 H13186

Project: OPR-K376-KR-18

Locality: Port Lavaca, TX

Sublocality: 9 NM WSW of Pass Cavallo

Scale: 1:40000

September 2018 - December 2018

**Terrasond, Ltd.**

Chief of Party: Andrew Orthmann

### A. Area Surveyed

The survey area is located offshore SE Texas, centered on Port Lavaca. Water depths range from approximately 14 to 22 meters. Field work was carried out between September and December, 2018. Final processing and reporting was carried out between January and April, 2019. Eight other nearby sheets were surveyed concurrently. Work was done in accordance with the Hydrographic Survey Instructions (dated July 18th, 2018) and the NOS Hydrographic Surveys Specifications and Deliverables (HSSD), April 2018 edition.

#### A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
28° 19' 12.7" N 96° 31' 7.68" W	28° 8' 51.17" N 96° 17' 40.36" W

*Table 1: Survey Limits*

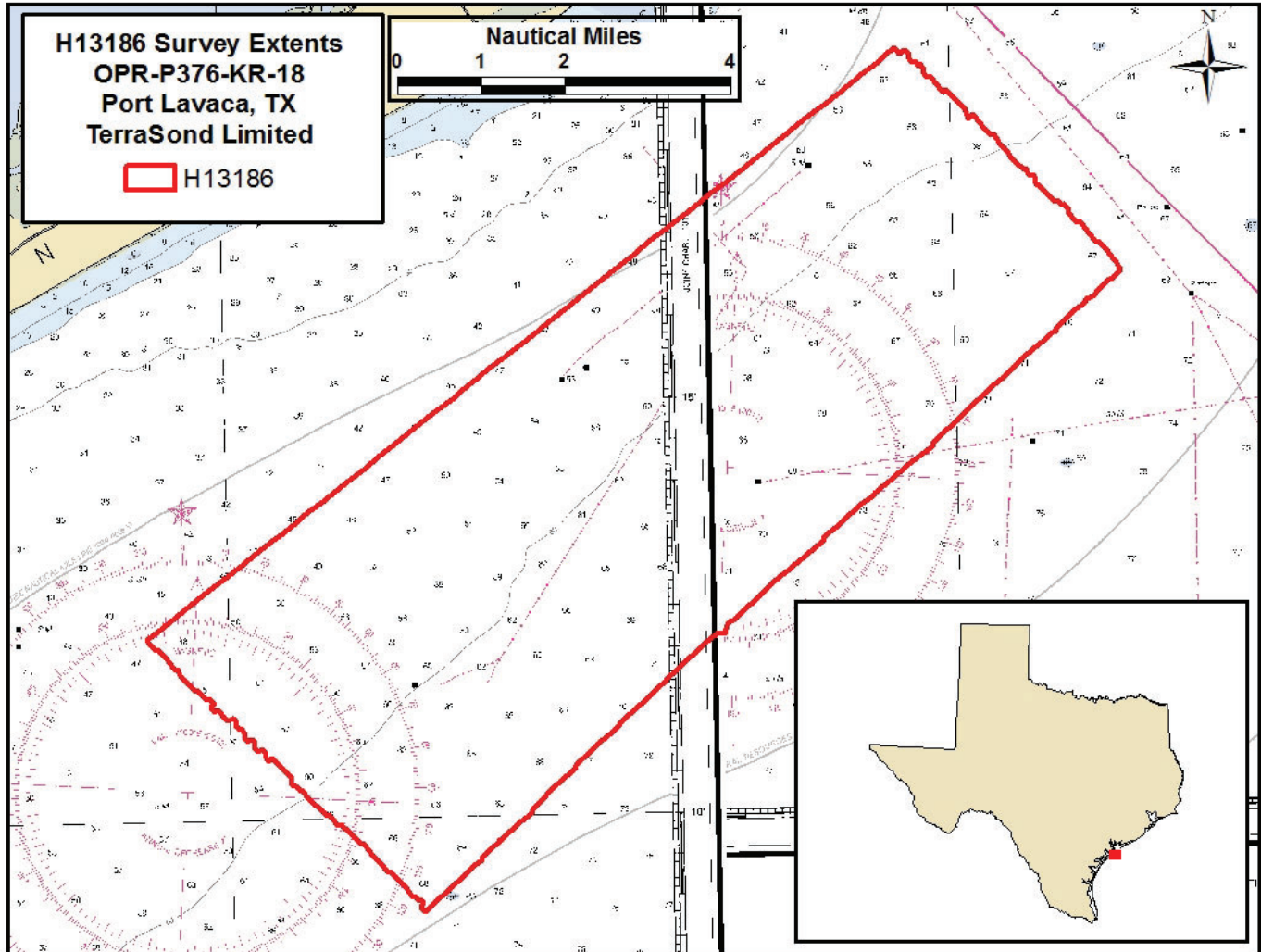


Figure 1: Graphic showing survey extents.

Survey limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

## A.2 Survey Purpose

This project is located in the vicinity of Port Lavaca, which includes the Matagorda Bay Shipping Channel. Port Lavaca is a major sea port that allows shipping to support the fishing, manufacturing, agriculture, tourism, as well as the fishing industries in the state of Texas. As a leader in the shrimp processing industry, Port Lavaca allows million tons of seafood to be shipping through its port yearly. Port Lavaca also supports shipping for Matagorda Bay, which houses several large manufacturing plants and a nuclear station. The U.S. Army Corps of Engineers maintains the Matagorda Bay Shipping Channel which is dredged and there are future plans to expand this dredged channel to 44 ft. in depth and 400 ft. wide.<sup>4</sup> The survey area covers the approaches to the shipping channel in an effort to cover all shipping traffic into the Matagorda Shipping

Channel. Recent hurricane activity in 2017 has made previous bathymetry in the area unreliable. This survey will allow shipping activities to continue into the Port of Lavaca.

### A.3 Survey Quality

The entire survey is adequate to supersede previous data.

### A.4 Survey Coverage

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

Water Depth	Coverage Required
H13180-H13187, except H13181	Complete Coverage (Refer to HSSD Section 5.2.2.3)
All waters in survey area	LNM no less than 7869 LNM. Report significant shoaling via weekly progress report. COR may adjust survey prioritization based on observed shoaling.

*Table 2: Survey Coverage*

Approximately 9,103 LNM were collected project-wide, which exceeds the minimum of 7,869 required in the Project Instructions. The 13.5% overage was largely due to unplanned infill/rerun work in areas of marginal data.

Both "Option A: Complete Coverage Multibeam" and "Option B: 100% side scan sonar coverage with concurrent multibeam" were used to meet HSSD Section 5.2.2.3 "Complete Coverage" requirements during this survey. Option B was favored whenever possible and used for most of the area, but Option A was also frequently exercised when the SSS equipment was experiencing issues or SSS data quality had degraded to an unacceptable degree. Infills/reruns on holidays in Option B areas were also frequently MBES-only if MBES was capable of efficiently covering the holiday.

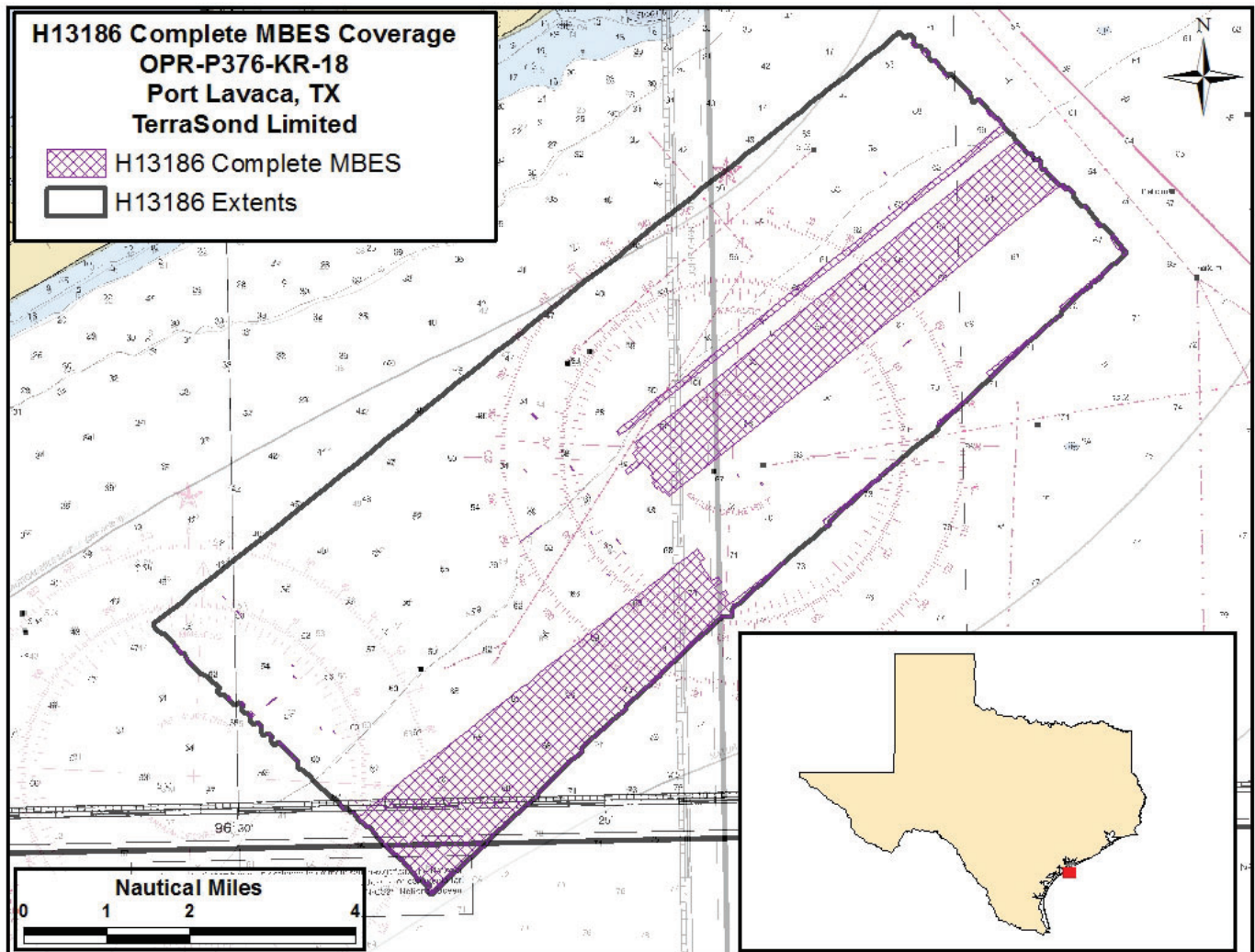


Figure 2: Graphic showing areas surveyed using Option A (Complete Coverage MBES) only. Remaining areas were surveyed with Option B. Additional MBES-only lines (not shown) may have been run in Option B areas as holiday infills or developments. MBES-only crosslines are also not shown.



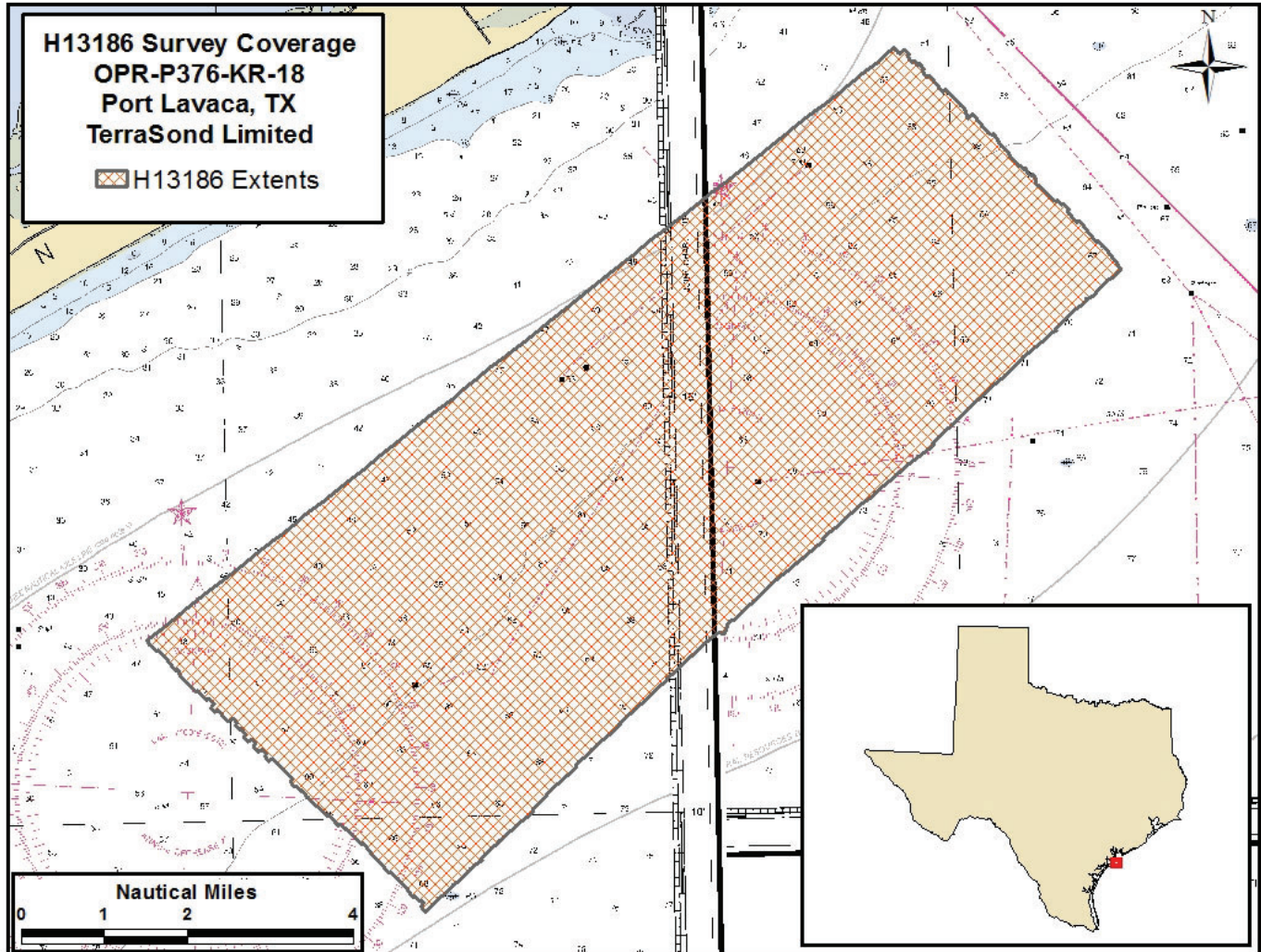


Figure 3: Graphic showing survey coverage extents.

## A.5 Survey Statistics

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

	<b>HULL ID</b>	<i>Bunny Bordelon</i>	<i>Total</i>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0
	<b>MBES Mainscheme</b>	176.9	176.9
	<b>Lidar Mainscheme</b>	0	0
	<b>SSS Mainscheme</b>	0	0
	<b>SBES/SSS Mainscheme</b>	0	0
	<b>MBES/SSS Mainscheme</b>	452.4	452.4
	<b>SBES/MBES Crosslines</b>	34.6	34.6
	<b>Lidar Crosslines</b>	0	0
<b>Number of Bottom Samples</b>			4
<b>Number Maritime Boundary Points Investigated</b>			0
<b>Number of DPs</b>			0
<b>Number of Items Investigated by Dive Ops</b>			0
<b>Total SNM</b>			48.2 <b>3149</b>

Table 3: Hydrographic Survey Statistics

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

<b>Survey Dates</b>	<b>Day of the Year</b>
09/27/2018	270

<b>Survey Dates</b>	<b>Day of the Year</b>
09/28/2018	271
11/23/2018	327
11/24/2018	328
11/25/2018	329
11/26/2018	330
11/27/2018	331
11/28/2018	332
12/05/2018	339
12/11/2018	345
12/15/2018	349

*Table 4: Dates of Hydrography*

## **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:

<b>Hull ID</b>	<i><b>Bunny Bordelon</b></i>
<b>LOA</b>	45.7 meters
<b>Draft</b>	3.5 meters

*Table 5: Vessels Used*





*Figure 4: Bunny Bordelon*

The RV Bunny Bordelon is owned and operated by Bordelon Marine Services, LLC of Houma, Louisiana. It was outfit with a 20' conex on the back deck for working space, an A-frame and a winch for towed SSS operations, and a retractable MBES pole mid-ship on its port-side.

Note the other vessels detailed in the DAPR were not utilized on this survey sheet.

## B.1.2 Equipment

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

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
Teledyne RESON	Seabat T50 IDH	MBES
EdgeTech	4200	SSS
Applanix	POS MV 320 v5	Positioning and Attitude System
AML Oceanographic	Minos-X	Sound Speed System
AML Oceanographic	MicroX SVS	Sound Speed System
Valeport	RapidSV	Sound Speed System
Valeport	SWIFT SVP	Sound Speed System
Teledyne Oceanscience	RapidCast	Underway Sound Speed Deployment System

*Table 6: Major Systems Used*

## B.2 Quality Control

### B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 5.50% of mainscheme acquisition.

Effort was made to ensure crosslines had good temporal and geographic distribution, were angled to enable nadir-to-nadir as well as nadir-to-outer beam comparisons, and that the required percent of mainscheme LNM was achieved.

The crossline analysis was conducted using CARIS HIPS “Line QC Report” process. Each crossline was selected individually and run through the process, which calculated the depth difference between each accepted crossline sounding and a "QC" BASE (CUBE-type, 2 m resolution) surface’s depth layer created from the mainscheme data. QC surfaces were created with the same parameters used for 2 m surfaces as the final surfaces, with the important distinction that the QC surfaces did not include crosslines so as to not bias the results. Differences in depth were grouped by beam number and statistics were computed, including the percentage of soundings with differences from the QC surface falling within IHO Order 1a.

When at least 95% of the sounding differences exceed IHO Order 1a, the crossline was considered to “pass,” but when less than 95% of the soundings compare within IHO Order 1, the crossline was considered to “fail.” A 5% (or less) failure rate was considered acceptable since this approach compares soundings to a

surface (instead of a surface to a surface), allowing for the possibility that noisy crossline soundings that don't adversely affect the final surface(s) could be counted as a QC failure under this process. Lines used as crosslines and their % of soundings passing IHO Order 1a, sorted from highest passing to lowest, are listed below.

1132-Bunny-332-H2\_XL\_1 -- 100.0% pass  
 1355-Bunny-339-H\_XL\_02 -- 100.0% pass  
 1358-Bunny-339-H\_XL\_03 -- 100.0% pass  
 1367-Bunny-339-H\_XL\_04 -- 100.0% pass  
 1374-Bunny-339-Sheet-H1\_XL\_12 -- 100.0% pass  
 1375-Bunny-339-Sheet\_H1\_XL\_13 -- 100.0% pass  
 1377-Bunny-339-H\_XL\_05 -- 100.0% pass  
 1378-Bunny-339-H\_XL\_05 -- 100.0% pass  
 1379-Bunny-339-H\_XL\_06 -- 100.0% pass  
 1381-Bunny-339-H\_XL\_07 -- 100.0% pass

Note that individual crosslines often have two or more files (or segments) in CARIS due to the automatic file splitting feature in the acquisition software (QPS QINSy). For each individual crossline, all applicable segments were selected and ran together through the QC report process so that the QC report would reflect the crossline as a whole instead of its individual file segments.

Results:

Agreement between the mainscheme-only surface and crossline soundings is excellent. Compared to the mainscheme-only surface, 10 of 10 crosslines had 100% of soundings comparing within IHO Order 1a.

Refer to Separate II: Digital Data for the detailed Crossline QC Reports.

### B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.104 meters	0 meters

*Table 7: Survey Specific Tide TPU Values.*

Hull ID	Measured - CTD	Measured - MVP	Surface
RV Bunny Bordelon	0 meters/second	2 meters/second	0.025 meters/second

*Table 8: Survey Specific Sound Speed TPU Values.*

The surfaces were finalized in CARIS HIPS so that the uncertainty value for each grid cell is the greater of either standard deviation or uncertainty. The surfaces were then ran through NOAA's QC Tools "QA" utility to compare uncertainty values to allowable TVU by depth.

Results: Greater than 99.5% of grid cells for all final surfaces have uncertainty within the allowable TVU. The relatively few grid cells exceeding allowable TVU were found to primarily be on the edges of swaths without overlap, overlap areas exhibiting sound speed refraction error, or over features. The surfaces in these areas were examined and determined to be within specifications.

Refer to the DAPR for more information on derivation of the values used for TPU estimates.

### **B.2.3 Junctions**

This survey junctions with four Current surveys. All were surveyed concurrently with this survey.

NOAA's "Gridded Surface Comparison V18.4" utility was used to complete the junction comparisons. The utility differences the surfaces of the junctioning surveys and generates statistics, including the percentage of grid cells that compare to within allowable TVU. 1 m-resolution CUBE surfaces were used for all comparisons.

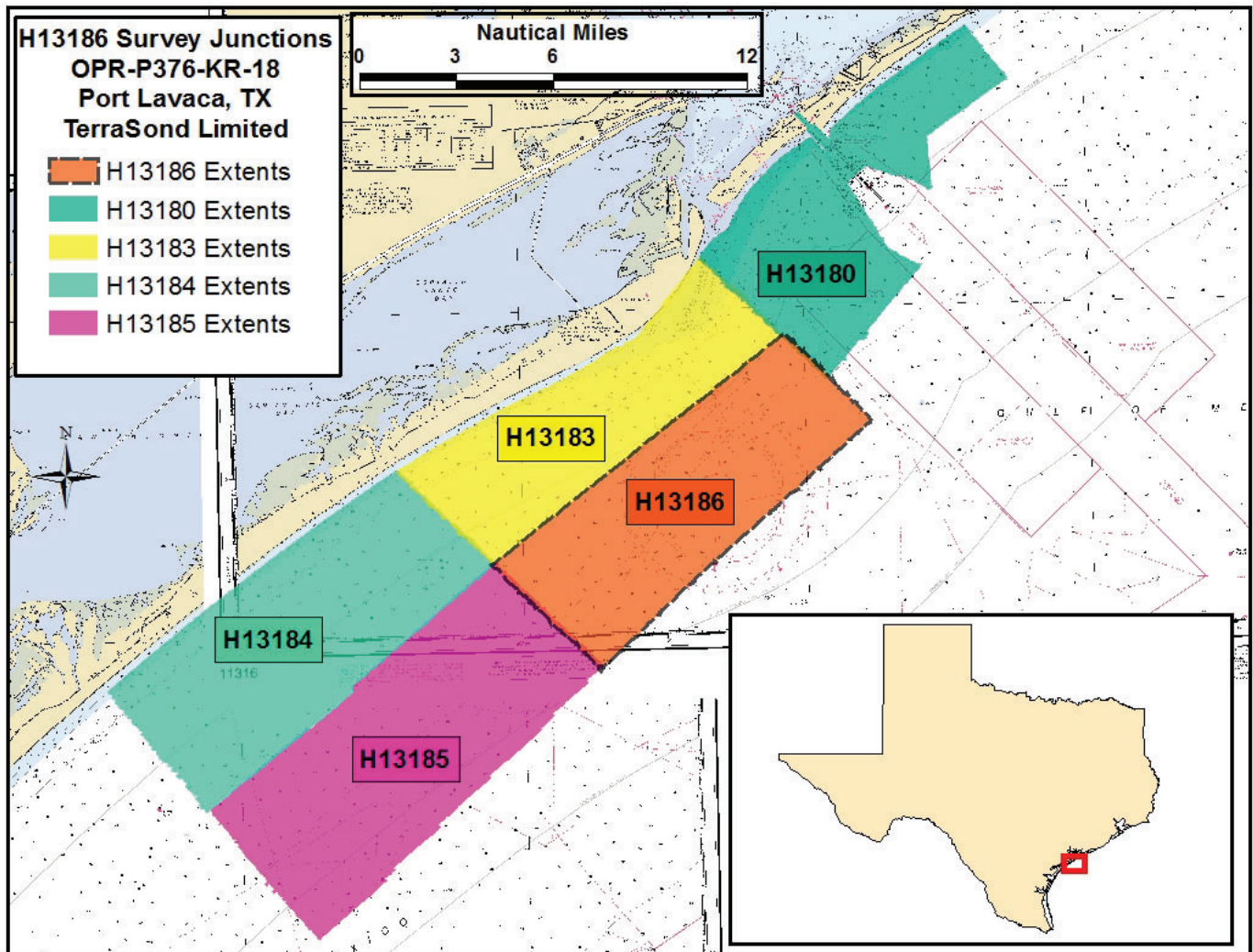


Figure 5: Graphic showing junctions with this survey.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H13185	1:40000	2019	Terrasond, Ltd.	SW
H13184	1:40000	2018	Terrasond, Ltd.	W
H13183	1:40000	2019	Terrasond, Ltd.	NW
H13180	1:40000	2019	Terrasond, Ltd.	NE

Table 9: Junctioning Surveys



H13185

Agreement is excellent between the two Current surveys. The mean difference is 0.01 m, and greater than 99.5% of grid cells compare to within the allowable TVU.

H13184

Overlap between these surveys is incidental on their corners. Agreement is excellent between the two Current surveys. The mean difference is 0.04 m, and 100% of grid cells compare to within the allowable TVU.

H13183

Agreement is excellent between the two Current surveys. The mean difference is 0.05 m, and greater than 99.5% of grid cells compare to within the allowable TVU.

H13180

Agreement is excellent between the two Current surveys. The mean difference is 0.05 m, and 100% of grid cells compare to within the allowable TVU.

**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**MBES pole vibration on Bunny Bordelon

During the initial patch test at the start of Bunny Bordelon operations, excessive vibration or shaking became apparent in the MBES pole at speeds above about 4 knots. The effect on the data was minimized by adding additional support to the pole and minimizing survey speeds while a replacement MBES pole was fabricated. The new MBES pole was installed on JD2018-278, which resolved the issue for the remainder of the survey. Data quality collected with the shaky pole (up to and including JD2018-278) was found to be acceptable, largely due to the submersible IMU co-located with the MBES head which moved at the same frequency as the MBES head. However, this data exhibited above average noise, which was rejected in processing. The first data with the new pole, which did not exhibit similar issues and was used until the end of the project, was collected on JD2018-282. Data is within specifications.

## **B.2.6 Factors Affecting Soundings**

### Sound Speed Error

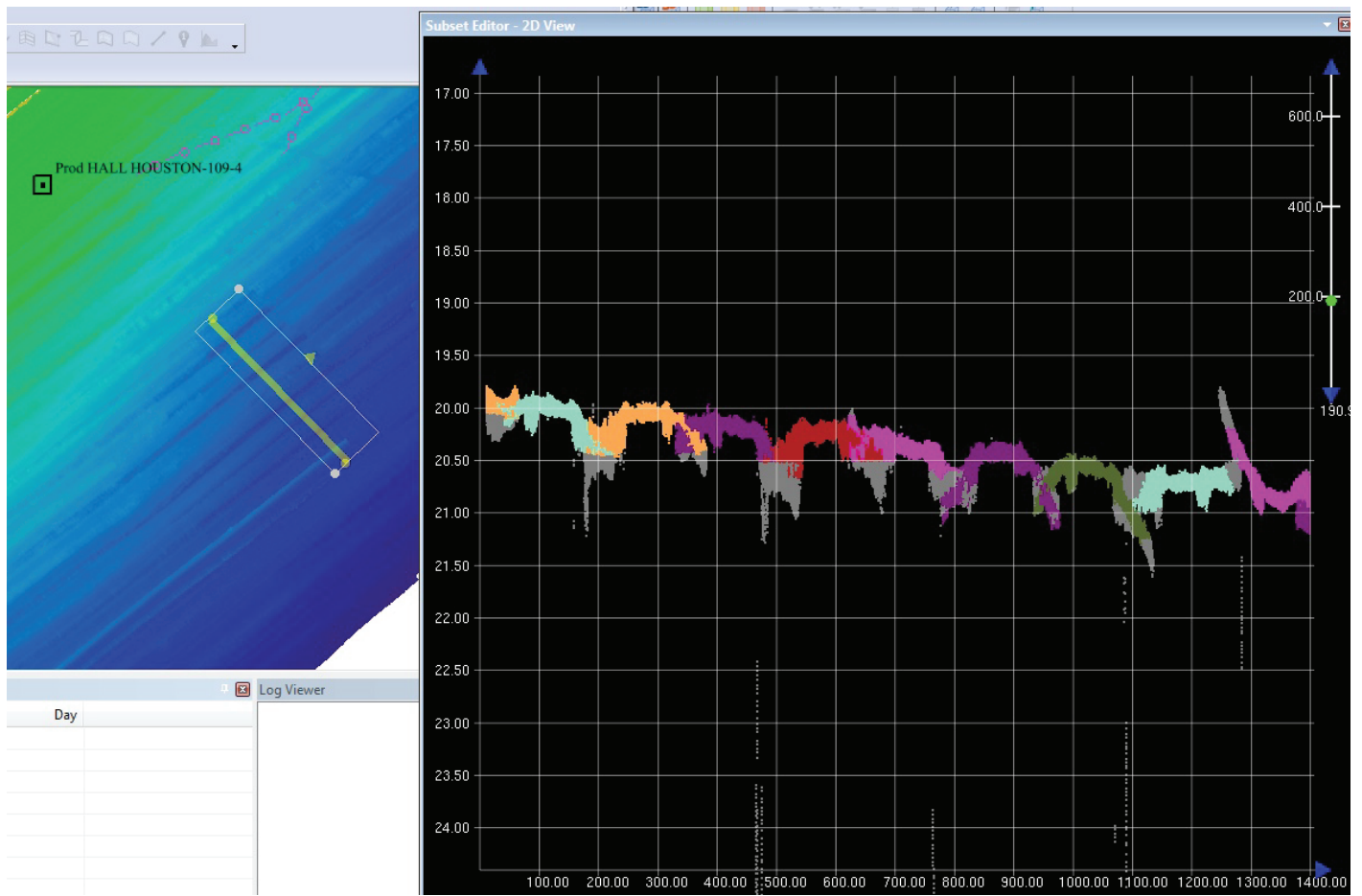
Sound speed error or refraction is common in this data set. This is observed as a general downward or upward cupping ("frowning" or "smiling") of the seafloor MBES profiles. The issue was exacerbated by use of a dual-head MBES system, which increased swath-width in order to cover more area per LNM collected but also resulted in outer beam data that was more susceptible to induced error from variations in sound speed profiles.

In processing, lines with excessive sound speed error were analyzed to determine if better results could be obtained from manually choosing a specific sound speed profile instead of using the project default "nearest in distance within time 4 hours". These are itemized later in this report.

Finally, swath filters as well as manual editing in subset mode was used to reject outer beam soundings that appeared to exceed allowable TVU (considered to be greater than 0.5 m from estimated true seafloor based on nadir depth).

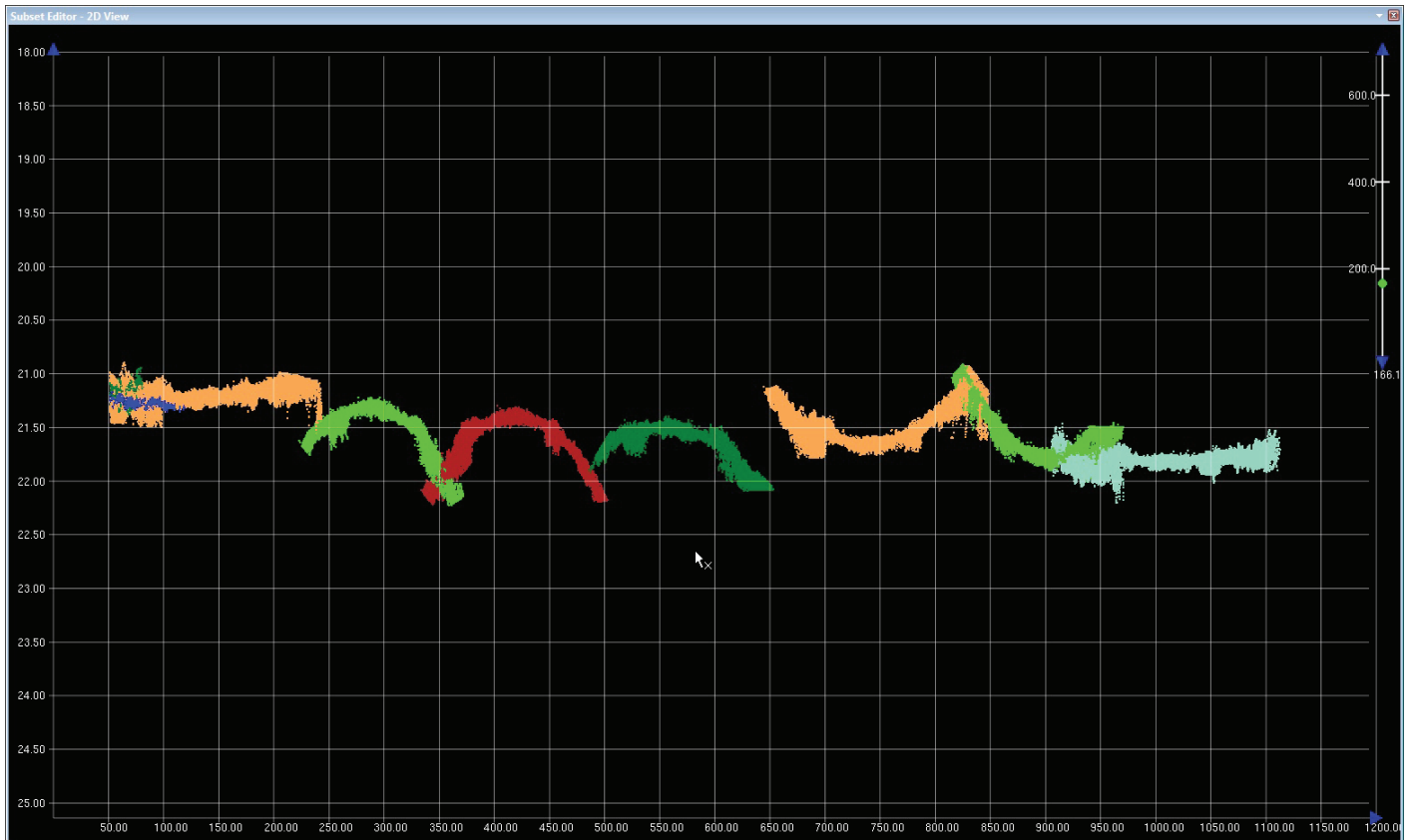
Note: In the SW portion of the sheet, approximately vicinity of 28-11-47 N, 96-24-14 W, sound speed refraction error caused the final surface to exceed allowable TVU in the outer beam areas. Resolving the error by utilizing alternate casts was unsuccessful. The soundings exhibiting excessive error were manually rejected in subset editor. This opened alongtrack holidays in this Complete MBES Coverage area. However, despite the refraction error the sounding data was of sufficient quality to detect significant objects and was examined for objects prior to rejection. An example from this area is shown below.

Crossline analysis, which included crossings of good near-nadir crossline data over outerbeam mainscheme data exhibiting sound speed error, passes within IHO Order 1a indicating final surfaces are within specifications.

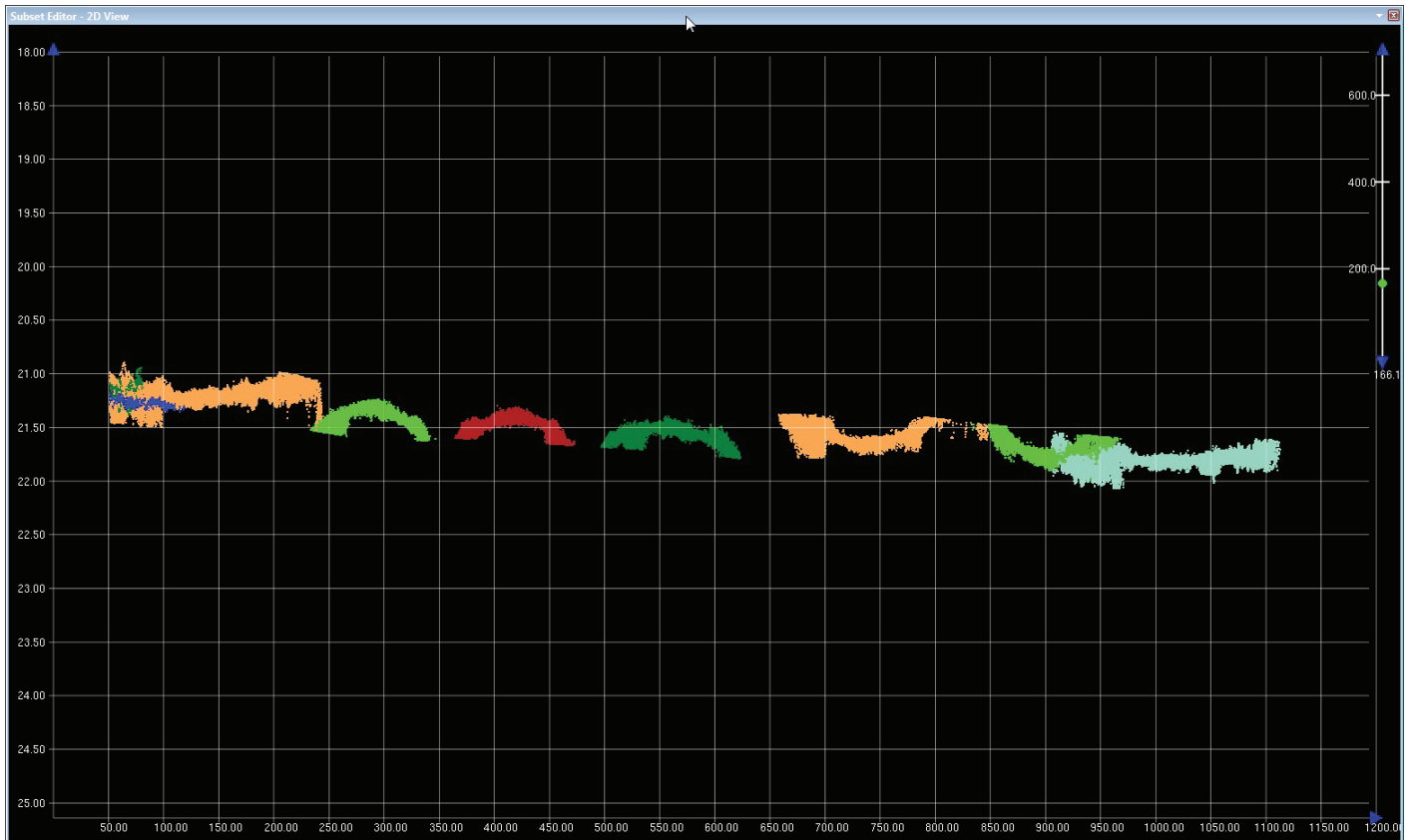


*Figure 6: Example of sound speed error from this survey. Gray soundings and their effect on the final surface were considered to exceed allowable TVU and were rejected.*





*Figure 7: SW corner of survey with significant sound speed error prior to rejection of outerbeam data. Error is great enough to exceed allowable TVU between lines.*



*Figure 8: Same area following manual rejection of erroneous soundings. Remaining near-nadir soundings are within allowable TVU. Along-track holidays were opened between lines but the area was inspected for significant objects prior to rejection.*

### SSS Refraction and Surface Noise

The SSS image quality is intermittently affected by thermocline refraction as well as water column noise due to waves at the surface, leading to variable artifacts in SSS data. SSS image quality was monitored continually during acquisition and SSS operations were stopped when it was determined that imagery quality had degraded to a point that significant objects were unlikely to be resolved. At this time either MBES-only operations were carried out with a tighter line spacing to obtain Complete Coverage, or vessel downtime due to weather was commenced.

### **B.2.7 Sound Speed Methods**

Sound Speed Cast Frequency: 2 hours

Sound speed profiles ("casts") were collected while underway. A combination of AML Minos-X, Valeport RapidSV, and Valeport SWIFT SVP profilers were used over the course of the project. Changes in sound speed at the MBES sonar head were monitored and a sound speed profile was acquired when the sound

speed at the head differed from the sound speed at the depth of the sonar head in the previous profile by greater than 2 m/s. This resulted in an interval of approximately 2 hours between subsequent casts. Casts were taken as deep as possible, usually extending to the seafloor. These were normally applied nearest in distance in time within 4 hours in CARIS HIPS to exclude profiles too outdated or distant from the applicable sounding data. Refer to the DAPR for more information on SVP profiling including specific instruments used, SVP confidence checks performed, and processing methodology.

### **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**

#### SVP Profile Exceptions

As described earlier, in processing, lines with excessive sound speed error were analyzed to determine if better results could be obtained from manually choosing a specific sound speed profile instead of using the project default "nearest in distance within time 4 hours". To apply in CARIS, this necessitated placing individual casts in their own CARIS SVP file and applying using the custom file instead of the sheet-wide file which contained all casts. These were also required utilizing a custom time allowance instead of the standard 4-hour cast selection criteria. These files are included with the CARIS SVP data and were applied as follows:

#### JD327

Used svp file JD327-0857.svp with NDT 8hrs with lines:

1031-Bunny-327-H1-729 \_ \_ 0002  
1032-Bunny-327-H1-714 \_ \_ 0001  
1032-Bunny-327-H1-714 \_ \_ 0002  
1033-Bunny-327-H1-699 \_ \_ 0001  
1033-Bunny-327-H1-699 \_ \_ 0002  
1034-Bunny-327-H1-684 \_ \_ 0001

Used SVP file JD327-1416.svp with NDT 4hrs with lines:

1032-Bunny-327-H1-714 \_ \_ 0003

#### SBET Exception

The following line required loading of SBET with partial coverage due to a POS file outage:

1070-Bunny-328-H1-144-0002

### B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

### B.4 Backscatter

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

## B.5 Data Processing

### B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Profile V\_5\_7.

NOAA Extended Attribute File V5.7 was used as the most current feature file version at the commencement of survey acquisition.

### 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
H13186_MB_1m_MLLW_Final	CARIS Raster Surface (CUBE)	1 meters	0 meters - 20 meters	NOAA_1m	Complete MBES
H13186_MB_2m_MLLW_Final	CARIS Raster Surface (CUBE)	2 meters	18 meters - 40 meters	NOAA_2m	Complete MBES
H13186_SSSAB_1m_400kHz	SSS Mosaic	1 meters	0 meters - 40 meters	N/A	100% SSS

*Table 10: Submitted Surfaces*

The final depth information for this survey was submitted as CARIS BASE surfaces (CSAR format) which best represented the seafloor at the time of the survey. The surfaces were created from fully processed data with all final corrections applied. Surfaces were created using NOAA CUBE parameters and resolutions by depth range in conformance with the 2018 HSSD. Surfaces were finalized, and designated soundings were applied. Horizontal projection was selected as UTM Zone 14 North, NAD83. Non-finalized versions of the

CSAR surfaces are also included which do not have a depth cutoff applied. These do not have the "\_Final" designation in the filename.

Following final cleaning and editing, some minor holidays were found to exist in the 1 m surface on the deep end. These were in the 18 m to 20 m depth range, which overlapped the 2 m surface. The holidays are not present in this depth range in the 2 m surface. Additionally, as described earlier in this report, some along-track holidays exist in a portion of the SW Complete MBES coverage due to rejection of erroneous soundings that caused the surfaces to exceed allowable TVU -- these areas were checked for significant contacts prior to rejection and none were found.

A crossline QC surface is also included with the surface deliverables ("H13186\_XLQC-MS-only\_2m"). This is the 2 m resolution CUBE surface in CSAR format discussed previously in the crossline section used to create the crossline QC reports. This surface excludes crosslines. It is included for reference only and should not be used for charting.

SSS mosaics were exported from Chesapeake SonarWiz 7 software at 1 m resolution using a grayscale pallet per the 2018 HSSD. The grayscale coverages are not the SonarWiz default color pallet, which is a bronze color -- as a result the grayscale images appear rougher and less visually appealing than the bronze images. Therefore, bronze color versions are also included for reference and are recommended for use over the grayscale versions.

An S-57 (.000) Final Feature File (FFF) was submitted with the survey deliverables as well. The FFF contains meta-data and other data not readily represented by the final surfaces, including bottom samples and feature investigation results. An S-57 SSS contact file is also included. Each object is encoded with mandatory S-57 attributes and NOAA Extended Attributes (V#5.7).

## **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 Methods Used:

ERS via VDATUM

#### Ellipsoid to Chart Datum Separation File:

VDATUM\_Outline\_Shape\_xyNAD83-MLLW\_geoid12b.csar

Reduction to MLLW was accomplished using ERS methodology via VDATUM. The VDATUM model was provided by NOAA prior to operations and had an uncertainty specified as 10.4 cm. The VDATUM model was validated during this survey using comparisons with NWLON gauge data and found to be acceptable for tidal reduction. See the HVCR for validation reports.

## **C.2 Horizontal Control**

The horizontal datum for this project is North American Datum 1983.

The projection used for this project is Projected UTM 14N.

The following PPK methods were used for horizontal control:

Smart Base

Applanix Smart Base (ASB) was used as a comparison against Trimble PP-RTX results, and generally compared to 0.10 m or better.

All positions were post-processed in Applanix POSPac MMS software using Trimble PP-RTX as the correction source. RMS errors were generally at 0.10 m or better, both horizontally and vertically.

WAAS was used for real-time positioning only, and was replaced in post-processing with PP-RTX solutions for final MBES data. However SSS positions were not post-processed and are therefore based on WAAS positioning.

## **D. Results and Recommendations**

### **D.1 Chart Comparison**

The chart comparison was performed by examining the best-scale Electronic Navigational Charts (ENCs) that intersect the survey area. The latest edition(s) available at the time of the review were used. The chart comparison was accomplished by overlaying the finalized BASE surfaces with shoal-biased soundings, and final feature file on the charts in CARIS HIPS. The general agreement between charted soundings and survey soundings was then examined and a more detailed comparison was undertaken for any shoals or other dangerous features. In areas where a large scale chart overlapped with a small scale chart, only the larger scale chart was examined.

USCG LNM and NMs applicable to the survey area issued subsequent to the start of operations and prior to completion of operations were also examined. For this survey these consisted of LNM/NM 40/18 to 51/18. None were found that were applicable to this survey.

When comparing to survey data, chart scale was taken into account so that 1 mm at chart scale was considered to be the valid radius for charted soundings and features.

It is recommended that in all cases of disagreement this survey should supersede charted data. Results are shown in the following sections.

### D.1.1 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4TX28M	1:80000	18	11/16/2018	03/14/2019	NO
US4TX31M	1:80000	26	03/11/2019	03/19/2019	NO

*Table 11: Largest Scale ENC's*

#### US4TX28M

There is a small amount of overlap between this survey and US4TX28M. Agreement is excellent, with soundings agreeing to 0.5 m or better. There are no apparent trends in shoaling or deepening.

#### US4TX31M

General sounding agreement is excellent, with most soundings agreeing to 0.5 m or better. No trends in deepening or shoaling were observed.



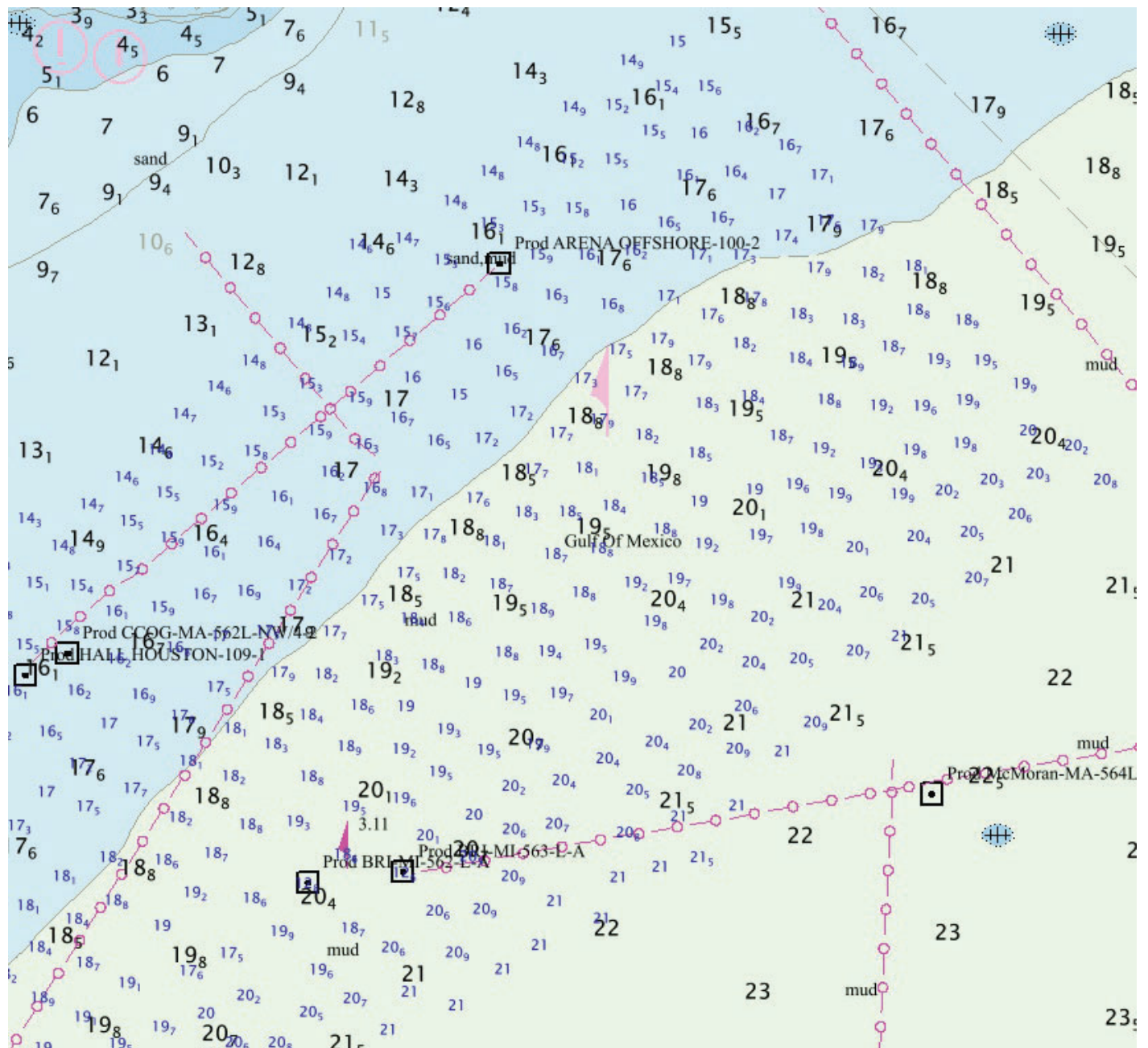


Figure 9: Soundings from this survey (blue) overlaid on soundings from US4TX31M. North part of survey area. Soundings in meters.



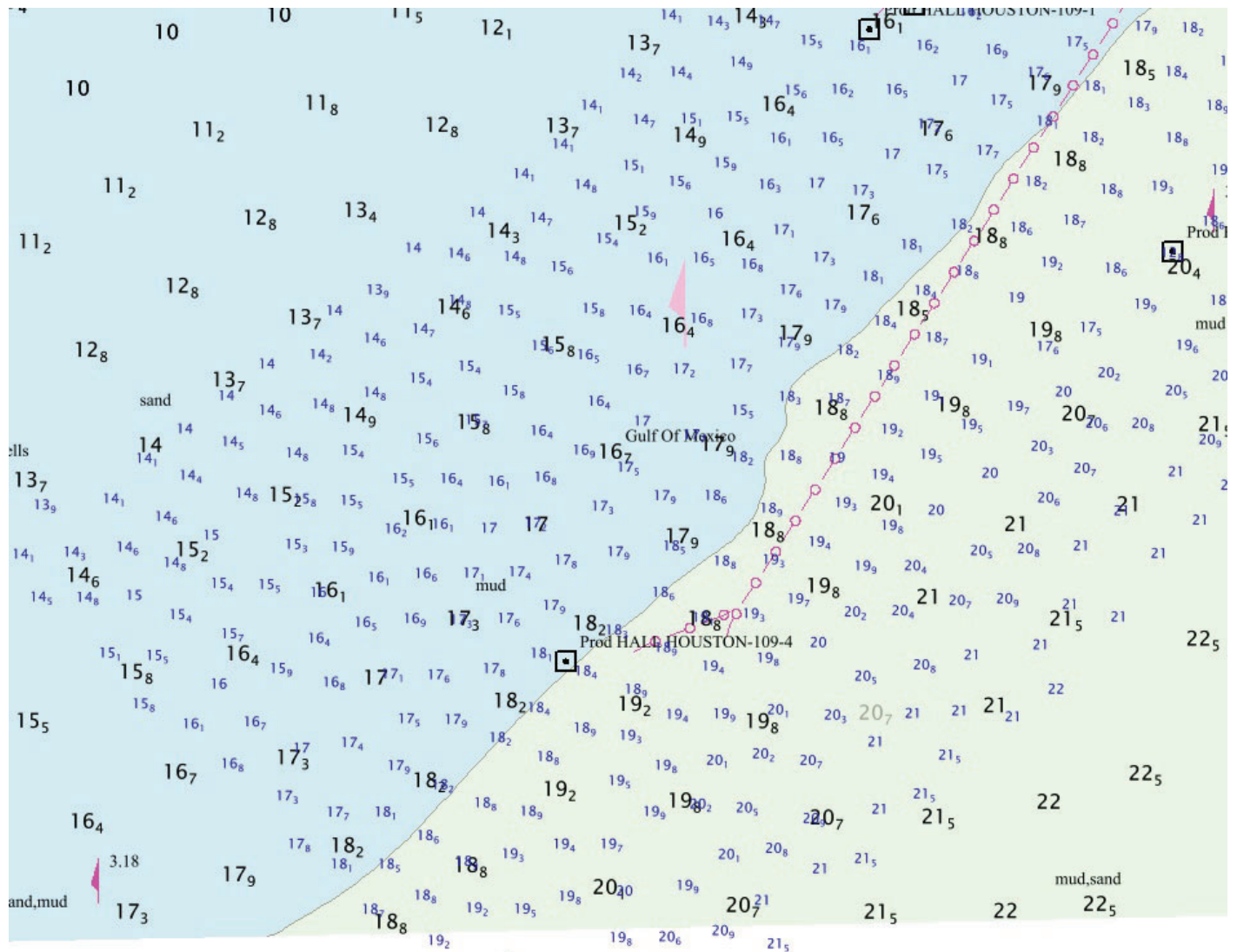


Figure 10: Soundings from this survey (blue) overlaid on soundings from US4TX31M. South part of survey area. Soundings in meters.

### D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

### D.1.3 Charted Features

No charted features exist for this survey.

#### D.1.4 Uncharted Features

New features are as described in the accompanying FFF.

#### D.1.5 Shoal and Hazardous Features

An unusual collection of bottom debris or objects, apparently from oil and gas activity, exists in the vicinity of the charted platforms approximately centered on 28-13-54 N, 96-23-24 W. Water depths in the area are about 20 m. Most objects are significant and commonly rise 1.5 to 3 meters off the seafloor. The area received SSS coverage and subsequent MBES development to ensure least depths were captured on the features. Soundings on the most significant features in the area were designated. The objects were not submitted as DTONs due to the proximity to charted oil and gas platforms.

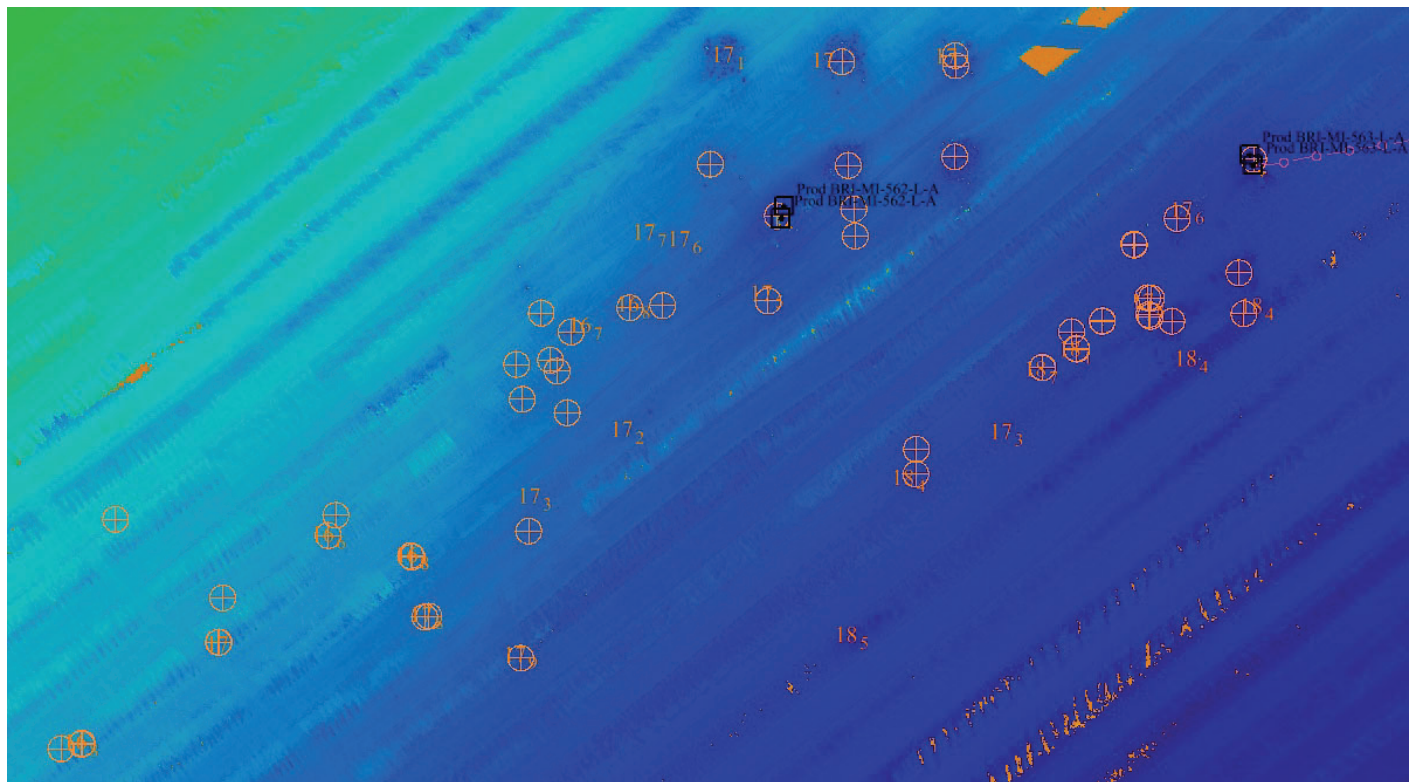


Figure 11: Area with large amount of objects on the seafloor, apparently associated with oil and gas activity from the nearby charted platforms. SSS contacts and MBES designated soundings are shown. The area was developed with Complete MBES to capture least depths, which were designated when appropriate.

### **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**

Four samples were assigned in the project PRF. Samples were successfully obtained at all locations. These were primarily sticky gray clay and mud. Bottom sample results are provided in the accompanying FFF.

## **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 Prior Surveys**

No prior survey comparisons were required for this survey.

### **D.2.3 Aids to Navigation**

No Aids to navigation (ATONs) exist for this survey.

### **D.2.4 Overhead Features**

No overhead features exist for this survey.

### **D.2.5 Submarine Features**

Charted pipelines exist in the area but were generally not readily discernible in the survey data. None were found to be elevated or of navigational concern. All are recommended for retention in the FFF.

### **D.2.6 Platforms**

Six platforms were assigned in the CSF and investigated.

Only two were found to exist, and these had positions up to 30 m from the charted/assigned position. New, central positions were derived from the MBES soundings obtained on the structure's legs. Platforms were photographed when possible.

The other four were not found. Complete Coverage MBES was carried out in these areas to fully disprove the platform and search for any remains on the seafloor.

Investigation results are available in the accompanying FFF.

#### **D.2.7 Ferry Routes and Terminals**

No ferry routes or terminals exist for this survey.

#### **D.2.8 Abnormal Seafloor and/or Environmental Conditions**

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

#### **D.2.9 Construction and Dredging**

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

#### **D.2.10 New Survey Recommendation**

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

#### **D.2.11 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 document as well as the Hydrographic Survey Project Instructions and Statement of Work. This data is adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies--if any--noted in the Descriptive Report.

Report Name	Report Date Sent
Coast Pilot Report	2019-04-25
VDatum Validation Report for Port Lavaca	2019-04-24
NCEI Sound Speed Data Submission	2019-04-09
Marine Mammal Observers Training Logsheets and Observation Logs	2019-03-22
Port Lavaca Boat Float Tide Analysis	2018-09-18

Approver Name	Approver Title	Approval Date	Signature
Andrew Orthmann, C.H.	TerraSond Charting Program Manager	05/01/2019	Andrew Orthmann  Digitally signed by Andrew Orthmann Date: 2019.05.01 11:57:28 -08'00'

## F. Table of Acronyms

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

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



<b>Acronym</b>	<b>Definition</b>
<b>PRF</b>	Project Reference File
<b>PS</b>	Physical Scientist
<b>PST</b>	Physical Science Technician
<b>RNC</b>	Raster Navigational Chart
<b>RTK</b>	Real Time Kinematic
<b>SBES</b>	Singlebeam Echosounder
<b>SBET</b>	Smooth Best Estimate and Trajectory
<b>SNM</b>	Square Nautical Miles
<b>SSS</b>	Side Scan Sonar
<b>SSSAB</b>	Side Scan Sonar Acoustic Backscatter
<b>ST</b>	Survey Technician
<b>SVP</b>	Sound Velocity Profiler
<b>TCARI</b>	Tidal Constituent And Residual Interpolation
<b>TPE</b>	Total Propagated Error
<b>TPU</b>	Topside Processing Unit
<b>USACE</b>	United States Army Corps of Engineers
<b>USCG</b>	United Stated Coast Guard
<b>UTM</b>	Universal Transverse Mercator
<b>XO</b>	Executive Officer
<b>ZDA</b>	Global Positioning System timing message
<b>ZDF</b>	Zone Definition File



## **APPENDIX I**

### **Tides and Water Levels**

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Appendix I contains the following documentation.

1. Abstract of Times of Hydrography
2. Correspondence directly relating to tides and/or water levels

Data was reduced to MLLW using a VDATUM grid provided by NOAA. Therefore no Tide Notes, Transmittal Letters, or Request for Approved Tides letters exist.

The VDATUM model received a validation analysis; results are available with the project HVCR.

### Abstract of Times of Hydrography

Project: OPR-K376-KR-18  
Registry No.: H13186  
Contractor: TerraSond Limited  
Inclusive Dates: September 27, 2018 – December 15, 2018  
Field work is complete.  
All times UTC.

Year_DOY	Min Time	Max Time
2018_270	22:09:11	23:59:19
2018_271	00:00:19	00:28:48
2018_327	08:15:17	23:59:49
2018_328	00:00:49	23:57:20
2018_329	00:08:17	23:59:13
2018_330	00:00:14	15:38:13
2018_331	05:28:06	23:56:59
2018_332	00:06:38	01:10:04
2018_339	06:52:51	22:47:58
2018_345	05:33:35	06:16:50
2018_349	08:15:14	08:28:35

## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Tuesday, September 18, 2018 10:35  
**To:** 'Kathryn Pridgen - NOAA Federal'  
**Cc:** 'nathan@joasurveys.com'  
**Subject:** boat float analysis for Port Lavaca  
**Attachments:** port\_lavaca\_boat\_float\_analysis.pdf

Hi Katy, please see attached an analysis that JOA Surveys completed for the PPK-boat float data completed on the Sea Ark for the Port Lavaca project. I'll likely refer questions on the analysis to Nathan Wardwell (cc'd).

Andy

## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Wednesday, April 24, 2019 11:21  
**To:** 'kathryn.pridgen@noaa.gov'  
**Subject:** VDatum Validation Report for Port Lavaca  
**Attachments:** JOA 430 - OPR-K376-KR-18 Tide Report.pdf

Hi Katy,

The VDATUM validation report is complete for the Port Lavaca, TX project. This was the vessel waterline analysis that was proposed.

No action items here; overall it looks good. There were some outlier vessel waterlines in a figure on page 4 that I discussed with Nathan at JOA (who wrote the report) and we determined to be some bad waterline elevations, which has been addressed.

The report is FYI; it will be included with the survey deliverables attached to the HVCR as well.

Andy

## **APPENDIX II**

### **Supplemental Survey Records and Correspondence**

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Contents:

1. DTON recommendation(s) with NDB verification(s), if any
2. Other survey-related correspondence. See Appendix I for correspondence directly relating to tides and water levels.

## Andrew Orthmann, CH

---

**From:** Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>  
**Sent:** Wednesday, August 01, 2018 15:05  
**To:** Andrew Orthmann, CH; Thomas Newman, PLS, CH  
**Cc:** Stacy Fullerton - NOAA Federal; Corey Allen - NOAA Federal; Martha Herzog - NOAA Federal  
**Subject:** Re: EA133C14CQ0036 Task Order 1305M218FNCNJ0146  
**Attachments:** OPR-K376-KR-18\_Port Lavaca.zip

Andy and Thomas

Here is the final project package for Port Lavaca. Also, I wanted to offer your staff a pre-project briefing meeting to go over details and requirements of the project. This is not a requirement and is completely optional on the part of Terrasond. Just let me know if it's desired.

Katy

-----  
Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
240-533-0033  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Wed, Aug 1, 2018 at 4:24 PM, Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Received. Thank you for the opportunity to complete this task order. We will get to work on it immediately.

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

## TerraSond

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**From:** Stacy Fullerton - NOAA Federal <[stacy.fullerton@noaa.gov](mailto:stacy.fullerton@noaa.gov)>

**Sent:** Wednesday, August 01, 2018 11:41

**To:** Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>; Thomas Newman, PLS, CH <[tnewman@terrasond.com](mailto:tnewman@terrasond.com)>  
**Cc:** Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>; Corey Allen - NOAA Federal <[corey.allen@noaa.gov](mailto:corey.allen@noaa.gov)>; Eastern Operations Eastern Operations - NOAA Service Account <[easternoperations@noaa.gov](mailto:easternoperations@noaa.gov)>; Martha Herzog - NOAA Federal <[martha.herzog@noaa.gov](mailto:martha.herzog@noaa.gov)>  
**Subject:** EA133C14CQ0036 Task Order 1305M218FNCNJ0146

Good Afternoon,

Please find the attached OF347 task order award document for hydrographic survey in the vicinity of Port Lavaca, Texas for your records/action.

Katy Pridgen is the appointed COR for this task order.

Please acknowledge receipt.

Thank you,

Stacy

--

Stacy Fullerton  
Contract Specialist, NOAA, AGO  
Eastern Acquisition Division  
Supporting National Ocean Service  
[200 Granby Street, Suite 815](#)  
[Norfolk, VA 23510](#)  
Phone: 757-441-3420  
Fax: 757-441-3786



## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Tuesday, August 14, 2018 10:39  
**To:** Kathryn Pridgen - NOAA Federal  
**Subject:** RE: port lavaca project update

Ok sounds good Katy – I'll touch base on details as we get closer to that date.

**From:** Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>  
**Sent:** Tuesday, August 14, 2018 08:44  
**To:** Andrew Orthmann, CH <aorthmann@terrasond.com>  
**Subject:** Re: port lavaca project update

Im sorry youre correct. I plan to meet the vessel in Port O'Conner on Thursday morning on the 6th.

-----  
Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
240-533-0033  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Aug 14, 2018 at 12:42 PM, Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

If you are flying to Corpus Christi on Wednesday the 5<sup>th</sup>, do you mean you plan to meet the vessel in Port O'Conner Thursday morning (you said Wednesday morning)? Just want to make sure I get the dates right so I can make arrangements to be there as well.

Thank you,

Andy

**From:** Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Sent:** Tuesday, August 14, 2018 04:28  
**To:** Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>  
**Subject:** Re: port lavaca project update

Andy

Thank you very much for the update. I look forward to visiting soon, I am flying into Corpus Christi on Wednesday the 5th and then meeting the vessel in Port O'Conner on Wednesday morning. I have planned a half day visit, so I need to leave the dock to head to the airport by 2pm. I am currently deployed on the Thomas Jefferson. I do have internet access, I will be answering emails, but may not be as prompt as normal.

Katy

---

Kathryn "Katy" Pridgen

Physical Scientist

NOAA-HSD OPS

240-533-0033

[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Mon, Aug 13, 2018 at 8:17 PM, Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy,

I was going to start sending weekly reports for Port Lavaca today but still don't have any field operations to report; we were going to mobilize the Sea Ark this past weekend but it was temporarily being used on another last-minute project. It should be available again Wednesday and we will proceed with getting it mobilized and put it to work after that. So I am pretty certain the weekly reports will begin next week.

Thank you,

Andy

## Andrew Orthmann, CH

---

**From:** Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>  
**Sent:** Tuesday, September 18, 2018 05:26  
**To:** Andrew Orthmann, CH  
**Subject:** Re: project visit

Andy

I do concur with the points from my site visit. The only point I wish to add a bit more clarification on was #2.  
2. For the assigned features and their associated search radii area inside the bay, obvious features found in the search area (example, assigned feature is a platform and we indeed find a platform there) don't require additional survey since the feature was verified.

This all is true as long as the feature verified in the search radius was the feature it was assigned for. For example, if the search radius was assigned to find a wreck feature, and while just starting to survey the radius you find a different feature than the wreck that was assigned, like a pipeline or something, then you still need to continue to look for the wreck. If you find the wreck after searching only half of the radius, then yes you can move on without surveying the other half. As long as you find the feature that the radius was assigned for then you do not have to finish surveying the radius, you can move on after you fully survey the feature assigned.

That was the only thing that I wanted to make sure we were on the same page about. Thank you for allowing me to visit!

Katy

-----  
Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
240-533-0033  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Mon, Sep 17, 2018 at 8:13 PM, Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy, just sent the weekly progress – as noted, the Bunny Bordelon mob is still “on” for this week, so that is pretty much on schedule. Our initial mob crew has arrived there (Houma, Louisiana) today and will be starting on the mob tomorrow. I'll travel there Wednesday to help mob and seatrial and be on that boat for at least a week to get things up and running before returning our Alaska office.

Have you had a chance to look at this points from our visit? Can you confirm that you concur or not with these? And please feel free to add any clarification?

Thank you,

Andy

---

**From:** Andrew Orthmann, CH  
**Sent:** Monday, September 10, 2018 10:46  
**To:** 'Kathryn Pridgen - NOAA Federal' <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Subject:** project visit

Hey Katy, thank you for coming out to Port O'Conner to visit us. Greatly appreciated it. Sorry it was so early in the job and we're still getting things dialed in but glad you got to see the Bella Marie and meet some of our folks all the same.

I think some important points I took out of it going forward are as follows, please let me know if you agree and feel free to add anything I overlooked.

1. Thank you for clarifying that that the LNM stated in the project instructions is a project-wide LNM cap regardless of the quantity of survey area completed.
2. For the assigned features and their associated search radii area inside the bay, obvious features found in the search area (example, assigned feature is a platform and we indeed find a platform there) don't require additional survey since the feature was verified.
3. Sea Ark ops started a couple weeks later than planned but finished quicker than thought and therefore on schedule, largely because most the sites in the bay were found to be deep enough for the Bella Marie to survey later, and/or an obvious feature was found, photographed, and fixed at the site.
4. Bella Marie ops started about a week later than planned because the vessel had mechanical issues that delayed the mob. This should not cause any important project milestones to be missed.
5. Bunny Bordelon mob is still on schedule as proposed -- week of the 17th. In fact I visited the vessel Saturday morning and met with the dock crew and they seem pretty switched on, things look pretty good as far as that vessel is concerned.
6. Discussed our efforts to move data daily from the field to our office for processing in Palmer via internet, largely to consolidate processing from the two separate boat ops, as well as help us continue SW AK Peninsula processing simultaneously with the same staff.

7. Will definitely let you know if we see any issues with the VDatum grid. As of right now we have not applied it (starting with predicted tides) but plan to start this coming week.

I know there were a number of other items but those are what stuck out for me.

Thanks again,

Andy

## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Monday, December 03, 2018 11:36  
**To:** 'Kathryn Pridgen - NOAA Federal'  
**Subject:** project update / LNM status

Hi Katy,

I just wanted to give you update on where we stand for survey completion.

So it looks like we are only about 200 LNM away from meeting the project LNM cap. With work remaining, it looks like we will not have enough LNM to finish the lowest priority sheet, H13187 or make headway into the "H13187\_Ext" area to the SE.

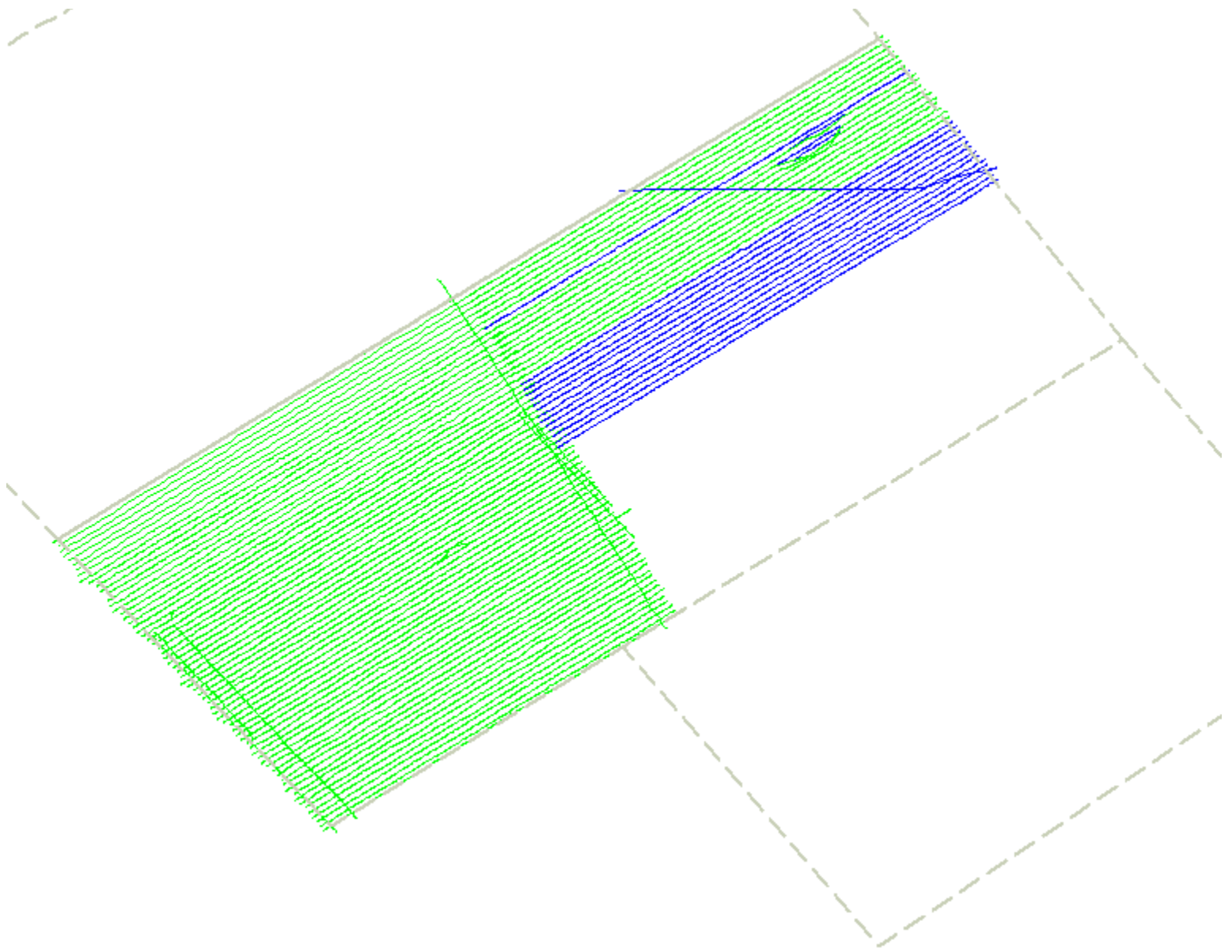
Therefore all the sheets up through H13186 will be end up fully surveyed, and about 70% of H13187 minus the \_ext area. Below is a screengrab of approximately where H13187 will leave off (newest Bunny survey lines from yesterday and this morning in blue).

I think we were fairly close on the LNM estimates on this one, but we had a number of areas that ended up MBES-only on the Bunny due to both sidescan issues or weather, which used some LNM up.

For the vessels the Bunny should wrap up this week. It only has crosslines, bottom samples, and infills/developments left.

The Bella still might be a couple weeks to finish nearshore work.

Andy



Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

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**From:** Andrew Orthmann, CH  
**Sent:** Friday, December 14, 2018 12:59  
**To:** 'Kathryn Pridgen - NOAA Federal'  
**Subject:** RE: port lavaca update

Yes I think that's still ok.

In the proposal we requested delivery be 120 days from completion of acquisition, but I think we should still be OK on the 3/31 schedule – the offshore sheets are fully complete so that'll give us plenty to do while the Bella wraps up the nearshore work.

For processing, we're focused on getting Unimak out the door by the end of this month, then will move right into final processing/reporting for Port Lavaca in January.

Andy

**From:** Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>  
**Sent:** Friday, December 14, 2018 12:34  
**To:** Andrew Orthmann, CH <aorthmann@terrasond.com>  
**Subject:** Re: port lavaca update

Thank you for the update. Do you still foresee this project being delivered by the end of the period of performance?

---

Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
240-533-0033  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Thu, Dec 13, 2018 at 4:51 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy,

Just wanted to give you an update on the project.

We are a few weeks past our estimated completion for both vessels at this point. The primary cause has been weather down beyond estimated, though some mechanical issues on the Bella Marie hasn't helped either.

The Bunny should be completing the offshore work by tomorrow, 12/14. It will head for Houma, Louisiana to be demob'd. By this time next week that vessel should be fully demob'd and the crew home. The Bunny will have ended up surveying about 3 weeks longer than estimated.

The Bella unfortunately looks like it has to survey longer. Our guess is there is still 12-15 days of work to complete the nearshore parts of the sheets. I was really hoping this would be wrapped up by the end of next week to make a clean completion before Christmas, but there is still too much to do. So my current plan is to shut the Bella Marie ops down over the Christmas period to give everyone a bit of a break and restart operations out of Port O'Conner around January 8<sup>th</sup>.

So we're probably now looking at acquisition being complete in late January, 2019.

Please let me know if you have any thoughts or concerns on the schedule.

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Brian Mohr - NOAA Federal <brian.mohr@noaa.gov>  
**Sent:** Thursday, January 31, 2019 03:17  
**To:** Andrew Orthmann, CH  
**Subject:** Re: OPR-K376-KR-18 Port Lavaca survey outlines

Got it, thank you, I'll get H13181, H13185, H13186, H13187 updated in SURDEX shortly.

Brian Mohr  
Physical Scientist - Data Manager  
Hydrographic Surveys Division  
[brian.mohr@noaa.gov](mailto:brian.mohr@noaa.gov)

On Fri, Jan 25, 2019 at 1:38 PM Andrew Orthmann, CH <[aorthmann@terra sond.com](mailto:aorthmann@terra sond.com)> wrote:

Hello,

Please find attached survey outlines for project OPR-K376-KR-18, Port Lavaca, TX.

Please note this is for 4 of 9 sheets in the project, the remaining sheets are in still being actively surveyed but should be finished soon.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>  
**Sent:** Friday, March 01, 2019 09:10  
**To:** Andrew Orthmann, CH  
**Subject:** Re: OPR-K376-KR-18 Port Lavaca completion

Andy,  
I am processing the modification for extension right now.

Katy

---

Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
240-533-0033  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Fri, Feb 22, 2019 at 9:41 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy,

We went back and examined the days listed in the vessel utilization sheet as down due to "Mechanical" or "Survey Equipment" to determine if the vessel would have been down due to the weather conditions had everything been working properly. We examined the weather stations at Port O'Conner (8773701) and the Matagorda Bay Entrance (8773767) and used our experience with the conditions there to determine what would have shut the boats down, which depended on wind speed and direction.

### **Bella Marie**

- Down for 58.4 days total (of 132 on site)
- 37.4 are currently categorized as Wx down, 21 as Mech/Survey Equipment
- Of the 21 Mech/Survey Equipment down days, 11.75 had severe enough weather they would have been weather days too
- **Bella Marie therefore experienced weather down days (37.4 + 11.75)**

This is based on operational-only days, 9/3/18 – 2/7/19. For Mech/Survey Equipment days, the Bella Marie would not have worked due to weather on severe wx days 9/20, 9/22, 75% of 9/25, 10/23, 10/25, 11/3, 11/5, 12/5, and 1/29, and 50% of moderate weather days 9/21, 10/24, 11/4, 12/4, 12/6, and 1/14).

## Bunny Bordelon

- Down for 19 days total (of 82 on site). Note I initially was showing 17 but must have excluded some days, it was actually 19.
- 12.6 are currently categorized as Wx down, 6.4 as Mech/Survey Equipment
- Of the 6.4 Mech/Survey Equipment down days, 3.7 had severe enough weather they would have been weather days too
- **Bunny Bordelon therefore experienced 16.3 weather days down** (12.6 + 3.7)

This is based on operational-only days, 9/25/18 – 12/15/18. For Mech/Survey Equipment days, the Bunny Bordelon would not have worked due to severe weather for 15 hours of 10/23, 21.5 hours of 11/1, and 13 hours of 11/26. It would not have worked due to moderate weather for 50% of other survey/mech down days, totaling 12 hours of 9/25, 9 hours of 9/26, 10.75 hours of 10/5, 5 hours of 10/24, and 4 hours of 10/25.

Please note that the Bella Marie had 19 days of downtime built into the proposal but suffered 58.4 days, more than 3x planned. Looking at weather-down alone (49.2 days), this was 30.2 days more than planned. The Bunny also suffered more downtime than planned, but the Bella Marie was the larger driver of the overall schedule.

Please let me know if you need any more information. A spreadsheet that contains the weather comps we pulled is attached for reference.

Thank you,

Andy

---

**From:** Andrew Orthmann, CH  
**Sent:** Friday, February 15, 2019 13:29  
**To:** 'Kathryn Pridgen - NOAA Federal' <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Subject:** RE: OPR-K376-KR-18 Port Lavaca completion

Hi Katy,

I also pulled the numbers from the vessel utilization sheet. In analyzing this I did not use days the boat was being mobilized or demobilized, only when it was in “operations” mode, since the planned/proposed weather estimates didn’t factor downtime on mob/demob.

The remaining down days were vessel (mechanical) and survey equipment downtime, adding to 58 total. I didn't state that all downtime was due to weather, just that it was mostly due to weather.

Additionally, the weather downtime in the vessel utilization is on the low side. This is because if the vessel broke down for a few days but the weather blew up around the same time, the vessel utilization sheet would record it as down due to mechanical even though the vessel would have most likely been down due to weather anyway. If you would like me to look back and derive an estimate of days down due to mechanical (or survey equipment) that would have been down due to weather I can do that.

Another item contributing the reported weather downtime being on the low side is the slower speeds to maintain data quality. This was largely due to surveying in marginal weather. So not technically down-days because the boat was still working, but less productive than planned due to weather.

Thank you,

Andy

**From:** Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Sent:** Friday, February 15, 2019 12:40  
**To:** Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>  
**Subject:** Re: OPR-K376-KR-18 Port Lavaca completion

Andy

According to the vessel utilization sheets you submitted I am only counting 43 weather days for the Bella Marie, not the 58 you stated. Can you send me how you can getting 58 days?

Katy

---

Kathryn "Katy" Pridgen

Physical Scientist

NOAA-HSD OPS

240-533-0033

[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Wed, Feb 13, 2019 at 9:15 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy,

Acquisition was originally planned to wrap up in late November for both vessels, which the 120 days is based on. The vessels started surveying nearly on schedule but then ran into much more downtime than planned—mostly due to weather. They had to survey at slower speeds to achieve acceptable data quality in this area, and then we ran more LNM than planned as well. So these main factors are:

- The Bella Marie vessel, which was tasked with the nearshore work, had 58 days down compared to the 19 days planned (39 more than planned).
- The Bunny Bordelon, which did the offshore work, had 17 days down compared to the 12 days planned.
- Both these vessels ended with an average survey speed of 6 knots versus the planned 6.5 knots, an 8% reduction in per-day production.
- We also ran 1,294 more LNM (about 15%) than planned. Most of this was done to rerun marginal sidescan data, much with multibeam-only. We know LNM over the planned 7,869 was not required but we did it to help ensure a quality dataset.

Since acquisition could only wrap up when the last boat was finished, the first item—excessive Bella Marie downtime—was the largest single cause to acquisition running long.

Attached is the proposal for reference—please see the original estimated dates on page 37. We'd also noted in that section of the proposal that we would ask for an extension if the acquisition ran long (which is frequently our experience with Gulf of Mexico jobs).

Please note we are not requesting 120 days from completion of acquisition based on the actual last day of acquisition (February 7<sup>th</sup>), which would place deliverables all the way in June. We are only asking for an additional 30 days, to April 30<sup>th</sup>, to help with the extra weather downtime.

Thank you, please let me know if you need additional information.



Andy

**From:** Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>

**Sent:** Wednesday, February 13, 2019 12:13

**To:** Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>

**Cc:** Stacy Fullerton - NOAA Federal <[stacy.fullerton@noaa.gov](mailto:stacy.fullerton@noaa.gov)>; Corey Allen - NOAA Federal <[corey.allen@noaa.gov](mailto:corey.allen@noaa.gov)>

**Subject:** Re: OPR-K376-KR-18 Port Lavaca completion

Andy,

I am glad to hear you have finished acquisition in Port Lavaca.

All deliverables are due at the end of the period of performance. This was calculated based off of 120 days after the planned close of acquisition based off the proposal. To adjust the end of the period of performance we would have to execute a modification to the contract. In order to do so, we would have to present a sound justification for the extension of the POP from you to the contracting officer for approval. Please explain why acquisition took longer than planned and the end of the period of performance should be extended and I will present it for approval.

Katy

---

Kathryn "Katy" Pridgen

Physical Scientist

NOAA-HSD OPS

240-533-0033

[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Fri, Feb 8, 2019 at 6:43 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hi Katy,

Just an update for you: We completed field data acquisition for OPR-K376-KR-18 yesterday, 2/7/19. Demobilization of the vessel Bella Marie started yesterday after ops wrapped up, and was completed today.

I will send the last weekly report out this weekend.

We are now working on final deliverables.

Deliverables are currently due 3/31, which is just over 50 days from today. We'll aim for that but it is very tight given acquisition just completed. To be safe, could we please get an extension on delivery, to 4/30 ? 120 days would be 6/7 but I am confident we don't need that long; 4/30 would be great. In the proposal we had outlined a delivery of 3/26 but that was based on acquisition completing 11/26.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Brian Mohr - NOAA Federal <brian.mohr@noaa.gov>  
**Sent:** Monday, March 11, 2019 08:42  
**To:** Andrew Orthmann, CH  
**Subject:** Re: OPR-K376-KR-18 Port Lavaca survey outlines

Got it, thank you, I'll get H13180, H13182, H13183, H13184 and F00734 updated in SURDEX shortly.

Brian Mohr  
Physical Scientist - Data Manager  
Hydrographic Surveys Division  
[brian.mohr@noaa.gov](mailto:brian.mohr@noaa.gov)

On Fri, Mar 8, 2019 at 9:56 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:

Hello,

Please find attached all remaining survey outlines for project OPR-K376-KR-18, Port Lavaca, TX.

Thank you,

Andy

---

**From:** Andrew Orthmann, CH  
**Sent:** Friday, January 25, 2019 09:38  
**To:** '[survey.outlines@noaa.gov](mailto:survey.outlines@noaa.gov)' <[survey.outlines@noaa.gov](mailto:survey.outlines@noaa.gov)>  
**Cc:** 'Kathryn Pridgen - NOAA Federal' <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Subject:** OPR-K376-KR-18 Port Lavaca survey outlines

Hello,

Please find attached survey outlines for project OPR-K376-KR-18, Port Lavaca, TX.

Please note this is for 4 of 9 sheets in the project, the remaining sheets are in still being actively surveyed but should be finished soon.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Stacy Dohse - NOAA Federal <[stacy.dohse@noaa.gov](mailto:stacy.dohse@noaa.gov)>  
**Sent:** Wednesday, March 13, 2019 05:55  
**To:** Andrew Orthmann, CH  
**Cc:** Kathryn Pridgen - NOAA Federal; Eastern Operations Eastern Operations - NOAA Service Account  
**Subject:** Re: EA133C14CQ0036 TO 1305M218FNCNJ0146 P19001  
**Attachments:** 18FNCNJ0146ModP19001.pdf

Good Morning,

Please find the attached fully executed modification for your records.

Thank you,

Stacy

On Tue, Mar 12, 2019 at 4:26 PM Andrew Orthmann, CH <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)> wrote:  
Hi Stacy, signed version attached. Thank you,

Andy

----- Original message -----

From: Stacy Dohse - NOAA Federal <[stacy.dohse@noaa.gov](mailto:stacy.dohse@noaa.gov)>  
Date: 3/12/19 8:47 AM (GMT-10:00)  
To: "Andrew Orthmann, CH" <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>  
Cc: Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
Subject: EA133C14CQ0036 TO 1305M218FNCNJ0146 P19001

Good Afternoon,

Please find the attached modification that extends the period of performance for subject task order to April 30, 2019.

Please sign and return a copy of this modification at your earliest convenience.

Thank you,

Stacy

--

Stacy F. Dohse  
Contract Specialist, NOAA, AGO  
Eastern Acquisition Division  
Supporting National Ocean Service  
200 Granby Street, Suite 815  
Norfolk, VA 23510  
Phone: 757-441-3420  
Fax: 757-441-3786  
\*New E-mail Address: [Stacy.Dohse@noaa.gov](mailto:Stacy.Dohse@noaa.gov)

--

Stacy F. Dohse

Contract Specialist, NOAA, AGO

Eastern Acquisition Division

Supporting National Ocean Service

200 Granby Street, Suite 815

Norfolk, VA 23510

Phone: 757-441-3420

Fax: 757-441-3786

\*New E-mail Address: [Stacy.Dohse@noaa.gov](mailto:Stacy.Dohse@noaa.gov)

## Andrew Orthmann, CH

---

**From:** Blair Delean - NOAA Federal <blair.j.delean@noaa.gov>  
**Sent:** Friday, March 22, 2019 14:53  
**To:** Andrew Orthmann, CH  
**Cc:** pop.information@noaa.gov; ocs.ecc@noaa.gov; Kathryn Pridgen - NOAA Federal  
**Subject:** Re: OPR-K376-KR-18 marine mammal observation logs

Excellent, thank you Andrew for your submission to the marine mammal POP.

Very Respectfully,

LTJG Blair Delean, NOAA  
Marine Mammal Laboratory  
206.526.4048



On Fri, Mar 22, 2019 at 1:32 PM Andrew Orthmann, CH <[aorthmann@terra sond.com](mailto:aorthmann@terra sond.com)> wrote:

Hello,

Attached are the Marine Mammal Observation logs from OPR-K376-KR-18, Port Lavaca, TX.

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Friday, March 22, 2019 12:26  
**To:** 'ocs.ecc@noaa.gov'  
**Cc:** 'Kathryn Pridgen - NOAA Federal'  
**Subject:** OPR-K376-KR-18 trained marine mammal observer logsheet  
**Attachments:** OPR\_K376\_KR\_18\_MMO\_TrainingVideoLogsheet.pdf

Hello, please find attached the marine mammal training logsheet for the OPR-K376-KR-18, Port Lavaca, TX project.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

## TerraSond

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## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Tuesday, April 09, 2019 13:36  
**To:** 'NODC.submissions@noaa.gov'  
**Cc:** 'kathryn.pridgen@noaa.gov'  
**Subject:** sound speed profile data submission for OPR-K376-KR-18  
**Attachments:** OPR-K376-KR-18\_20190409.zip

Hello,

Please find attached the sound speed profile data for nautical charting project OPR-K376-KR-18. These were taken by TerraSond near Port Lavaca, TX, during the period August 2018 to February, 2019.

Please note the .nc files are organized in the zip file by the three vessels used on the project. These were the MV Sea Ark (hull id # SOM287991506), RV Bella Marie (hull # IAR36CATK405), and RV Bunny Bordelon (USCG official number 1113614).

Please feel free to contact me with any questions.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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## Andrew Orthmann, CH

---

**From:** Andrew Orthmann, CH  
**Sent:** Thursday, April 25, 2019 09:50  
**To:** 'ocs.ndb@noaa.gov'; 'Coast.Pilot@noaa.gov'  
**Cc:** 'Kathryn Pridgen - NOAA Federal'  
**Subject:** Coast Pilot Review for OPR-K376-KR-18  
**Attachments:** OPR-K376-KR-18\_Coast Pilot Review Report.pdf

Hello,

Please find attached the Coast Pilot Review for the hydrographic survey OPR-K376-KR-18, Port Lavaca, TX. This pertains to Coast Pilot 5, 46<sup>th</sup> edition.

Feel free to contact me with any questions.

Thank you,

Andy

Andrew Orthmann, C.H.  
Charting Program Manager

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**August 19<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 8/13/18 – 8/19/18
<ul style="list-style-type: none"><li>• Mobilized the survey vessel Sea Ark (singlebeam) in Corpus Christi</li><li>• Began operations in Port O'Conner – performed squat settlement and singlebeam latency tests on 8/19</li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 8/20/18 – 8/26/18
<ul style="list-style-type: none"><li>• Begin recon and investigation of assigned items in F00734 (Matagorda Bay) with Sea Ark, based out of Port O'Conner</li><li>• Begin mobilization of Bella Marie vessel (SSS and MBES) in Corpus Christi</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

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**August 26<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 8/20/18 – 8/26/18
<ul style="list-style-type: none"><li>• The vessel Sea Ark investigated all assigned features in Sheet F00734 (Matagorda Bay) this week, visually inspecting each site and also collecting singlebeam data where possible. Objects were definitively located at some of the sites. Other sites were either too shallow to investigate further or deep enough so that they are reserved for object detection coverage at a later time when the Bella Marie is on site with sidescan and multibeam.</li><li>• The vessel Bella Marie had mechanical issues addressed this week prior to mobilization.</li><li>• LNM collected to date: 142</li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 8/27/18 – 9/2/18
<ul style="list-style-type: none"><li>• Mobilize the vessel Bella Marie in Corpus Christi. Sea-trial and transit to Port O'Conner and begin SSS/MBES ops there</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

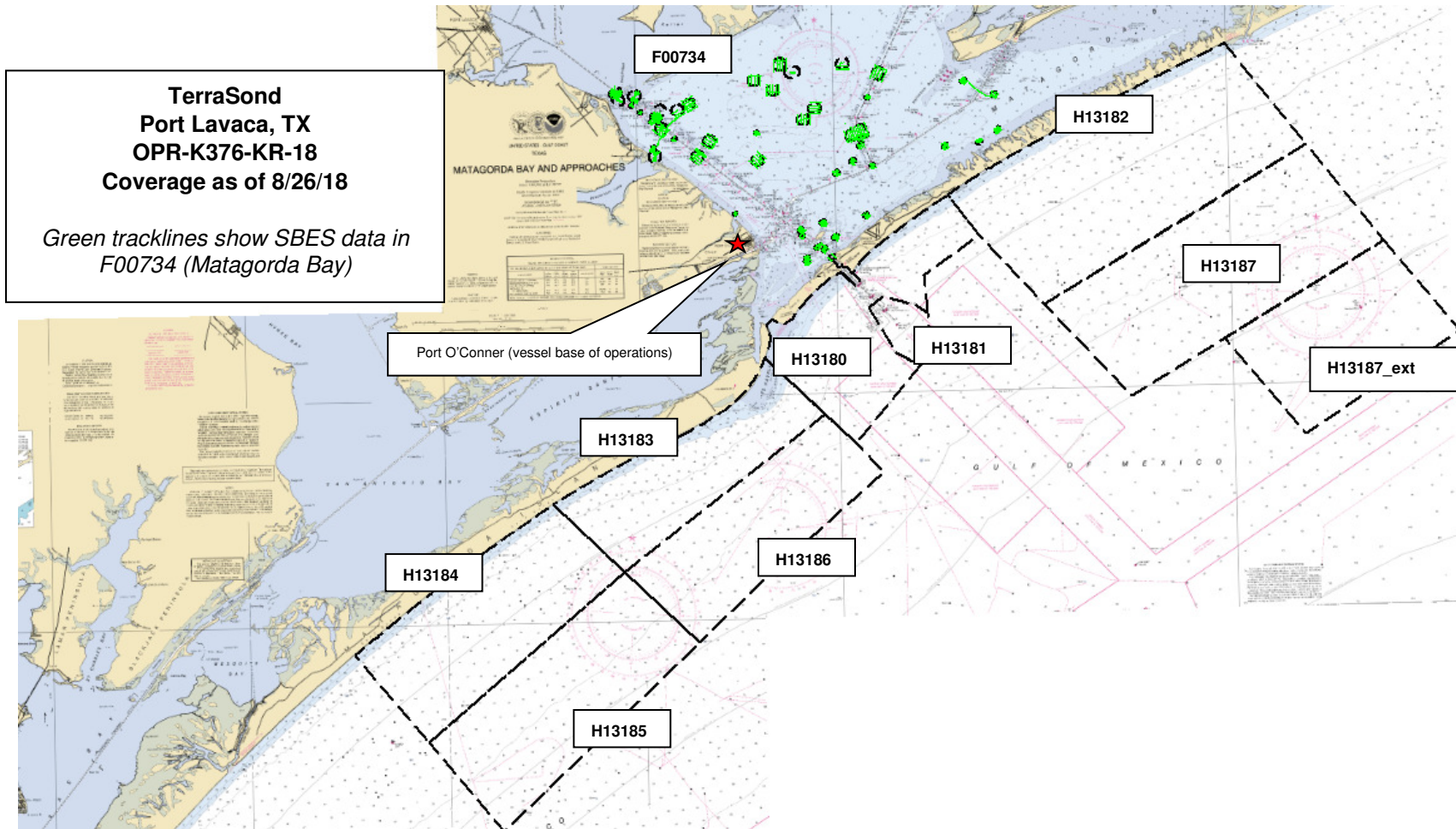
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**September 2<sup>nd</sup>, 2018 Weekly Report**

OPR-K376-KR-18 Port Lavaca, TX

TerraSond

Highlights of Past Week's Activities:	Dates Covered: 8/27/18 – 9/2/18
<ul style="list-style-type: none"><li>• Demob'd the Sea Ark vessel in Corpus Christi, TX</li><li>• Mobilized the Bella Marie in Corpus Christi, TX</li><li>• Bella Marie Sea-Trials completed 9/2. Finalized setup and transited to Port O'Conner on 9/3.</li><li>• No new LNM/on-site production this week.</li><li>• LNM collected to date: 142</li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 9/3/18 – 9/9/18
<ul style="list-style-type: none"><li>• Begin SSS/MBES survey out of Port O'Conner with the Bella Marie. Prioritize work outside of Matagorda Bay.</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

## TerraSond

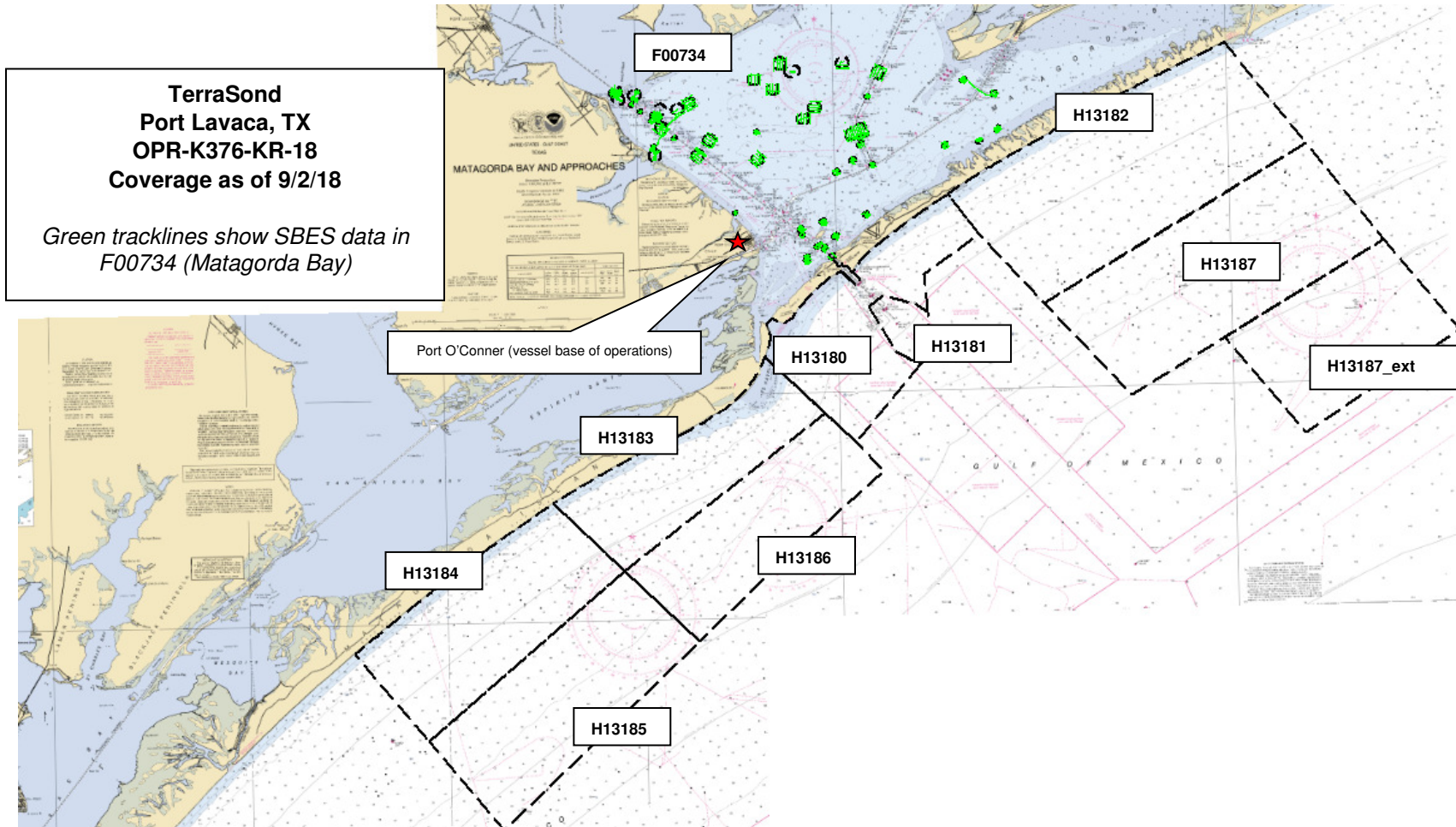
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**September 9<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 9/3/18 – 9/9/18
<ul style="list-style-type: none"><li>• Bella Marie began on-site operations out of Port O'Conner on 9/3</li><li>• Surveyed mostly outside the bay due to good weather this week, primarily in H13180 and H13182</li><li>• Some intermittent sidescan connectivity issues late in the week; troubleshooting</li><li>• Continued preparations for Bunny Bordelon mobilization</li><li>• LNM collected to date: 416 of 7869</li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 9/10/18 – 9/16/18
<ul style="list-style-type: none"><li>• Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay.</li><li>• Preparations taking place for the Bunny Bordelon mobilization in Houma, LA, scheduled for the week of 9/17</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

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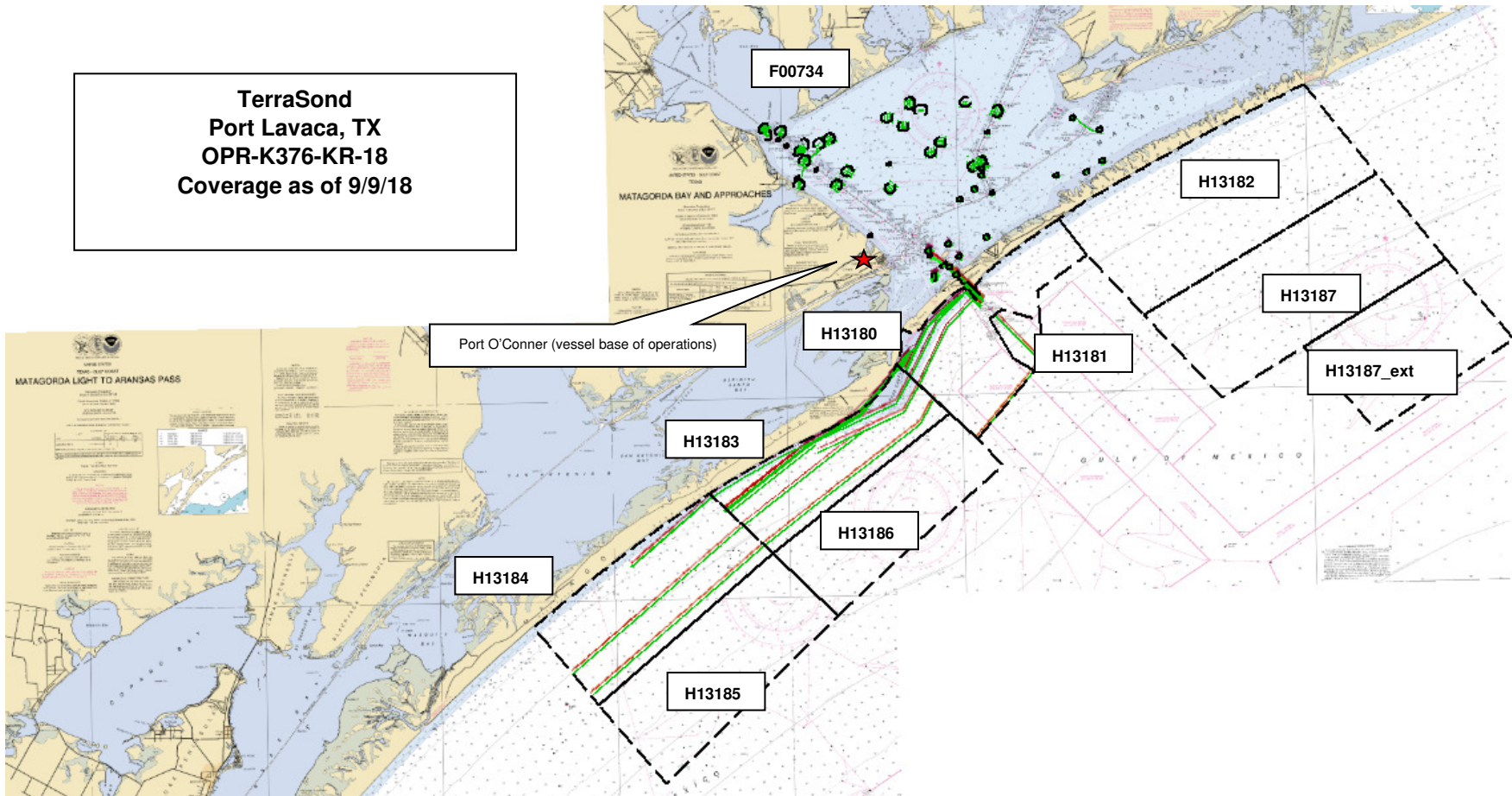
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**September 16<sup>th</sup>, 2018 Weekly Report**

OPR-K376-KR-18 Port Lavaca, TX

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Highlights of Past Week's Activities:	Dates Covered: 9/10/18 – 9/16/18
<ul style="list-style-type: none"> <li>Bella Marie: performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows, and inside Matagorda Bay when marginal</li> <li>Bella Marie: SSS connectivity issues early in the week continued; 9/10 and 9/11 were therefore largely MBES-only operations while SSS issues were troubleshot; SSS issues addressed starting 9/12</li> <li>Bella Marie: 9/13 was survey inside of Matagorda Bay due to deteriorating weather</li> <li>Bella Marie: Down on weather full days 9/14 and 9/15</li> <li>Bella Marie: Resumed operations, outside of bay, on 9/16</li> <li>Bunny Bordelon: Continued preparations for Bunny Bordelon mobilization, began shipping gear from Palmer and Corpus Christi offices to Houma, Louisiana mob site this week</li> <li>All vessels: LNM collected to date: <b>607 of 7,869</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 9/17/18 – 9/23/18
<ul style="list-style-type: none"> <li>Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible</li> <li>Mobilize the Bunny Bordelon in Houma, Louisiana starting 9/18. Plan is to complete mobilization by late in the week and be on-site surveying with this vessel on or before 9/23.</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

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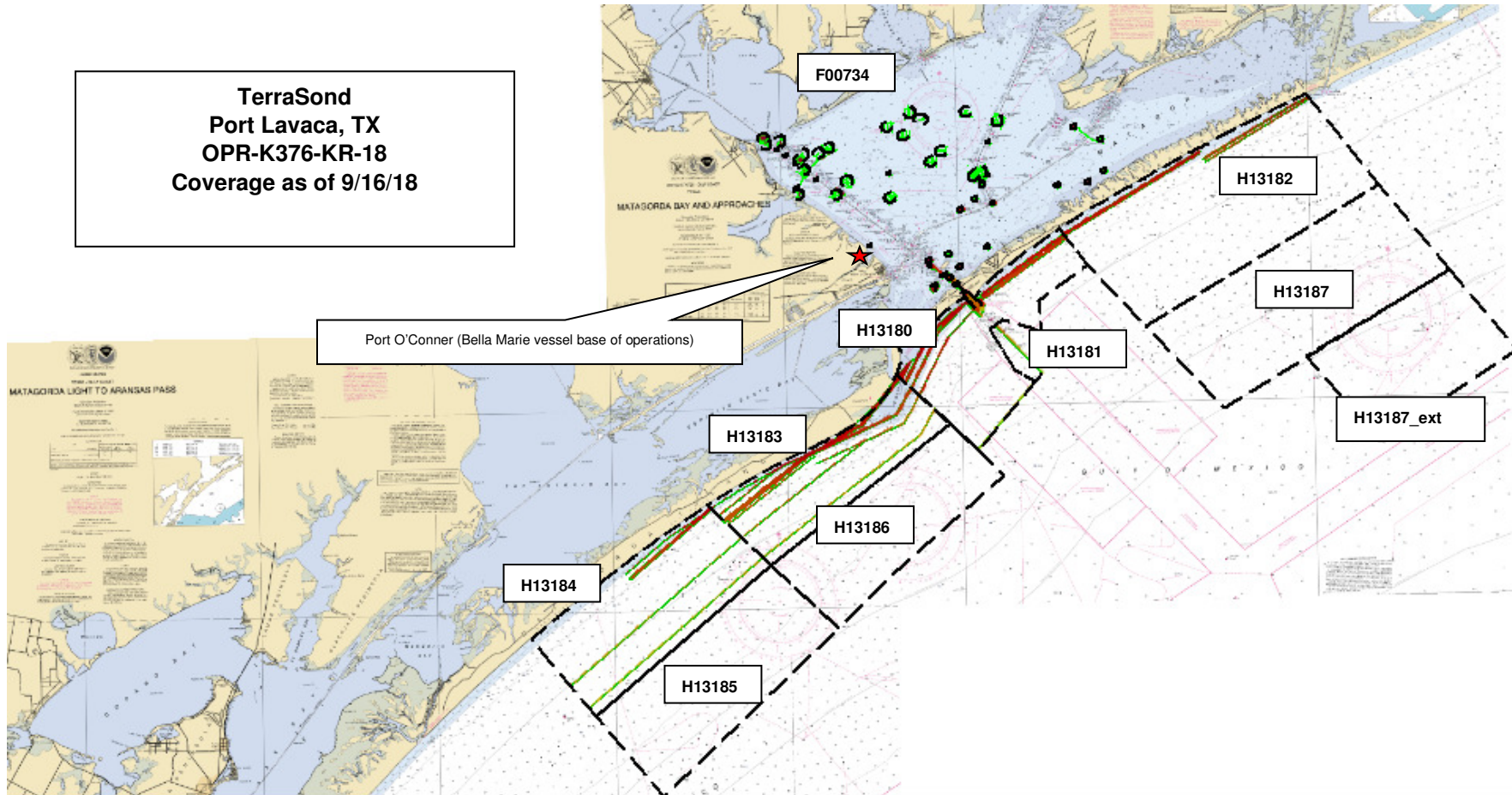
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## September 23<sup>rd</sup>, 2018 Weekly Report

OPR-K376-KR-18 Port Lavaca, TX

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Highlights of Past Week's Activities:	Dates Covered: 9/17/18 – 9/23/18
<ul style="list-style-type: none"><li>• Bella Marie: performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows, and inside Matagorda Bay when marginal</li><li>• Large amount of downtime this week, down 9/20 – 9/22, primarily due to vessel issues and maintenance. Back on site surveying 9/23.</li><li>• Bunny Bordelon: Mobilized the Bunny Bordelon this week. Mobilization took place in Houma, Louisiana from 9/18 – 9/22.</li><li>• Bunny Bordelon: Departed Houma, LA on 9/22, transiting to survey area on 9/23</li><li>• All vessels: LNM collected to date: <b>713 of 7,869</b></li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 9/24/18 – 9/30/18
<ul style="list-style-type: none"><li>• Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible</li><li>• Bunny Bordelon scheduled to begin survey operations on site on 9/24 or 9/25. Bunny will survey in western part of the survey area, starting at approximately the 20 m contour working inwards.</li><li>• Bunny has a brief scheduled crew rotation in Port Aransas on 9/26</li></ul>	

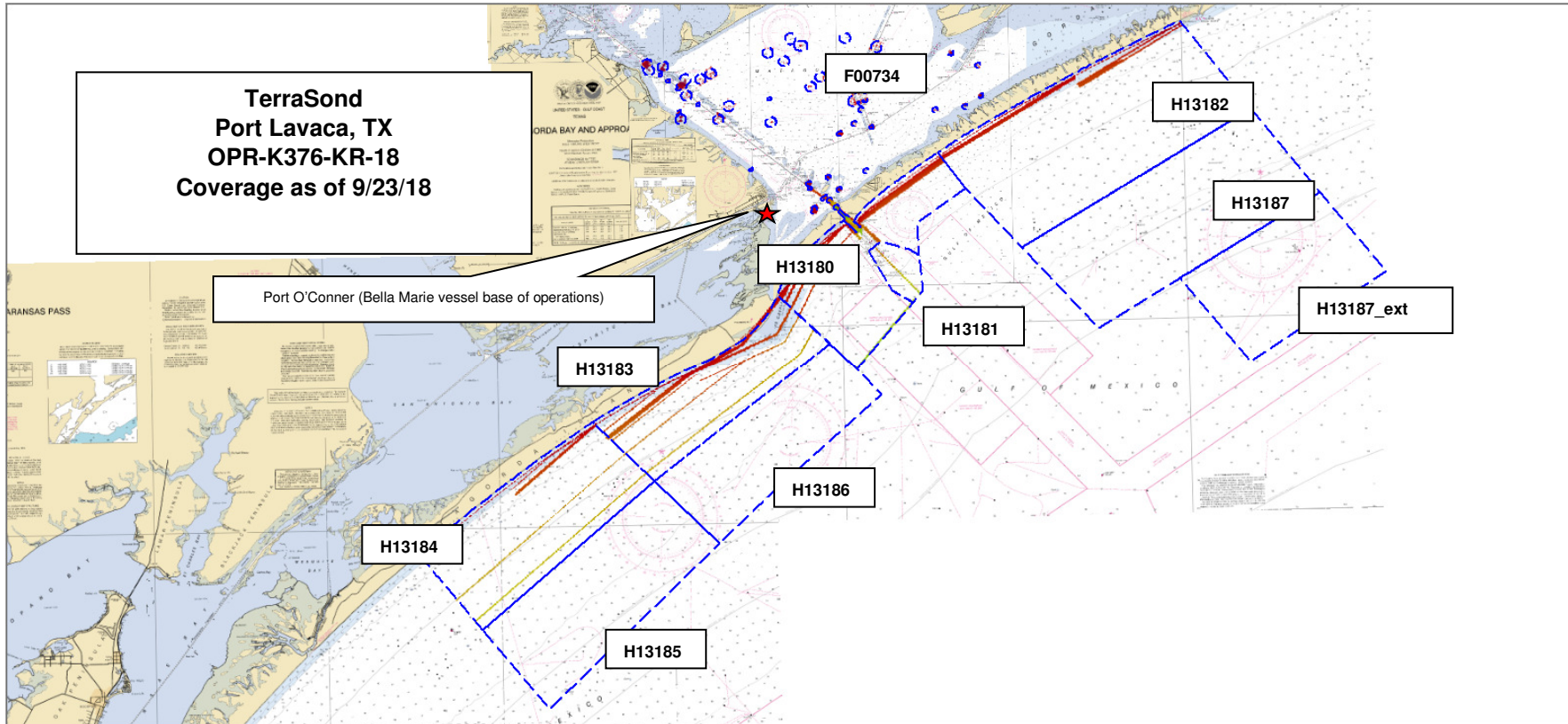
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Charting Program Manager

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**September 30<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 9/24/18 – 9/30/18
<ul style="list-style-type: none"> <li>Bella Marie: performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows, and inside Matagorda Bay when marginal</li> <li>Bella Marie had large amount of weather downtime in the later part of this week</li> <li>Bunny Bordelon arrived in Port Aransas on 9/24, had to wait for USCG paperwork, departed on 9/26</li> <li>Bunny Bordelon began survey on site on 9/26. However, troubleshooting sidescan issues so operations are multibeam-only to date</li> <li>All vessels: LNM collected to date: <b>1,186 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 10/1/18 – 10/7/18
<ul style="list-style-type: none"> <li>Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible</li> <li>Bunny Bordelon working primarily in Sheet 4 (H13182)</li> </ul>	

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Charting Program Manager

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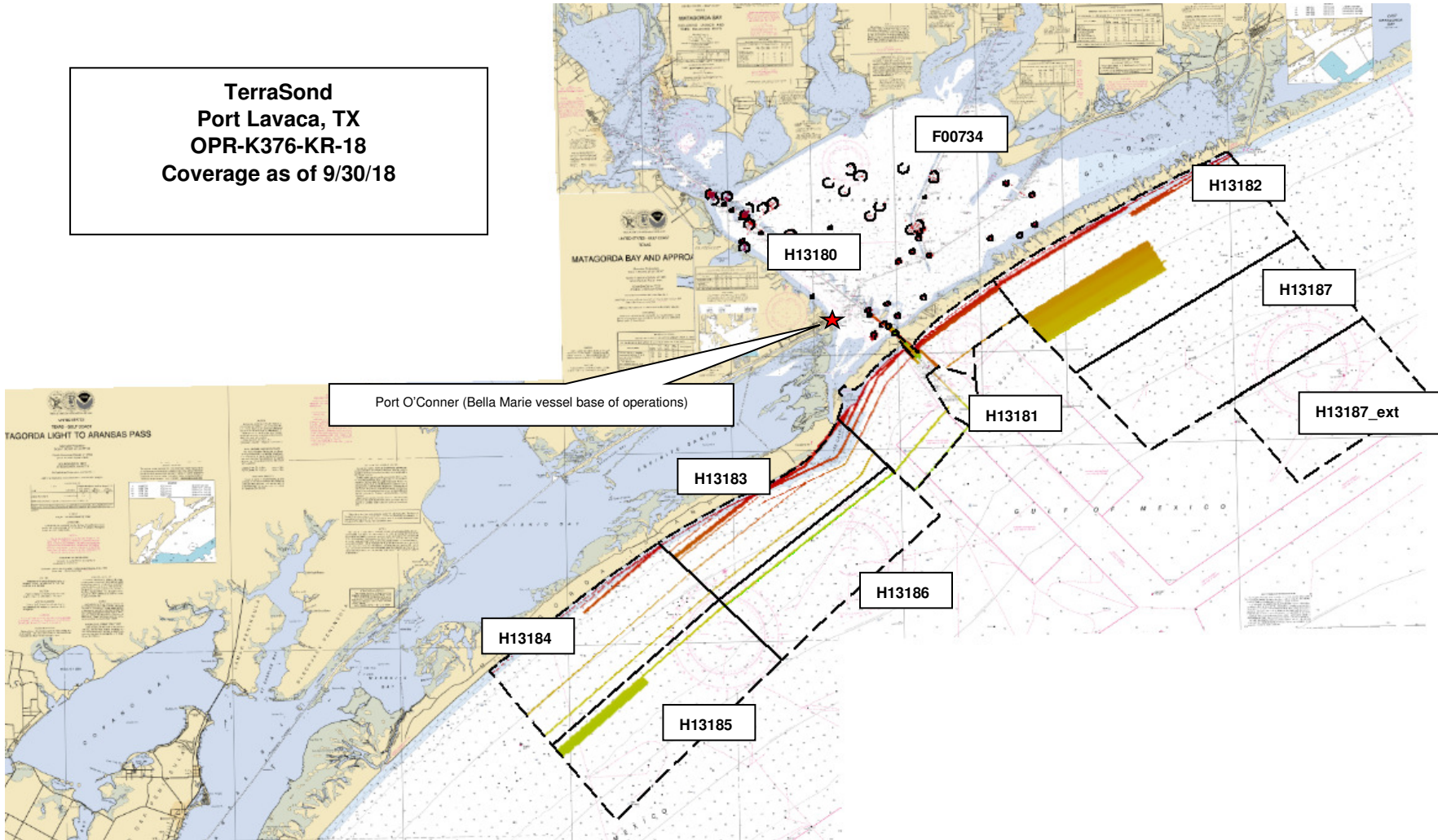
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Coverage as of 9/30/18**



**October 7<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 10/1/18 – 10/7/18
<ul style="list-style-type: none"> <li>• <b>Bella Marie:</b> performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows (primarily sheet 13182), and inside Matagorda Bay when marginal. Some weather downtime experienced this week and minor sidescan issues.</li> <li>• <b>Bunny Bordelon:</b> Surveyed through 10/4, primarily in sheet 13182. Multibeam-only operations to date due to sidescan issues.</li> <li>• <b>Bunny Bordelon:</b> Returned to Port Aransas early, on 10/5, for a complete changeout of the multibeam pole due to it shaking during survey and therefore limiting survey speeds. MB pole changed out and tested successfully on 10/5. Also addressed sidescan issues so that sensor should now be operational. However, the Bunny Bordelon then went down on weather from 10/6 through 10/7.</li> <li>• <b>All vessels:</b> LNM collected to date: <b>1,765 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 10/8/18 – 10/14/18
<ul style="list-style-type: none"> <li>• <b>Bella Marie</b> will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible with focus on Sheet 4 (H13182)</li> <li>• <b>Bunny Bordelon</b> working primarily in Sheet 4 (H13182) and then move into Sheet 3 (H13181)</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

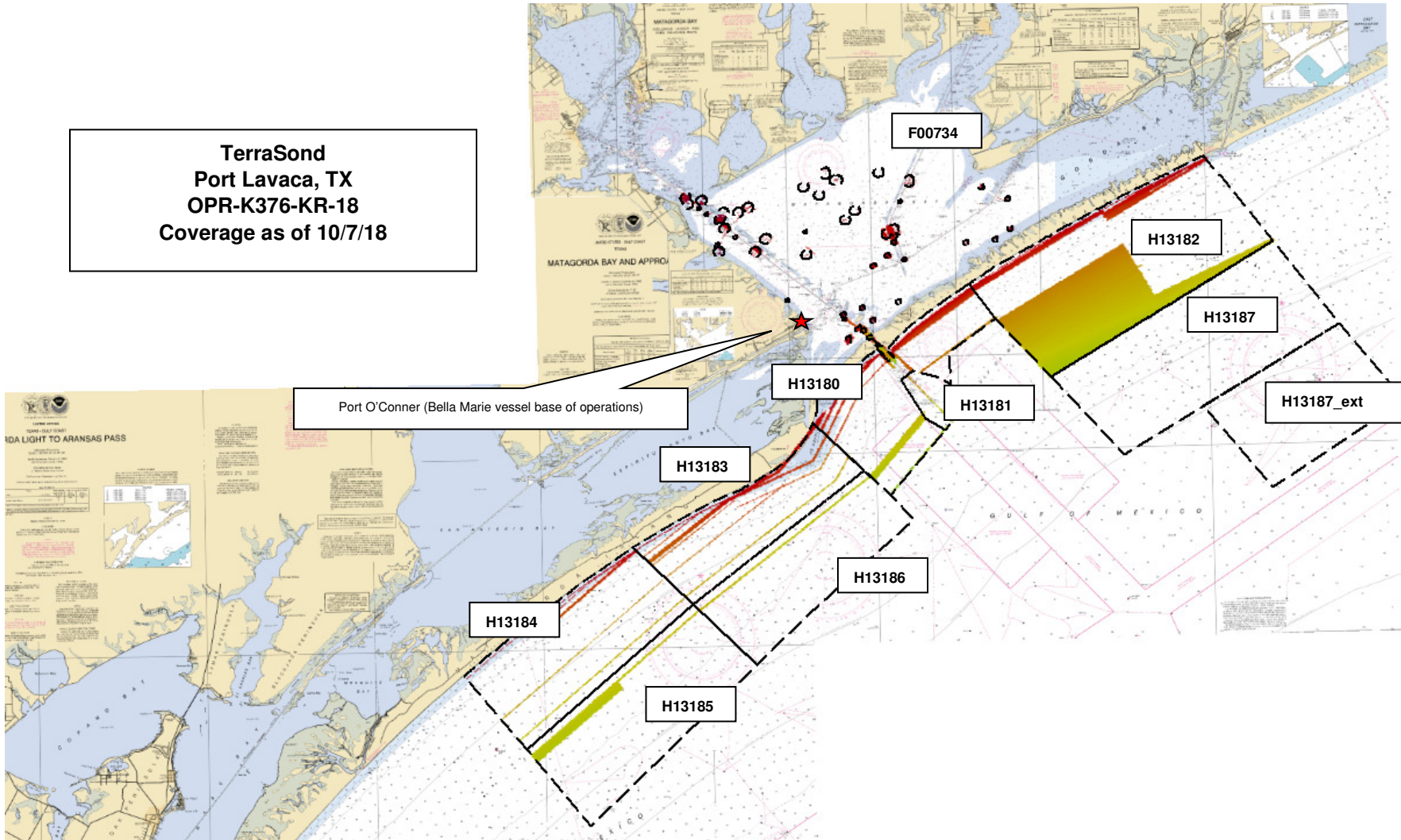
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**Coverage as of 10/7/18**





**October 14<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 10/8/18 – 10/14/18
<ul style="list-style-type: none"><li>• <b>Bella Marie:</b> performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows, and inside Matagorda Bay when marginal. Some weather downtime experienced this week and minor sidescan issues.</li><li>• <b>Bunny Bordelon:</b> Large amount of weather downtime this week but made some progress in H13182.</li><li>• <b>All vessels:</b> LNM collected to date: <b>2,414 (of approx. 7,869)</b></li></ul>	

Highlights of Next Week's Activities:	Dates Covered: 10/15/18 – 10/21/18
<ul style="list-style-type: none"><li>• <b>Bella Marie</b> will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible. Weather downtime for first part of week highly likely.</li><li>• <b>Bunny Bordelon</b> working primarily in Sheet 4 (H13182) and then move into Sheet 3 (H13181). Weather downtime for first part of week highly likely.</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

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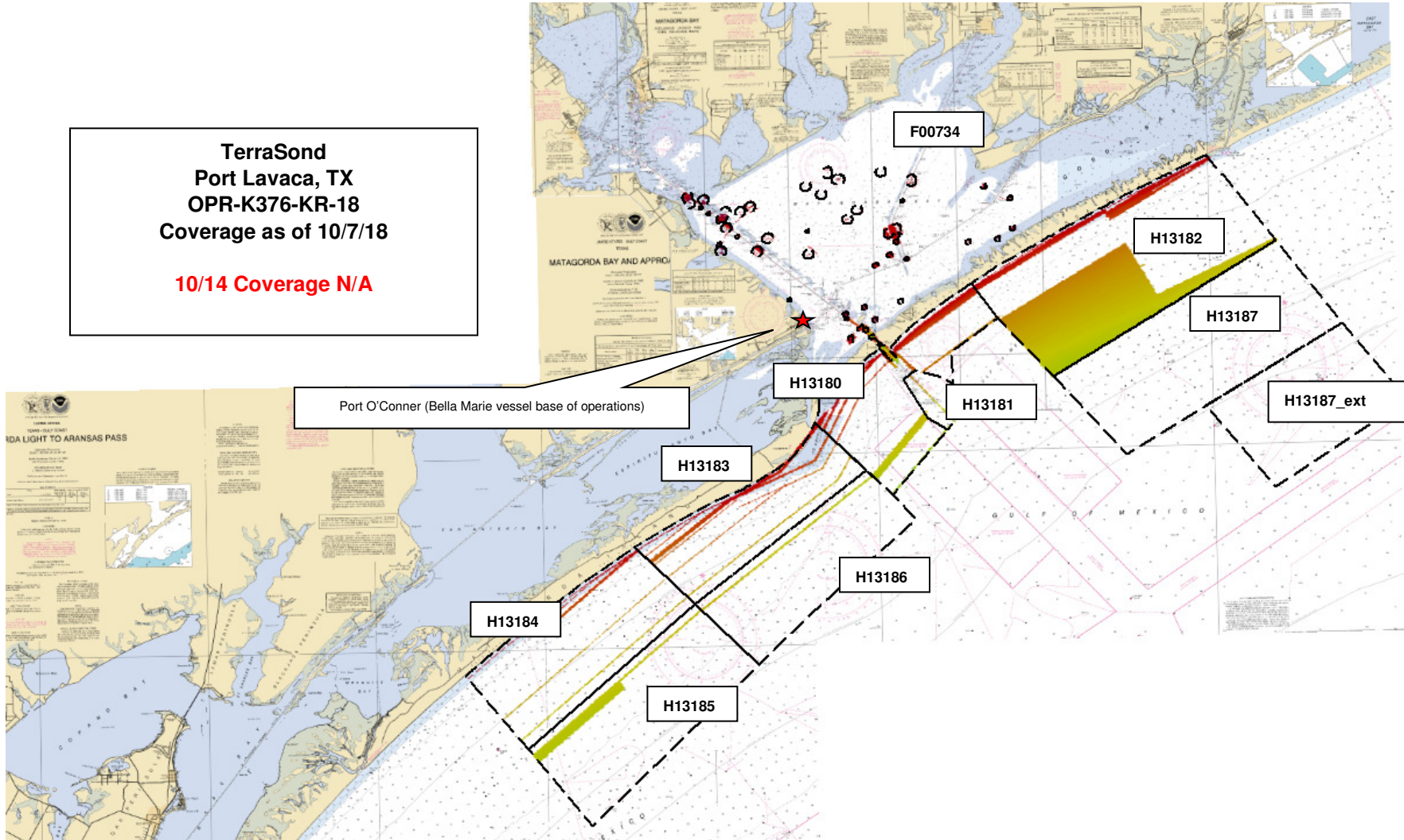
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**Coverage as of 10/7/18**

**10/14 Coverage N/A**



**October 21<sup>st</sup> , 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 10/15/18 – 10/21/18
<ul style="list-style-type: none"> <li>Bella Marie: performing SSS and MBES ops, focusing on nearshore areas outside of Matagorda Bay when weather allows, and inside Matagorda Bay when marginal.</li> <li>Bella Marie: Large amount of weather downtime this week. Only able to work on 10/19 and 10/20. Work spread between F00734 as well as near-shore areas outside of bay.</li> <li>Bunny Bordelon: Down on weather 10/15 and majority of 10/16, returned to survey operations late on 10/16 and continued survey through 10/21. Focused largely on H13181 and H13182; some marginal weather and sidescan issues resulted in some multibeam-only operations in places.</li> <li>All vessels: LNM collected to date: <b>3,180 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 10/22/18 – 10/28/18
<ul style="list-style-type: none"> <li>Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible. Weather downtime for first part of week highly likely.</li> <li>Bunny Bordelon rotation in Port Aransas on 10/22. Return to survey late 10/22.</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

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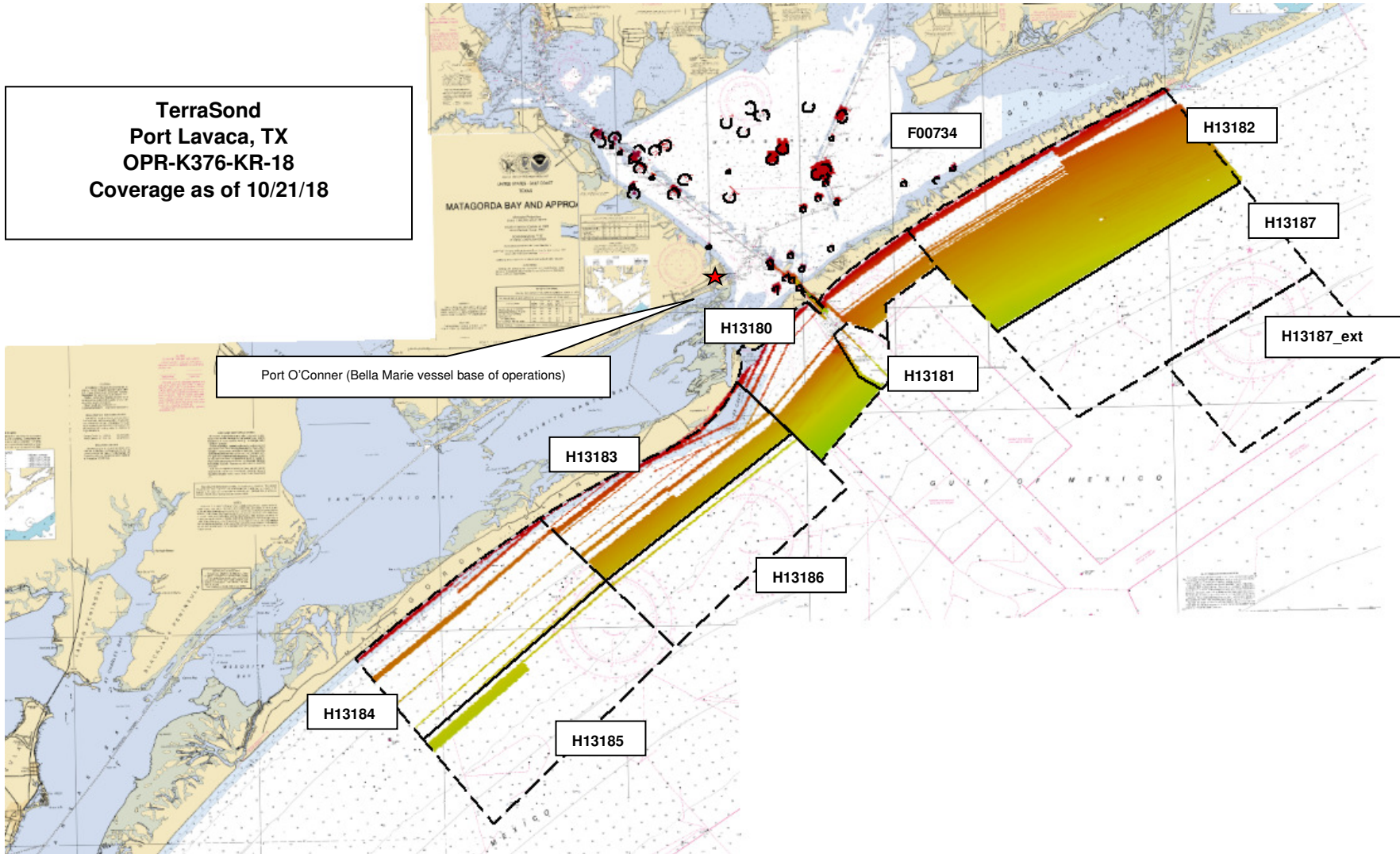
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Coverage as of 10/21/18**



**October 28<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 10/22/18 – 10/28/18
<ul style="list-style-type: none"> <li>Weather was generally favorable in the survey area this week.</li> </ul> <p>Bella Marie (nearshore vessel)</p> <ul style="list-style-type: none"> <li>The Bella Marie was down due to mechanical issues (starboard outdrive) for the majority of the week (down 10/22 through 10/26). Ops resumed on 10/27.</li> </ul> <p>Bunny Bordelon (offshore vessel)</p> <ul style="list-style-type: none"> <li>Soon after the last rotation on 10/22, the Bunny Bordelon had to return to dock due to failed IMU cable. This happened early on 10/23. A replacement was sourced and the vessel returned to work early on 10/24, for a total loss of a full survey day.</li> <li>On 10/25, the underway sound velocity profiler was lost during a cast. The vessel had to return to dock to source a replacement. A spare MinosX (sound speed sensor) was pulled from the Bella Marie. This resulted in half of a survey day lost on the Bunny.</li> <li>All vessels: LNM collected to date: <b>3,624 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 10/29/18 – 11/4/18
<ul style="list-style-type: none"> <li>Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible.</li> <li>Bunny Bordelon will continue SSS/MBES survey in offshore sheets</li> <li>Crew changeouts on both vessels 10/29</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

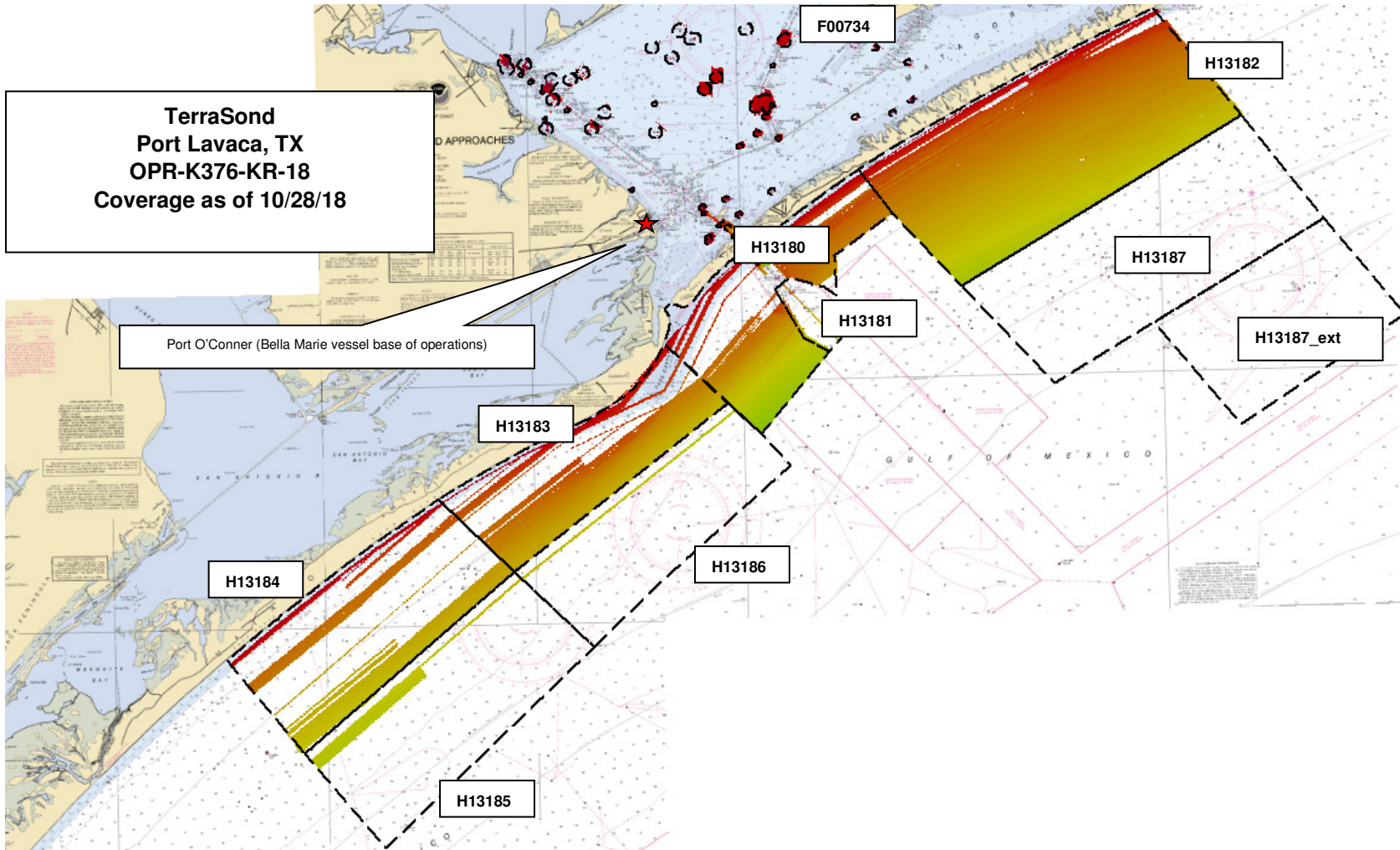
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**November 2<sup>nd</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 10/29/18 – 11/2/18
<ul style="list-style-type: none"> <li>Note: Starting with this report, the inclusive dates of weekly reports is changing from Mondays through Sundays to Saturdays through Fridays</li> <li>Weather was generally favorable in the survey area for the majority of the week</li> </ul> <p>Bella Marie (nearshore vessel)</p> <ul style="list-style-type: none"> <li>The Bella Marie had a good start to the week, with three days of production. However, it then experienced downtime for weather 11/1 and then electrical/mechanical issues starting 11/2.</li> </ul> <p>Bunny Bordelon (offshore vessel)</p> <ul style="list-style-type: none"> <li>Bunny Bordelon had a relatively productive week. Focus was largely on shoaler portions of H13180, H13183, and H13184.</li> <li>Did experience some downtime on the 31<sup>st</sup> and 1<sup>st</sup> due to combined weather and steering issue with the vessel.</li> <li>All vessels: LNM collected to date: <b>4,240 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 11/3/18 – 11/9/18
<ul style="list-style-type: none"> <li>Bella Marie will continue SSS/MBES survey, favoring shallower portions of the assigned survey sheets outside the bay whenever possible. Some work remains inside the bay and will be completed on marginal days.</li> <li>Bunny Bordelon will continue SSS/MBES survey in offshore sheets</li> <li>Crew changeouts on both vessels 11/5</li> </ul>	

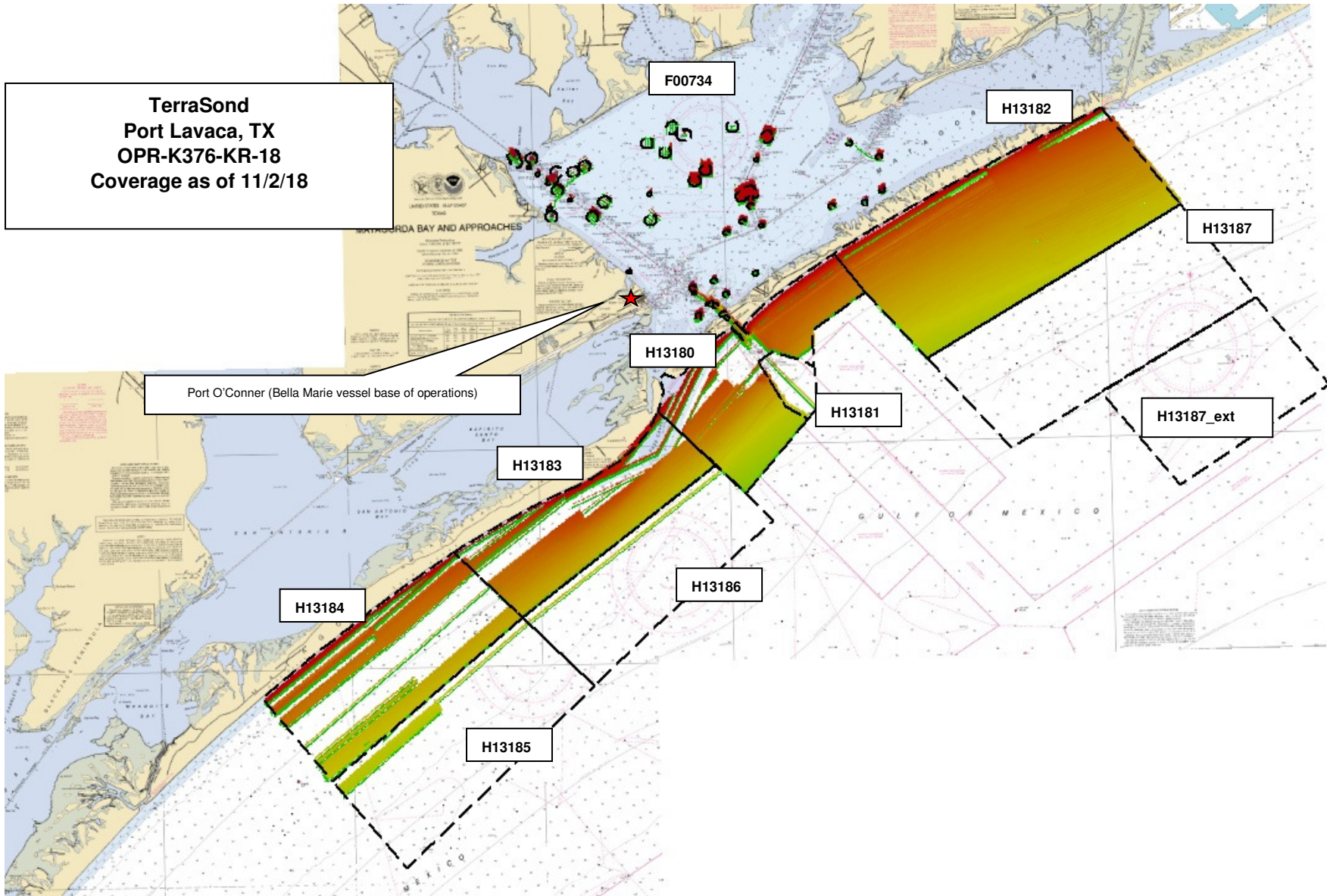
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**November 9<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 11/3/18 – 11/9/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bella Marie was able to work only two days during this week. The vessel had electrical issues which caused the vessel to be down through 11/6 until the issues were resolved. The vessel was able to work on 11/7 and 11/8, before going down on weather on 11/9.</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny had a relatively productive week. Focus was largely on shoaler portions of H13183 and H13184.</li> <li>Down half a day on 11/8 due to steering issues. Down the majority of 11/9 due to weather.</li> <li>All vessels: LNM collected to date: <b>5,044 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 11/10/18 – 11/16/18
<ul style="list-style-type: none"> <li>Poor weather likely to keep both vessels down for the first part of this week. Conditions are not forecast to improve substantially until 11/14.</li> <li>Bunny Bordelon will continue SSS/MBES survey in offshore sheets</li> <li>Crew changeouts on both vessels 11/12</li> </ul>	

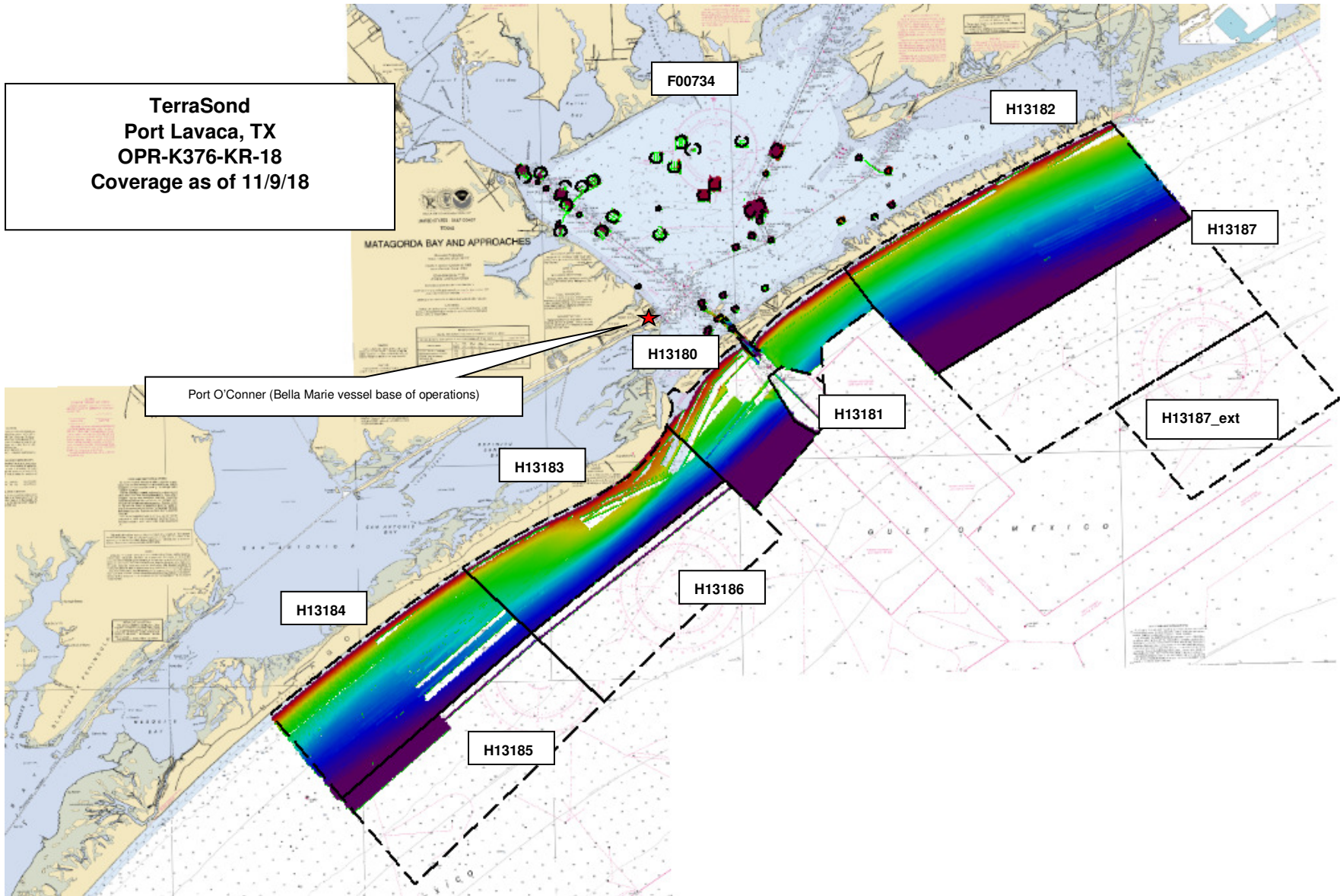
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**November 16<sup>th</sup>, 2018 Weekly Report**  
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Highlights of Past Week's Activities:	Dates Covered: 11/10/18 – 11/16/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bella Marie had a large amount of weather downtime. Down 11/10 – 11/13 on weather. Worked part of 11/14, all day 11/15. Only part of a day 11/16 due to generator issues.</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny had a large amount of weather down time. Down from 11/10 through 11/13, resumed work late on 11/14. Focus was on nearshore areas of H13180 and H13183.</li> <li>All vessels: LNM collected to date: <b>5,308 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 11/17/18 – 11/23/18
<ul style="list-style-type: none"> <li>Weather forecast is mixed for this coming week.</li> <li>Bella will shutdown over the Thanksgiving holiday (no ops starting 11/21, resuming 11/26). However, the Bunny will continue survey.</li> <li>Bunny has surveyed as shallow as possible for the most part; its focus will now be in the offshore sheets (H13185 and H13186) except for infills/reruns as they are identified in the shoaler sheets.</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

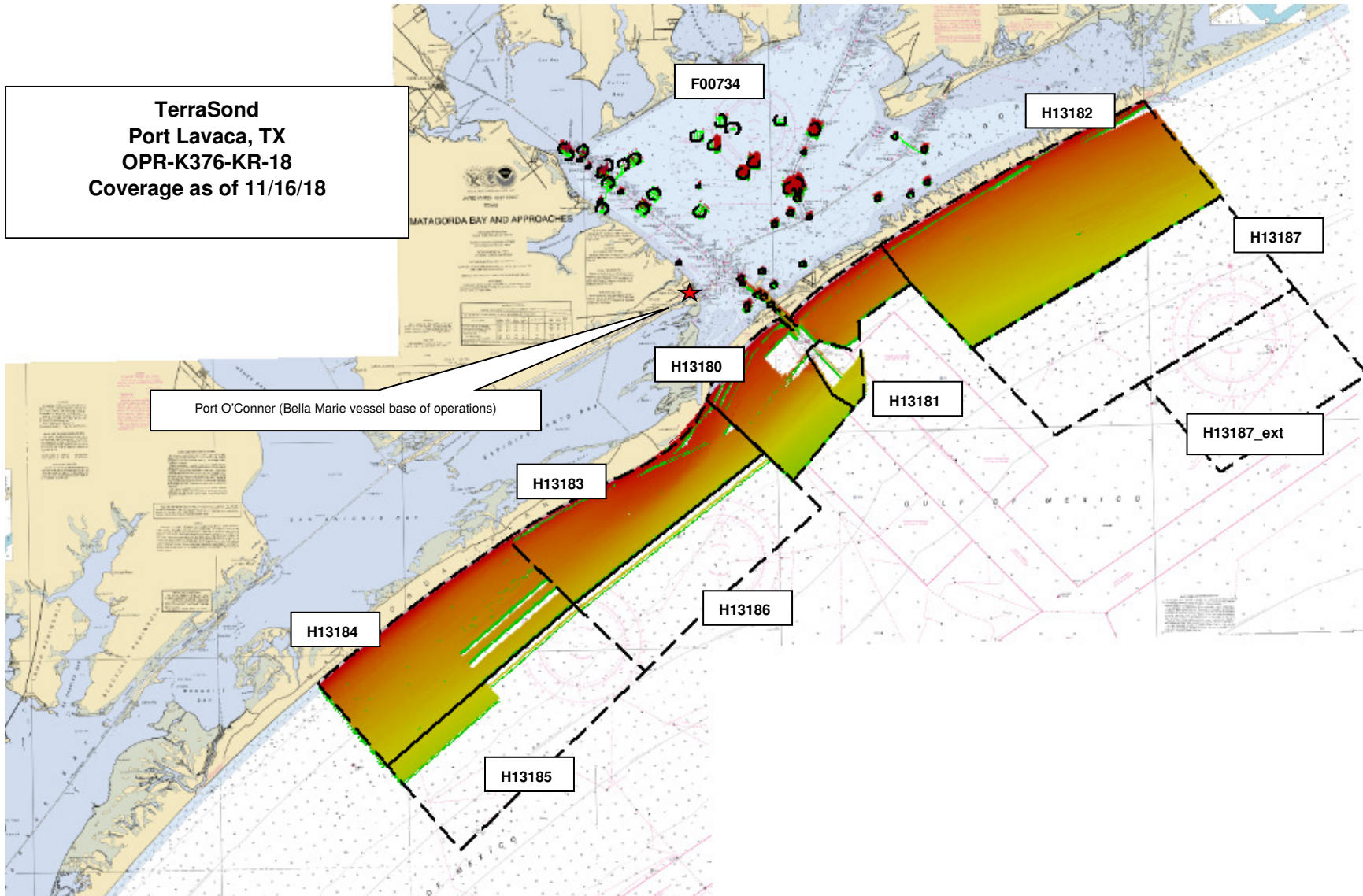
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**November 23<sup>rd</sup>, 2018 Weekly Report**  
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Highlights of Past Week's Activities:	Dates Covered: 11/17/18 – 11/23/18
<p>Bella Marie (nearshore vessel)</p> <ul style="list-style-type: none"> <li>No production this week. Down due to weather through 11/20. Shutdown 11/21 – 11/23 for holiday.</li> </ul> <p>Bunny Bordelon (offshore vessel)</p> <ul style="list-style-type: none"> <li>The Bunny Bordelon had a productive week. Worked primarily in H13185 and H13181. Some marginal weather necessitated multibeam-only operations at times</li> <li>All vessels: LNM collected to date: <b>6,284 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 11/24/18 – 11/30/18
<ul style="list-style-type: none"> <li>Bella will restart operations on 11/26, weather permitting, and focus on nearshore areas in H13183, H13182, H13180. F00734 has some work to complete and is reserved for more marginal weather.</li> <li>Bunny will focus on H13186 and move into H13187.</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

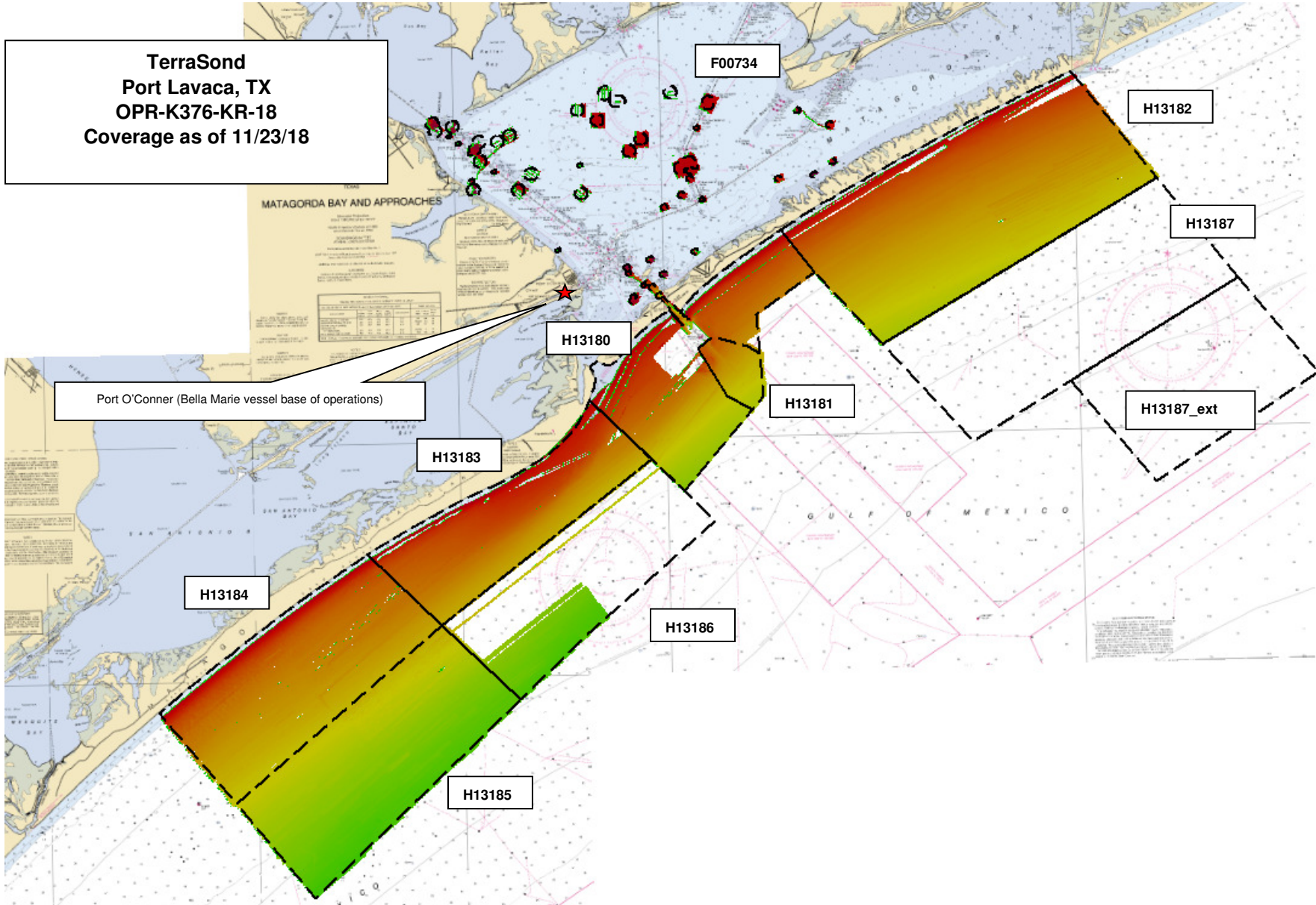
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**December 1<sup>st</sup>, 2018 Weekly Report**  
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Highlights of Past Week's Activities:	Dates Covered: 11/24/18 – 12/1/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>Bella Marie ready to resume production on 11/26 but down on weather</li> <li>Had decent weather and production 11/27 through 12/1</li> <li>Worked in nearshore areas of H13180 and H13182</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny Bordelon had a another productive week. Worked in H13186, H13180, H13181, and moved into H13187 at the end of the week. Some marginal weather necessitated multibeam-only operations at times</li> <li>All vessels: LNM collected to date: <b>7,481 (of approx. 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 12/2/18 – 12/7/18
<ul style="list-style-type: none"> <li>Bella will work nearshore areas when weather permits. Scheduled down on 12/4 for oil changes/maintenance. Bella has work remaining in all nearshore sheets.</li> <li>Weather permitting, the Bunny should finish the offshore work including bottom samples and reruns/infills and transit for demob. Scheduled resupply 12/3 in Port Aransas should be the last.</li> </ul>	

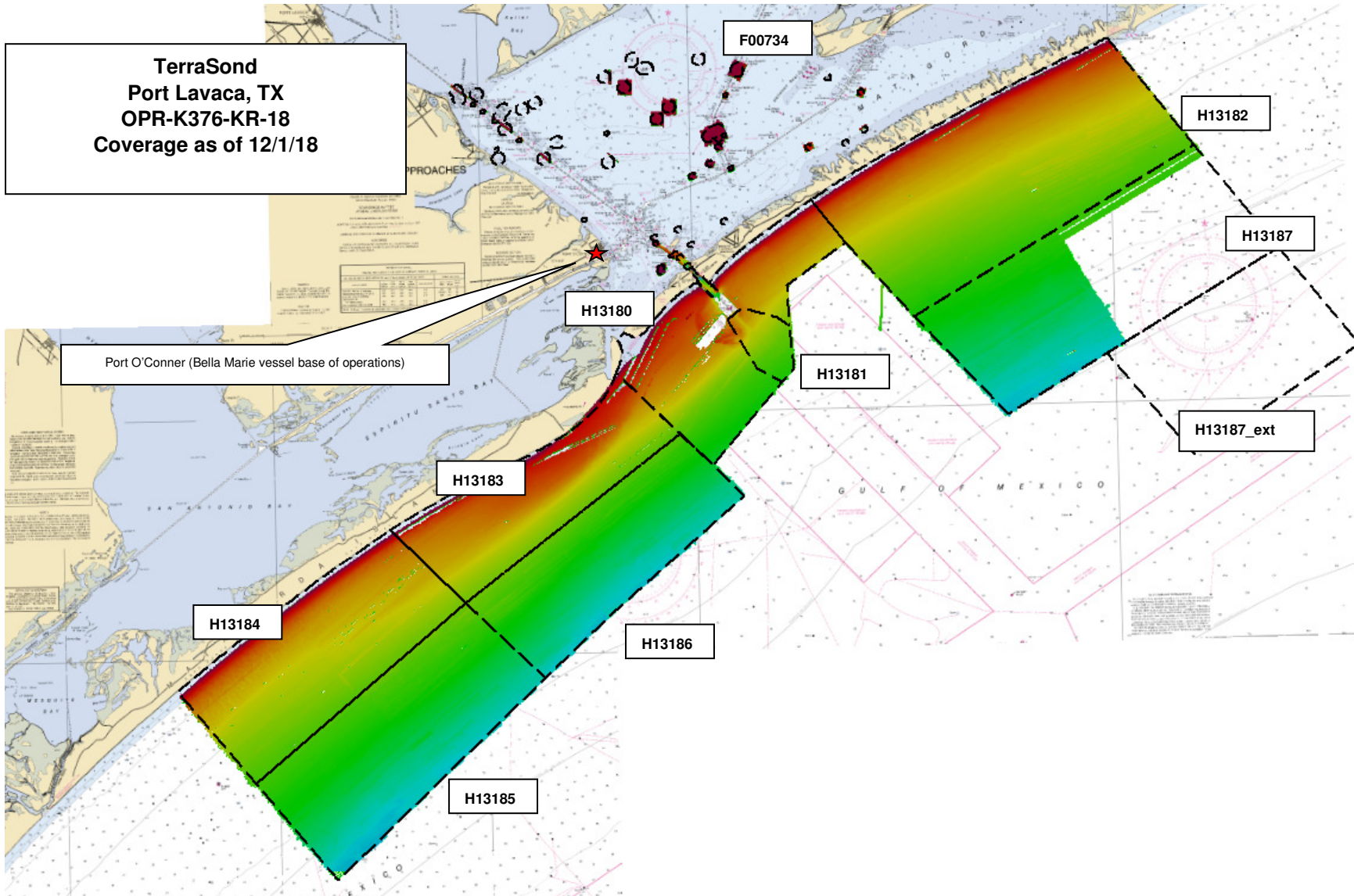
Andrew Orthmann, C.H.  
Charting Program Manager

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**December 8<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
TerraSond

Highlights of Past Week's Activities:	Dates Covered: 12/2/18 – 12/8/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>Bella Marie worked early in the week but was then down on a combination of weather and mechanical for the majority of the week</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny Bordelon finished mainscheme work, hitting the project-wide mileage cap. Bunny then proceeded with infills, reruns, developments, additional crosslines, and bottom samples.</li> <li>Mileage cap was achieved when H13187 was approximately 75% complete by area. The remainder of H13187 and the _ext area will not be surveyed due to insufficient remaining LNM.</li> <li>More infill work than anticipated prevented the vessel from proceeding to demob this week as planned</li> <li>All vessels: LNM collected to date: <b>8,038 (estimated 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 12/9/18 – 12/15/18
<ul style="list-style-type: none"> <li>Bella still has work in nearshore sheets to complete these areas.</li> <li>Bunny will complete work in all offshore areas and should be demob'ing by the end of the week.</li> </ul>	

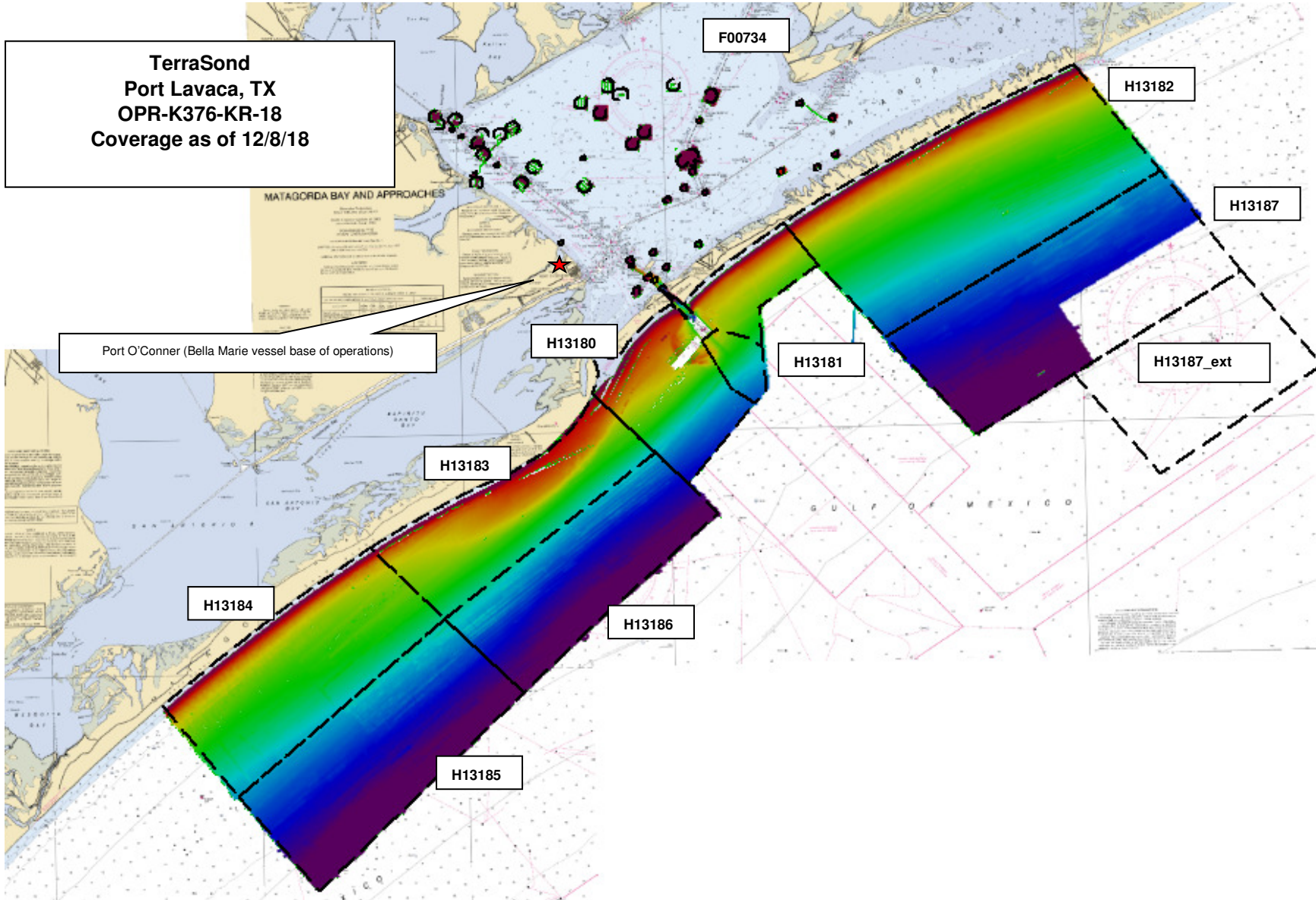
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**December 15<sup>th</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 12/9/18 – 12/15/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>Bella Marie was able to work 4 days of this week. Down on weather 12/9, 12/13, and 12/14. Completing areas nearshore as well as inside Matagorda Bay.</li> <li>Some issues with SSS terminations this week</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny Bordelon spent the majority of the week completing offshore infills, reruns, bottom samples, and acquiring additional crossline LNM</li> <li>Completed final crew change in Port Aransas on 12/14</li> <li>Finished remaining infills/developments on 12/15 and began transit to Houma, LA.</li> <li>Work is complete for offshore sheets (H13185, H13186, H13187)</li> <li>All vessels: LNM collected to date: <b>8,538 (estimated was 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 12/16/18 – 12/22/18
<ul style="list-style-type: none"> <li>Bella will work through approximately 12/21 and then shut down over the Christmas holiday period, resuming ops approximately 1/8</li> <li>Bunny will be demob'd in Houma, LA 12/17 – 12/19.</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

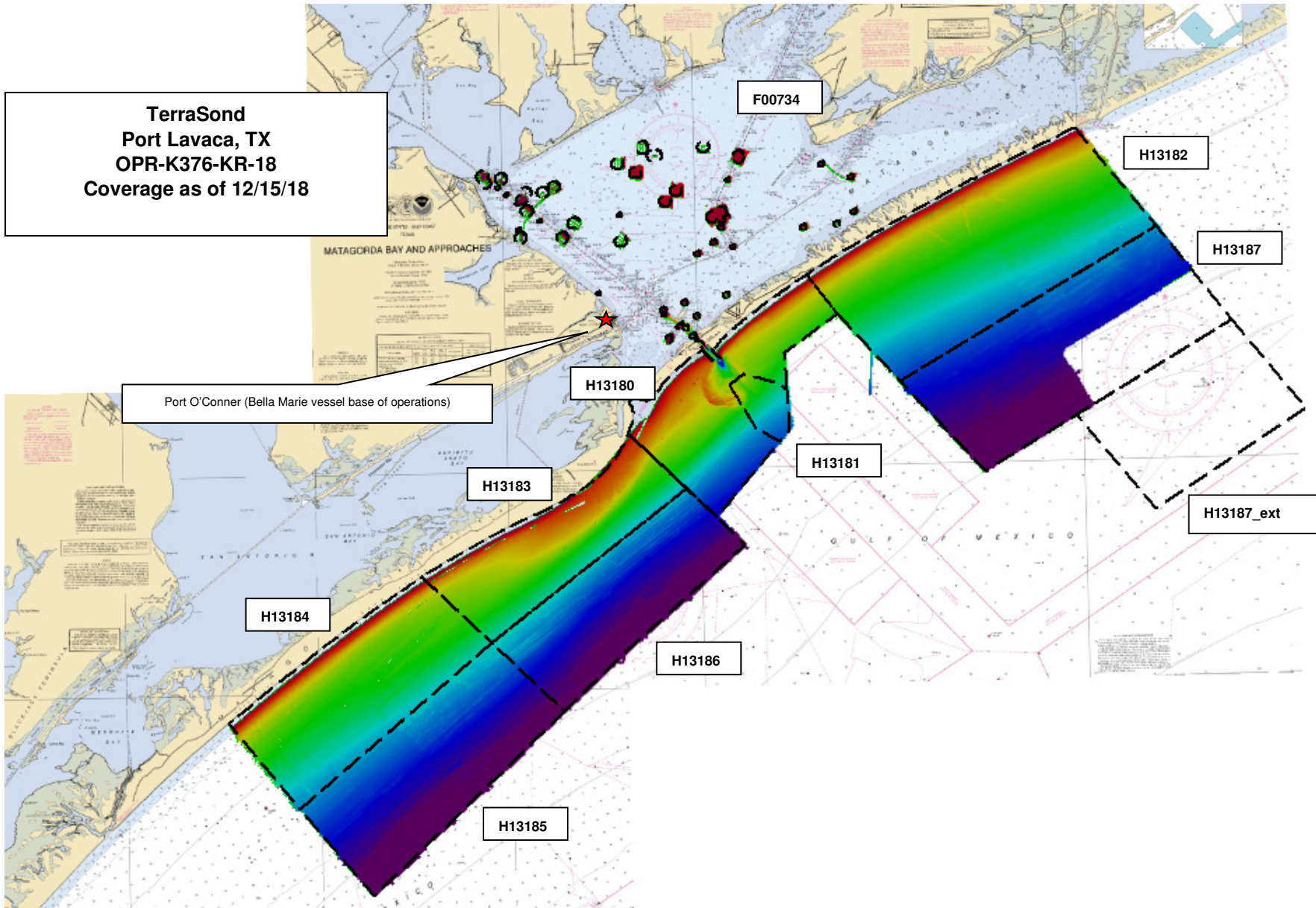
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**December 22<sup>nd</sup>, 2018 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 12/16/18 – 12/22/18
<p><b>Bella Marie (nearshore vessel)</b></p> <ul style="list-style-type: none"> <li>Bella Marie was able to work four days this week, 12/16 – 12/19, down on 12/20 for weather, and worked again for part of 12/21</li> <li>Partial demob on 12/22 – T50/POSMV equipment needed for another project</li> <li>Bella Marie still has some work to do inside the bay and cleanup in nearshore areas outside the bay. Shutdown starting 12/22 for Christmas holiday period, plan to restart ops week of 1/7</li> </ul> <p><b>Bunny Bordelon (offshore vessel)</b></p> <ul style="list-style-type: none"> <li>The Bunny Bordelon arrived in Houma, LA on 12/16 and began demobilization</li> <li>Bunny demob was completed 12/19</li> <li>All vessels: LNM collected to date: <b>8,702 (estimated was 7,869)</b></li> </ul>	

Highlights of Next Week's Activities:	Dates Covered: 12/23/18 – 1/12/19
<ul style="list-style-type: none"> <li>Ops shutdown over Christmas holiday period, will recommence ops (Bella Marie only) the week of 1/7</li> <li>Next weekly report to be issued on 1/14/19</li> </ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

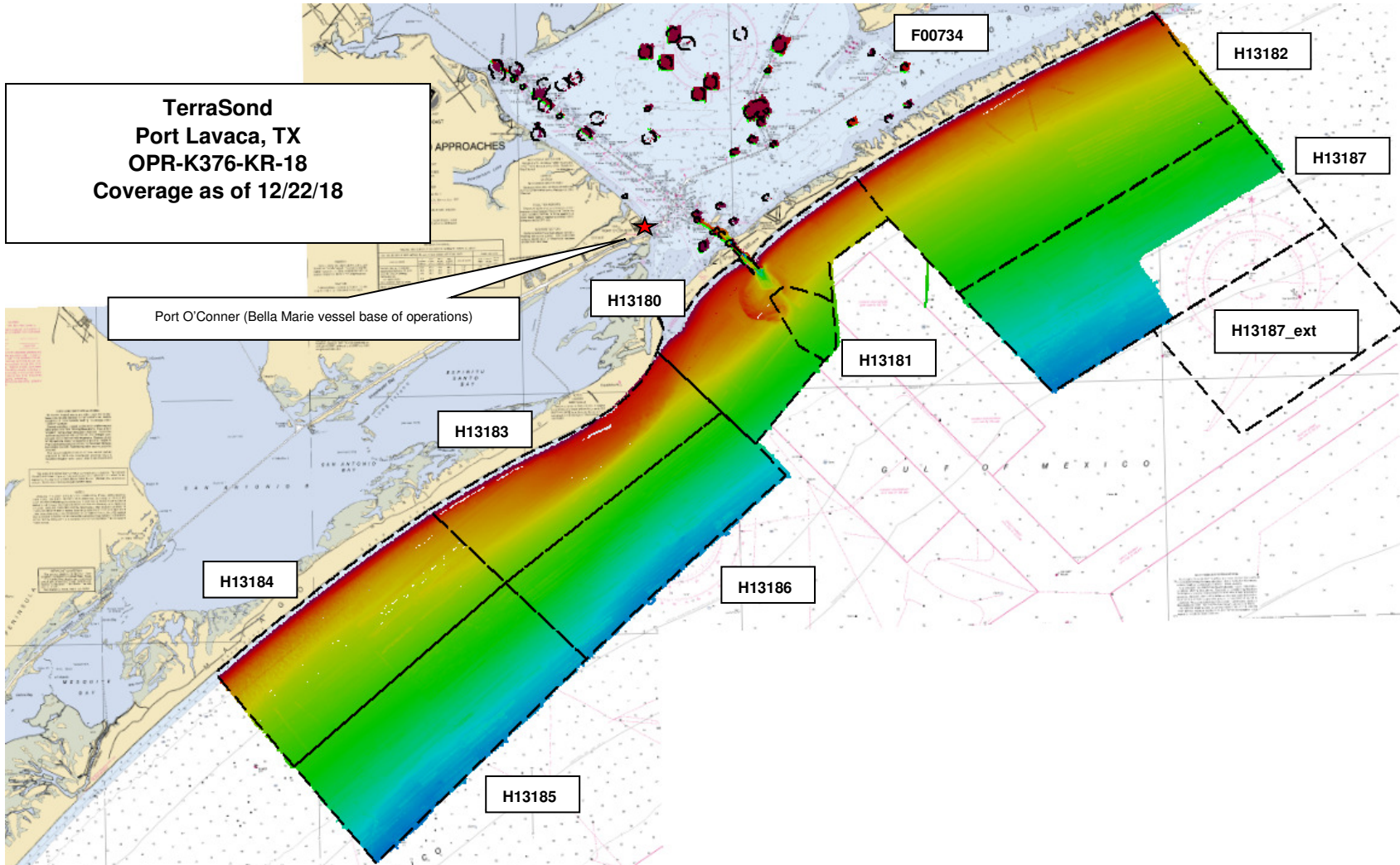
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**January 14<sup>th</sup>, 2019 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 12/23/18 – 1/12/19
<ul style="list-style-type: none"><li>Bella Marie operations restarted. Crew traveled 1/11, began remob of vessel on 1/12.</li><li>Bunny Bordelon was demob'd in December and is not scheduled for additional operations on this project.</li></ul> <p>LNM collected to date: <b>8,702 (estimated was 7,869)</b></p>	

Highlights of Next Week's Activities:	Dates Covered: 1/13/19 – 1/19/19
<ul style="list-style-type: none"><li>Nearshore operations as weather allows in F00734, H13180, H13182, H13183, H13184</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

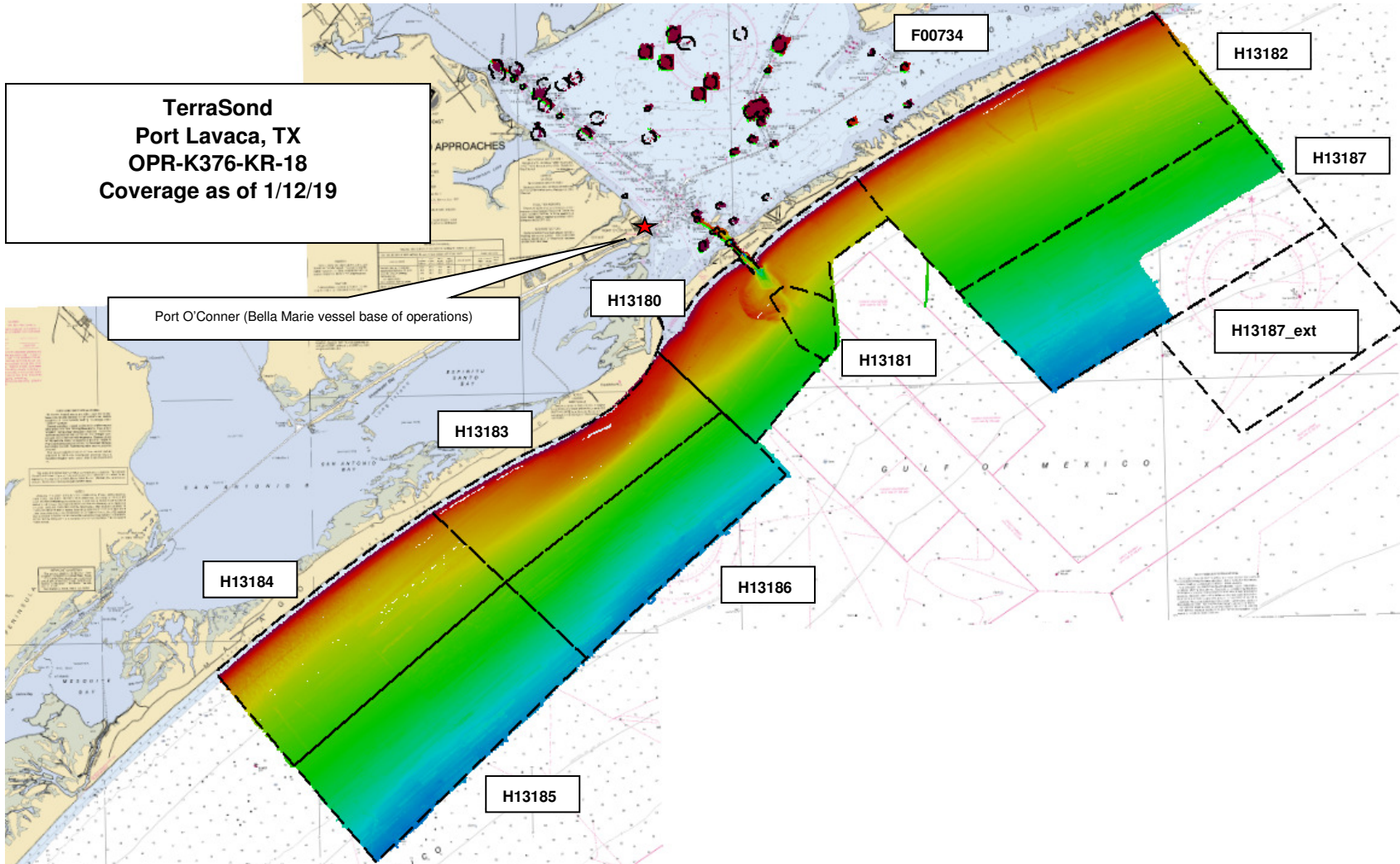
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**January 19<sup>th</sup>, 2019 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 1/13/19 – 1/19/19
<ul style="list-style-type: none"><li>• Completed re-mob of Bella Marie including getting vessel back to Port O'Conner on 1/13</li><li>• Calibrations 1/14</li><li>• Began collecting mainscheme data again 1/15. Weather was fair for the majority of the week.</li></ul> <p>LNM collected to date: <b>8,867 (estimated was 7,869)</b></p>	

Highlights of Next Week's Activities:	Dates Covered: 1/20/19 – 1/26/19
<ul style="list-style-type: none"><li>• Nearshore operations as weather allows. From the forecast it appears that there will be more weather downtime this coming week than last.</li><li>• Estimated remaining work 7-9 days not including downtime: 2-3 days in F00734, 1 day in H13180, 2-3 days in H13183, 1 day in H13184, 1 day in H13182. Project will not be completed this week.</li></ul> <p>Note that work in the offshore sheets H13181, H13185, H13186, and H13187 is complete and the offshore survey vessel (Bunny Bordelon) was demobilized in December.</p>	

Andrew Orthmann, C.H.  
Charting Program Manager

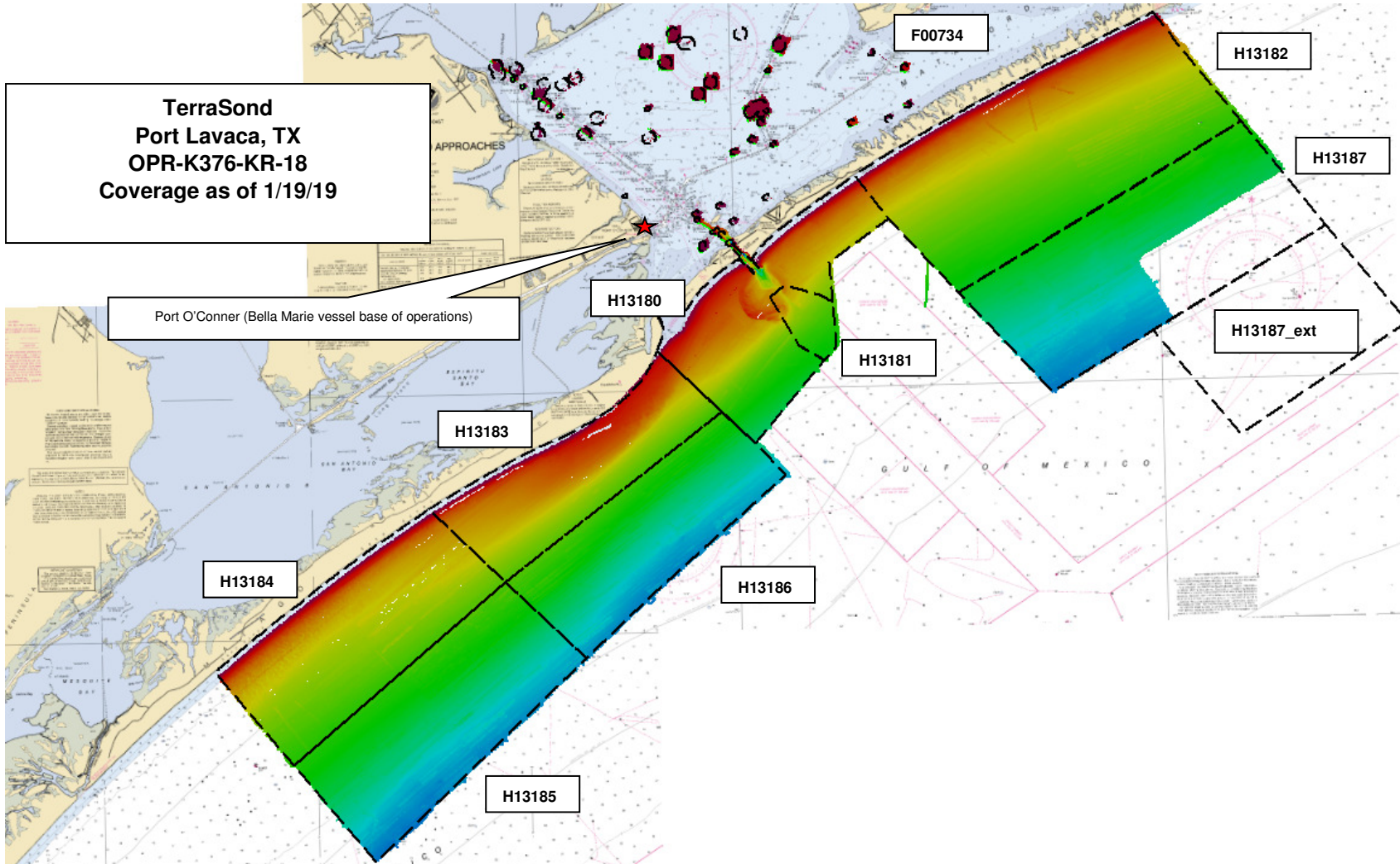
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**January 26<sup>th</sup>, 2019 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 1/20/19 – 1/26/19
<ul style="list-style-type: none"> <li>• Had good production each day except 1/22, 1/23, and part of 1/25 when operations were down due to weather</li> <li>• In addition to the already completed sheets, H13182 and H13184 may now be complete as well; verifying in the office this week.</li> </ul> <p>LNM collected to date: <b>8,947 (estimated was 7,869).</b></p>	

Highlights of Next Week's Activities:	Dates Covered: 1/27/19 – 2/2/19
<ul style="list-style-type: none"> <li>• Continue survey. Remaining work is primarily infills, MB developments, and some crosslines. Forecast appears mixed this week, with best weather coming late in the week.</li> <li>• Known work remaining is in H13180, H13183, and F00734, with the majority in F00734 (Matagorda Bay).</li> <li>• Estimated work remaining 3-5 days total, weather permitting. Unlikely to finish this week given the forecast.</li> </ul> <p>Note that work in the offshore sheets H13181, H13185, H13186, and H13187 is complete and the offshore survey vessel (Bunny Bordelon) was demobilized in December.</p>	

Andrew Orthmann, C.H.  
Charting Program Manager

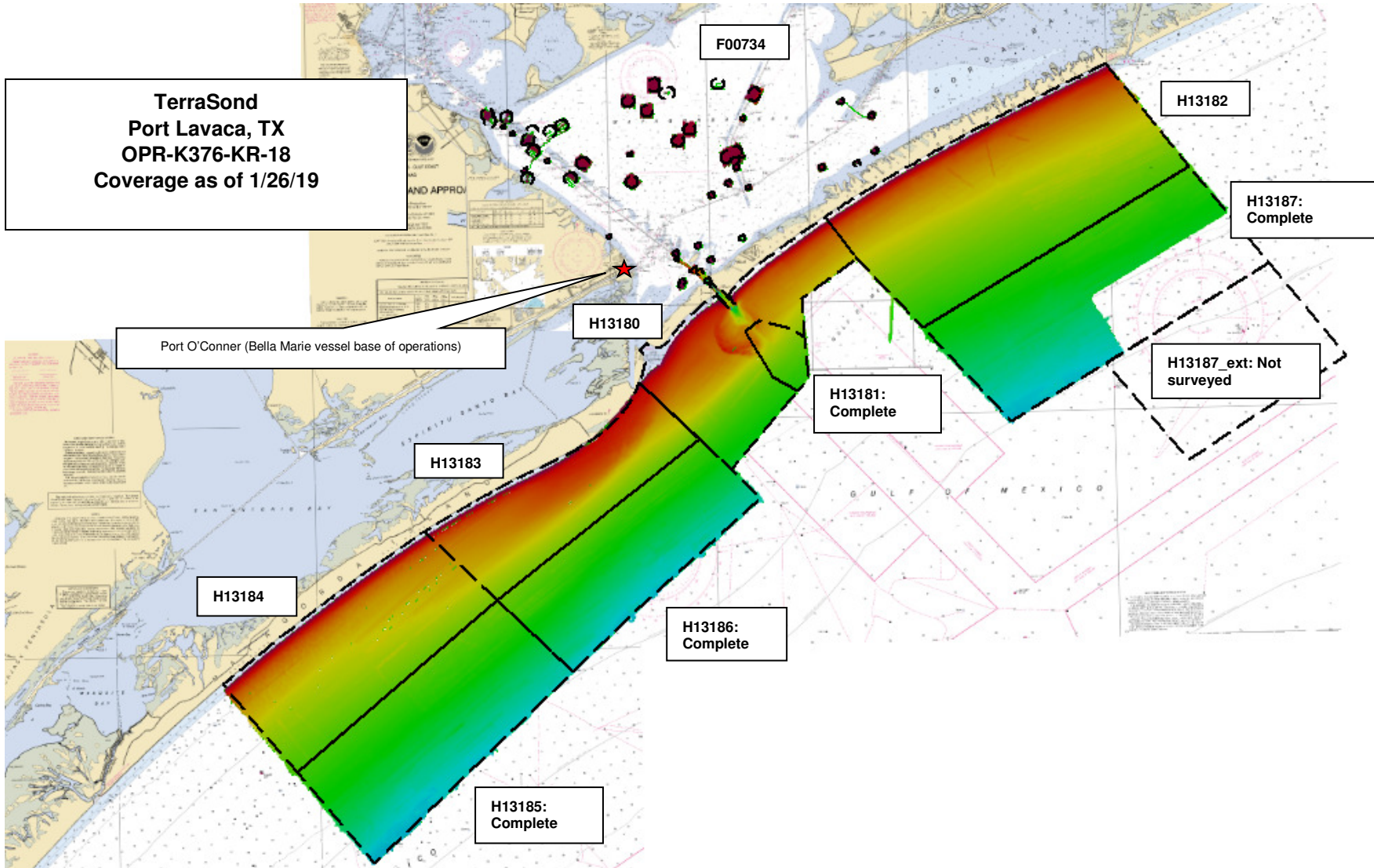
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**February 2<sup>nd</sup>, 2019 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 1/27/19 – 2/2/19
<ul style="list-style-type: none"><li>• 70% up-time this week</li><li>• Worked in near-shore sheets. Primarily area cleanup: Infills, developments, splits, and additional XL LNM where necessary.</li></ul> <p>LNM collected to date: <b>9,042 (estimated was 7,869)</b>.</p>	

Highlights of Next Week's Activities:	Dates Covered: 2/3/19 – 2/9/19
<ul style="list-style-type: none"><li>• On-site operations should wrap up this week, weather permitting</li><li>• Demob Bella Marie</li></ul> <p>Note that the offshore sheets H13181, H13185, H13186, and H13187 are complete and the offshore survey vessel (Bunny Bordelon) was demobilized in December.</p>	

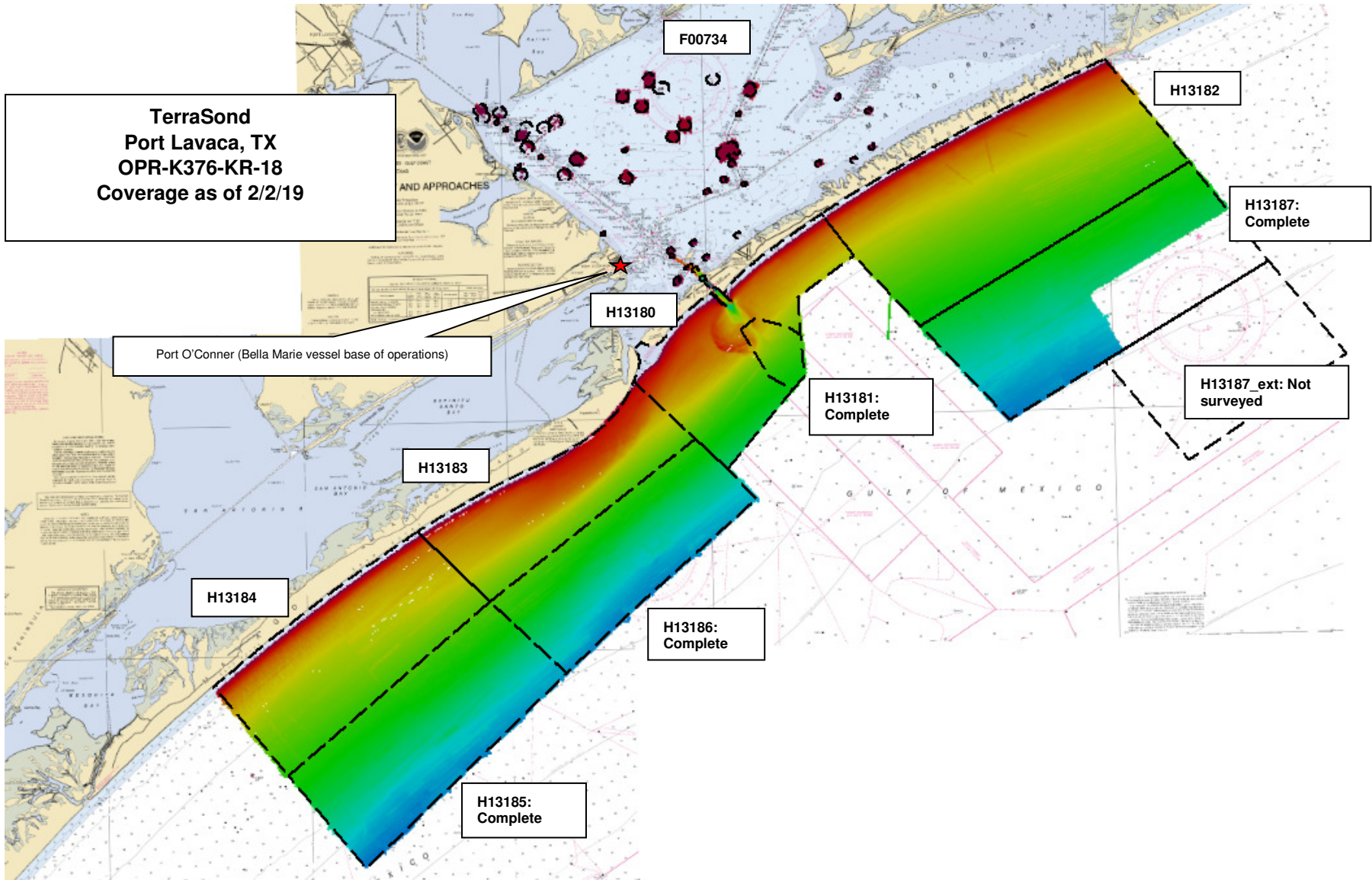
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**February 9<sup>th</sup>, 2019 Weekly Report**  
OPR-K376-KR-18 Port Lavaca, TX  
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Highlights of Past Week's Activities:	Dates Covered: 2/3/19 – 2/9/19
<ul style="list-style-type: none"><li>Finished work in all remaining sheets, with last data collected in F00734 on 2/7</li><li>Demobilization of Bella Marie started 2/7, completed 2/8</li><li>Acquisition is complete</li></ul> <p>LNM collected to date: <b>9,163 (estimated was 7,869).</b></p>	

Highlights of Next Week's Activities:	Dates Covered: 2/10/19 – 2/16/19
<ul style="list-style-type: none"><li>Continue office processing and reporting.</li><li>Note since field ops are complete, this is the final weekly report.</li></ul>	

Andrew Orthmann, C.H.  
Charting Program Manager

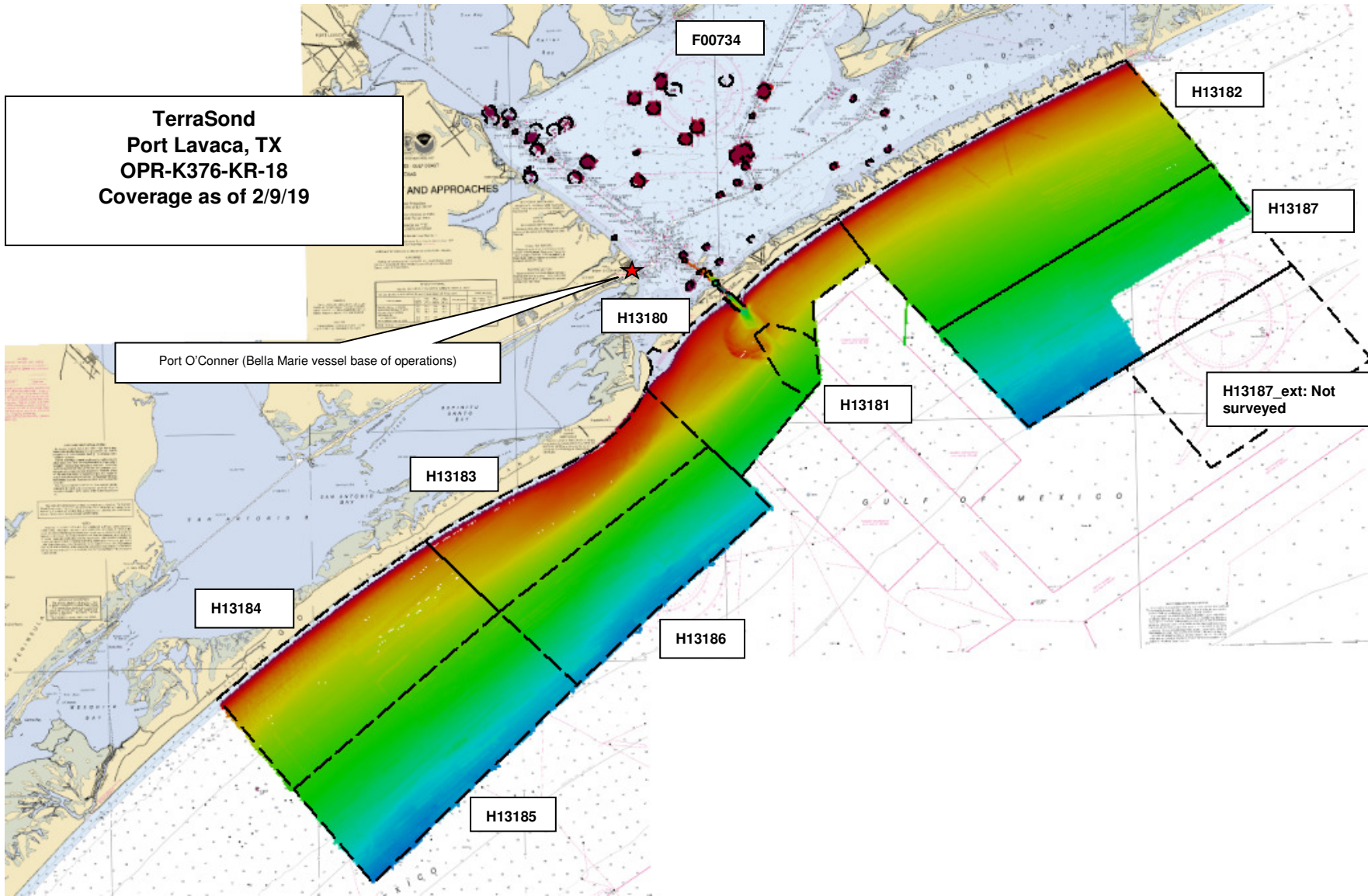
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APPROVAL PAGE

H13186

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
- Data Acquisition and Processing Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Processed survey data and records
- Geospatial PDF of survey products
- Collection of backscatter mosaics

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

Approved: \_\_\_\_\_  
**Commander Meghan McGovern, NOAA**  
Chief, Atlantic Hydrographic Branch