

*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:**

2015 Univ of TX BEG Topobathy Lidar: Shamrock Cove, Texas (Mustang Island & Corpus Christi Bay)

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

This data set contains LAS v. 1.2 format points data from the Shamrock Cove, Texas (Mustang Island & Corpus Christi Bay). The data were collected January 30 and February 5, 2015 using the Bureau of Economic Geology's airborne system (Chiroptera) which can collect topographic lidar data, shallow bathymetric lidar data, and natural color/color infrared imagery. The X, Y, and Z point data are generated by combining laser range and aircraft attitude data collected using an airborne light detection and ranging (lidar) instrument with once-per-second data collected using geodetic quality (dual phase) Global Positioning System (GPS) airborne and ground-based receivers. The equipment was installed in a twin engine Partenavia P68 aircraft (tail number N300LF) owned and operated by Aspen Helicopters, Inc., and operated locally out of Aransas County Airport in Rockport, Texas.

**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:**

2015-01-30, 2015-02-05

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

W: -97.176414, E: -97.121214, N: 27.802759, S: 27.712259

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

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*  
Point Cloud (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?****4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "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:**

- Preparation and Data acquisition Chiroptera system is installed in aircraft. GPS to laser offset values are measured using a survey grade Total Station (if first time installation). System is turned on using ground AC power connection to the aircraft for system check. Aircraft GPS receiver is turned on to start data collection. The pre-determined flight plan is uploaded to the Flight Management software. Ground GPS base stations are setup on geodetic reference points (with known precise Northing, Easting, and Elevation information) in or near the survey area. GPS receivers are set for continuous 1 second data collection rate. Aircraft GPS and Base GPS information needs to overlap each other for the duration of the survey flight. Aircraft takes off to begin the survey mission. Pilot follows the flight altitude, speed and the flight lines as directed by the flight plan. Raw laser point cloud data is collected with external solid state hard drives in the Chiroptera. High resolution raw images are collected using integrated medium format camera. VGA low resolution images are collected for operator and post-processing reference. GPS and attitude (INS) information is collected on an external storage device. Airborne survey is completed after all flight lines are flown.
- Data Download and Preliminary Field Processing All laser data and raw image files are downloaded to the field computer using its internal drive enclosures. GPS and INS data are downloaded using USB3.0 connections to the field computer. Preliminary GPS processing is completed by merging base GPS receiver with the remote to create a GPS trajectory (GrafNav). The preliminary GPS trajectory is combined with attitude information in AEROoffice to create a 7-parameter (TXYZ, roll,pitch,yaw) navigation file. The navigation solution is used to reference each laser pulse return with the 7-paramater information in LSS. Laser point cloud data is output by flight line in multiple segments. Point cloud data is examined to determine quality of the data coverage (i.e. sufficient overlap of flight lines and point spacing).
- Post-Processing Upon return from the survey area, all files are transferred from the field computer to an in-house server. Compute base station coordinates using National Geodetic Survey's (NGS) Online Positioning User Service (OPUS). Setup project in AEROoffice software and covert Chiroptera GPS files to binary Novatel GPS files. Convert aircraft GPS file and base station GPS files to GrafNav compatible format. Compute merged aircraft trajectory using GrafNav software. Solutions for base station coordinates and aircraft trajectories are in NAD83. Combine precise trajectories with aircraft attitude information in AEROoffice to create final precise 7-parameter navigation file (TXYZ,roll,pitch,yaw). Laser point data are generated in AHAB processing software Lidar Survey Studio (LSS) combining navigation file information and laser data. LSS also requires a calibration, processing settings, and system configuration files. LSS parameters are adjusted to minimize noisy data output. A configuration file is prepared by setting amplitude thresholds and backscatter threshold values. A water-refraction value based on salinity is

computed to provide optimum performance (1.3429). The select map option is utilized to automatically determine the water surface elevation (within LSS). After initial processing, waveform information is analyzed to determine if the laser returns are being classified properly. Bathymetric laser-point data were output from LSS in LAS v1.2 format (a binary file format). A condition is set in LSS to output data in the proper UTM zone and hemisphere. The resultant points are referenced to the Geographic NAD83 horizontal datum and height above the NAD83 ellipsoid. Using the TerraScan utility of MicroStation, flight line segment files were concatenated and Class 6 (shallow bathymetric returns) and Class 7 (bottom/seafloor) were extracted. The 2012A geoid model was used to adjust the elevation data from ellipsoidal to orthometric heights (NAVD88) using a LAsTools script called lasheight.

- 2018-01-24 00:00:00 - The NOAA Office for Coastal Management (OCM) received 2 files (one for topo and one for bathy) in las format from UT BEG. The files contained elevation and intensity measurements along the coast of Texas. The data were in UTM Zone 14 NAD83 coordinates and NAVD88 (Geoid12A) elevations in meters. The data were classified as: 6 (bathy/bathy vegetation), 7 (bathy), 9 (ground), 13 (low vegetation), 14 (medium vegetation), 15 (high vegetation). OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. The LAsTools software scripts lasinfo and lasvalidate, were run on the las files to check for errors. 2. The LAsTools software script las2las was run to convert the classifications of: Class 6 (bathy/bathy vegetation) to Class 14 (bathy/bathy vegetation) Class 7 (bathy) to Class 26 (bathy) Class 9 (ground) to Class 2 (ground) Class 13, 14, 15 (low/medium/high vegetation) to Class 1 (unclassified) - these classes were converted due to the fact that many points with these classifications were actually structures. 3. Internal OCM scripts were run on the las files to convert from UTM Zone 14 NAD83 coordinates to geographic NAD83 coordinates, from orthometric (NAVD88) elevations to ellipsoid elevations using the Geoid 12A model, to assign the geokeys, 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
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
  - 7.1.1. If data are not available or has limitations, has a Waiver been filed?
  - 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 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?

**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/51864>

**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?**

**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=6265>

<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/6265/index.html>

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

Data is available online for custom and bulk 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)*

**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*

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

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