

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

### **Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

## **1. General Description of Data to be Managed**

### **1.1. Name of the Data, data collection Project, or data-producing Program:**

2017 TNRIS Lidar DEM: Jefferson, Liberty and Chambers, TX (East)

### **1.2. Summary description of the data:**

This metadata record describes the bare-earth hydro-flattened Digital Elevation Model (DEM) for the Eastern Block of the 2017 Texas Coastal LiDAR project. The Eastern Block covers approximately 841 square miles, including the cities of Beaumont, Port Arthur, and Nederland in southeast Texas. This point cloud AOI was collected to meet the density of 4 points per meter. The DEM has 1 m horizontal resolution, is in UTM Zone 15 projection, horizontal datum is the North American Datum of 1983 (NAD83 (2011)), vertical datum is North American Vertical Datum of 1988 (NAVD88) using the latest geoid (Geoid12b) for converting ellipsoidal heights to orthometric heights. Units - Meters

Sanborn Map Company was contracted by Texas Water Development Board (TWDB) in cooperation with the Trinity River Authority (TRA) to perform 2017 LiDAR aerial surveys of Texas coastal area of about 1130 square miles. Collections was completed utilizing multi-return systems, Light Detection and Ranging (LiDAR) data in the form of 3-dimensional positions of a dense set of mass points between February 22nd and March 23rd, 2017. ALS70 LiDAR was flown to produce four (4) points and eight (8) points per square meter return density or 0.5 meters and 0.35 meters respectively Nominal Point Spacing (NPS)

Note: The Western Block AOI covers approximately 289 square miles, including the cities of Liberty, Hankamer, and Anahuac in southeast Texas. This point cloud AOI was collected to meet the density of 8 points per meter. Total area covers equals approximately 1.130 square miles. The Western Block is available through the 'Related Items' section, below.

### **1.3. Is this a one-time data collection, or an ongoing series of measurements?**

One-time data collection

### **1.4. Actual or planned temporal coverage of the data:**

2017-02-22 to 2017-03-04

**1.5. Actual or planned geographic coverage of the data:**

W: -94.444, E: -93.768, N: 30.1, S: 29.597

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

Model (digital)

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:****1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.4. E-mail address:**

coastal.info@noaa.gov

**2.5. Phone number:**

(843) 740-1202

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:****3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?**

Yes

**4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):**

Unknown

**5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

**5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible**

*(describe or provide URL of description):*

Process Steps:

- 2017-01-01 00:00:00 - Using a Leica Light Detection And Ranging (LiDAR) system, 4PPM LiDAR data was collected over the East Texas AOI. Multiple returns were recorded for each laser pulse along with an intensity value for each return. The data acquisition occurred in ten missions between February 22nd and March 4th, 2017. During the LIDAR campaign, the Sanborn field crew conducted a GPS field survey to establish final coordinates of the ground base stations for final processing of the base-remote GPS solutions. (Citation: LiDAR Data)
- 2017-01-01 00:00:00 - Airborne GPS data was differentially processed and integrated with the post processed IMU data to derive a Smoothed Best Estimate of Trajectory (SBET). IMU data provides information concerning roll, pitch and yaw of collection platform during collection event. IMU information allows the pulse vector to be properly placed in 3D space allowing the distance from the aircraft reference point to be properly positioned on the elevation model surface. The SBET was used to reduce the LiDAR slant range measurements to a raw reflective surface for each flight line. Airborne GPS is differentially processed using the Inertial Explorer software by Leica Geosystems.
- 2017-01-01 00:00:00 - Leica's CloudPro software then combined the SBET and Raw Laser (.scn) files to produce raw point cloud swath data in LAS v1.4 format.
- 2017-01-01 00:00:00 - The raw swath point cloud data was then calibrated using TerraMatch, a TerraSolid software, to correct relative bias in conjoining swaths that include roll, pitch, heading, Scale, and elevation. The swath data is then compared against the calibration control points and adjusted vertically to exceed the vertical accuracy requirements for the project.
- 2017-01-01 00:00:00 - The georeferenced lidar data is then classified and edited in Terrasolid Terrascan software. Data is classified to produce: Class 1: unclassified, Class 2: ground, Class 3: low veg, Class 4: med veg, Class 5: high veg, Class 6: building, Class 7: low point, Class 9: water, Class 10: ignored ground, Class 13: bridge deck, Class 14: culverts
- The NOAA Office for Coastal Management (OCM) received the files in the proprietary ERDAS IMG format. The files were converted to floating point GeoTIFF format in vertical meters using `gdal_translate` from GDAL version 3.0.2. 1. An

internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges. 2. Internal OCM scripts were run on the laz files to convert from orthometric (NAVD88) elevations to NAD83 (2011) ellipsoid elevations using the Geoid 12b model, to convert from UTM Zone 15 North NAD83 (2011) coordinates in meters to geographic coordinates, to assign the geokeys, to sort the data by gps time and zip the data to database and to http.

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## 6. Data Documentation

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:

- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:**

**6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/59008>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: [https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC\\_PD-Data\\_Documentation\\_v1.pdf](https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf)

## 7. Data Access

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

### 7.1. Do these data comply with the Data Access directive?

Yes

#### 7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

#### 7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

### 7.2. Name of organization of facility providing data access:

NOAA Office for Coastal Management (NOAA/OCM)

#### 7.2.1. If data hosting service is needed, please indicate:

#### 7.2.2. URL of data access service, if known:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=9047>

[https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/TNRIS\\_JeffLibCham\\_50cm\\_DEM](https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/TNRIS_JeffLibCham_50cm_DEM)

### 7.3. Data access methods or services offered:

Data is available online for bulk or custom downloads

### 7.4. Approximate delay between data collection and dissemination:

#### 7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

## 8. Data Preservation and Protection

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

### 8.1. Actual or planned long-term data archive location:

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

NCEI\_CO

**8.1.1. If World Data Center or Other, specify:**

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

**8.2. Data storage facility prior to being sent to an archive facility (if any):**

Office for Coastal Management - Charleston, SC

**8.3. Approximate delay between data collection and submission to an archive facility:**

**8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

Data is backed up to tape and to cloud storage.

## **9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*