

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:

2018 NRCS Lidar: Calhoun, Clarendon and Orangeburg Counties, SC

### 1.2. Summary description of the data:

The Project data set consists of a classified lidar point cloud. The Geographical Extent of this dataset covers approximately 2215 square miles for the QL2 area covering Calhoun, Clarendon and Orangeburg counties in SC. The flight plan consisted of 201 survey lines and 3 control lines.

Ground Conditions: water at normal levels; no unusual inundation; no snow; leaf off

How the Withheld Points are Identified: Withheld (ignore) points were identified in the files using the standard LAS Withheld bit.

ANPS: 0.71 Meters

Tile Size: 5,000 US Feet

Spec: National Geospatial Program(NGP) Lidar Base Specification v1.3

LAS File Type: 1.4 type 6

### 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:

2018-04-11 to 2018-04-18

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

W: -81.3958020246, E: -79.8724935529, N: 33.9628083487, S: 33.1611707247

### 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:

- 2018-04-11 00:00:00 - Aerial LiDAR Acquisition: Aerial data collection was acquired, in Nineteen (19) Missions, using the Leica ALS80 SN# 8137 and SN# 8235 at an altitude of 5,430 feet AGL for QL2. This was to support a 2 ppm<sup>2</sup> for QL2 LiDAR point cloud. Airborne GPS and IMU data was collected during the acquisition and supported by Leica GS15 and GPS 1200 base stations that occupied temporary monuments in conjunction with CORS stations, Data acquisition started April 11, 2018 and it was completed April 18, 2018. Ground Control Survey: A survey was performed to support the acquisition of Light Detection and Ranging (LiDAR). The control network involved a total of 135 check points (76 NVA and 59 VVA). The points were a combination of the following ground cover classification: Open Terrain, Urban Terrain, Bare Earth, High Grass, and Low Trees. All field survey observations were conducted between April 11, 2018 and it was completed April 13, 2018 with Leica GPS GS15 and 1200 equipment.
- 2018-04-20 00:00:00 - LiDAR Pre-processing: Airborne GPS and IMU data were merged to develop a Smooth Best Estimate of Trajectory (SBET) of the LiDAR system for each mission. LiDAR ranging data were initially calibrated using previous best parameter for this instrument and aircraft. Relative calibration was evaluated using advanced plane-matching analysis and parameter corrections derived. This process was repeated interactively until residual errors between overlapping swaths, across all project lifts, was reduced to 2 cm or less. Raw data NVA were checked using surveyed check points.
- 2018-06-03 00:00:00 - RAW Data Processing: The Initial processing of the GPS data was processed using Inertial Explorer producing a solution file for each mission. Leica CloudPro software was then used to generate georeferenced laser returns into LAS 1.4 file format for each flight-line per each mission, this went through an initial Quality Control of the overlap between the flight-line swaths.
- 2018-06-25 00:00:00 - LiDAR Post-processing: The calibrated and controlled LiDAR swaths were processed using automatic point classification routines in TerraSolid software. These routines operate against the entire collection (all swaths, all lifts), eliminating character differences between files. Data were then distributed as virtual tiles to experienced LiDAR analysts for localized automatic classification, manual editing, and peer-based QC checks. Supervisory QC monitoring of work in progress and completed editing ensured consistency of classification character and adherence to project requirements across the entire project. All classification tags are stored in the original swath files. After completion of classification and final QC approval, the NVA and VVA for the project are calculated. Sample areas for each land cover type present in the project were extracted and forwarded to the client, along with the results of the accuracy tests. Upon acceptance, the complete classified LiDAR swath files were delivered to the client.

- 2018-06-28 00:00:00 - LiDAR Classification: The calibrated LiDAR data went through automated classification routines and then manually edited and checked. The LiDAR point cloud data was classified into the following classes: 1-unclassified\*, 2-ground, 7-low noise, 9-water, 17-bridges, and 18-high noise, 20-Ignored Ground, 21-Snow, 22-Temporal Exclusion
- NOAA OCM retrieved 6,148 laz files from the USGS rockyftp website. The files The NOAA Office for Coastal Management (OCM) downloaded this data set from this USGS rockyFTP website. The number of files downloaded and processed was 6,148. The data were in Albers (NAD83 2011) coordinates and NAVD88 (Geoid12b) elevations with all units in meterst. The data were classified as: 1 - Unclassified, 2 - Ground, 7 - Low Noise, 9 - Water,, 17 - Bridge Decks, 18 - High Noise, 20 - Ignored Ground. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV). OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 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 ellipsoid elevations using the Geoid12b model, to convert 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/62697>

**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=9166/details/9166>  
<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/9166/index.html>

**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.*