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:
   2012 South Carolina DNR Lidar: Aiken County

1.2. Summary description of the data:
   Towill Inc. collected LiDAR for over 3,300 square miles in Calhoun, Aiken, Barnwell, Edgefield, McCormick, and Abbeville counties in South Carolina. This metadata covers the LiDAR products for Aiken County. The nominal pulse spacing for this project is 1.4 meters. This project was collected with a sensor which collects waveform data and provides an intensity value for each discrete pulse extracted from the waveform. GPS Week Time, Intensity, Flightline and echo number attributes were provided for each LiDAR point. Dewberry used proprietary procedures to classify the LAS according to contract specifications: 1-Unclassified, 2-Ground, 7-Noise, 8-Model Key Points, 9-Water, 10-Ignored Ground due to breakline proximity. Dewberry produced 3D breaklines and combined these with the final LiDAR data to produce seamless hydro flattened DEMs for the 1343 tiles (5000 ft x 5000 ft) that cover the project area.

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:
   2012-02-27 to 2012-03-10

1.5. Actual or planned geographic coverage of the data:
   W: -82.184, E: -82.019, N: 33.882, S: 33.194

1.6. Type(s) of data:
   (e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
   las

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:

- 2012-02-01 00:00:00 - Towill Inc. employed an Optech Orion M-200 Lidar system in the acquisition of this Lidar data. The planned acquisition parameters were as follows: Target altitude - 1500 meters AMT; System PRF - 70kHz; Scan Half Angle - 20 degrees; Scan Rate - 38 hertz; Aircraft Speed - 150 knots; Target sidelap - 50 percent. All missions originated and/or terminated at the Rock Hill Airport. A GPS base station was operating at the airport during every lift. The South Carolina Geodetic Survey, was contacted prior to the start of the Lidar acquisition to arrange for 1 Hertz data logging of several of the active CORS stations included in the primary survey network. The data from these stations were downloaded and applied in the post-processing of the kinematic Airborne GPS (AGPS) data. Airborne GPS and Inertial Measurement Unit (IMU) data were acquired by the Applanix POS Inertial Navigation System during the missions. The post-processed POS data results in a 200 Hertz, 6-parameter aircraft trajectory (x, y, z, roll, pitch, yaw). The AGPS and IMU data were processed immediately following each mission. In addition, a sample of the Lidar data was post-processed at the completion of the missions and the data were reviewed to ensure correct system operation and data coverage.

- 2012-03-01 00:00:00 - The kinematic AGPS data were post-processed using Novatel, Inc.'s Grafnav version 8.20 software, the de facto kinematic GPS post-processing package in the airborne remote sensing industry. The post-processed AGPS trajectory is combined with the raw 200 Hertz IMU observations in a loosely-coupled Kalman filter-based processing algorithm to produce the final high-frequency Smoothed Best Estimated Trajectory (SBET). Applanix's POSPac software, version 4.4, is employed in this process. Final Lidar data processing is accomplished using Optech's DASHMap software, version 5.01.

- 2012-06-01 00:00:00 - Dewberry utilizes a variety of software suites for inventory management, classification, and data processing. All LiDAR related processes begin by importing the data into the GeoCue task management software. GeoCue allows the data to retain its delivered tiling scheme (5000 ft by 5000 ft). The tiled data is then opened in Terrascan where Dewberry uses proprietary ground classification routines to remove any non-ground points and generate an accurate ground surface. The ground routine consists of three main parameters (building size, iteration angle, and iteration distance); by adjusting these parameters and running several iterations of this routine an initial ground surface is developed. The building size parameter sets a roaming window size. Each tile is loaded with neighboring points from adjacent tiles and the routine classifies the data section by section based on this roaming window size. The second most important parameter is the maximum terrain angle, which sets the highest allowed terrain angle within the model. Once the ground routine has been completed a manual quality control routine is done using hillshades, cross-sections, and profiles within the Terrasolid software suite. After this QC step, a peer review and supervisor manual inspection is completed on a percentage of the classified tiles based on the project size and variability of the terrain. After the ground classification corrections were completed, the dataset was processed through a water classification routine that

utilizes breaklines compiled by Dewberry to automatically classify hydrographic features. The water classification routine selects ground points within the breakline polygons and automatically classifies them as class 9, water. During this water classification routine, points which are in close proximity (1 m) to the hydrographic features are moved to class 10, an ignored ground. In addition to classes 1, 2, 8, 9, and 10, the project allows for a Class 7, noise points. This class was only used if needed when points could manually be identified as low/high points. The fully classified dataset is then processed through Dewberry's comprehensive quality control program. The data was classified as follows: Class 1 = Unclassified. This class includes vegetation, buildings, noise etc. Class 2 = Ground Class 7 = Noise Class 8 = Model Key Points Class 9 = Water Class 10 = Ignored Ground Class 11 = Withheld Class 13 = Points Removed from Bridges The LAS header information was verified to contain the following: Class (Integer) GPS Week Time (0.0001 seconds) Easting (0.001 m) Northing (0.001 m) Elevation (0.001 m) Echo Number (Integer 1 to 4) Echo (Integer 1 to 4) Intensity (8 bit integer) Flight Line (Integer) Scan Angle (Integer degree)
- 2016-08-25 00:00:00 - The NOAA Office for Coastal Management (OCM) received the files in LAS format from the South Carolina Department of Natural Resources (SC DNR) via a hard-drive device (HDD). The drive contained a number of South Carolina counties from a number of acquisition years. The files contained lidar elevation and intensity measurements. The data were in State Plane Zone 3900 in feet and NAVD88 (orthometric) vertical coordinates in feet. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The LAS files were compressed to LAZ files while also transforming the horizontal projection from State Plane coordinates in feet to geographic coordinates decimal degrees. 2. The LAZ files' vertical datum was converted from NAVD88 in feet (orthometric) to GRS80 (ellipsoid) heights in meters using Geoid 09. 3. The data were sorted by time and duplicates removed, updating the headers.

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/49993

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

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=5112
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/5112/index.html

7.3. Data access methods or services offered:
This data can be obtained on-line at the following URL:

https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=5112

The data set is dynamically generated based on user-specified parameters.;

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.