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:
2008 South Carolina Lidar: Williamsburg County

1.2. Summary description of the data:
The project area is composed of 16 counties in the State of South Carolina - Cherokee, Union, Laurens,

Greenwood, Newberry, Chester, Fairfield, Lancaster, Chesterfield, Marlboro, Darlington, Dillon, Marion,

Williamsburg, Clarendon, and Orangeburg. This metadata file is for the lidar county deliverables for Williamsburg County, SC.

The project area consists of approximately 10,194 square miles including a buffer of 50 feet along the edges of the

project area and an additional buffer in some areas. The project design of the lidar data acquisition was developed

to support a nominal post spacing of 1.4 meters. The Fugro EarthData, Inc. acquisition team of Fugro Horizons, Inc.

and North West Group acquired 721 flight lines in 44 lifts from January 15, 2008 through February 10, 2008. The data

was divided into 5000' by 5000' foot cells that serve as the tiling scheme. Lidar data collection was performed with a

Cessna 310 aircraft, utilizing a Leica ALS50-II MPiA sensor, collecting multiple return x, y, and z data as well as

intensity data. Lidar data was processed to achieve a bare ground surface (Classes 2 and 8). Lidar data is remotely

sensed high-resolution elevation data collected by an airborne collection platform. Using a combination of laser range

finding, GPS positioning and inertial measurement technologies, lidar instruments are

able to make highly detailed

Digital Elevation Models (DEMs) of the earth's terrain, man-made structures, and vegetation.

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:
2008-01-15 to 2008-02-10

1.5. Actual or planned geographic coverage of the data:
W: -80.114184, E: -79.304421, N: 33.888739, S: 33.303811

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

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:
- 2008-06-03 00:00:00 - 1. Lidar, GPS, and IMU data was processed together using lidar processing software. 2. The lidar data set for each flight line was checked for project area coverage and lidar post spacing was checked to ensure it meets project specifications. 3. The lidar collected at the calibration area and project area were used to correct the rotational, atmospheric, and vertical elevation differences that are inherent to lidar data. 4. Intensity rasters were generated to verify that intensity was recorded for each lidar point. 5. Lidar data was transformed to the specified project coordinate system. 6. By utilizing the ground survey data collected at the calibration site and project area, the lidar data was vertically biased to the ground. 7. Comparisons between the biased lidar data and ground survey data within the project area were evaluated and a final RMSE value was generated to ensure the data meets project specifications. 8. Lidar data in overlap areas of project flight lines were trimmed and data from all swaths were merged into a single data set. 9. The data set was trimmed to the digital project boundary including an additional buffer zone of 50 feet (buffer zone assures adequate contour generation from the DEM). 10.The resulting data set is referred to as the raw lidar data.
- 2008-11-09 00:00:00 - 1. The raw lidar data was processed through a minimum block mean algorithm, and points were classified as either bare earth or non-bare earth. 2. User developed "macros" that factor mean terrain angle and height from the ground were used to determine bare earth point classification. 3. The next phase of the surfacing process was a 2D edit procedure that ensures the accuracy of the automated feature classification. 4. Editors used a combination of imagery,

intensity of the lidar reflection, profiles, and tin-editing software to assess points. 5. The lidar data was filtered, as necessary, using a quadric error metric to remove redundant points. This method leaves points where there is a change in the slope of surfaces (road ditches) and eliminates points from evenly sloped terrain (flat field) where the points do not affect the surface. 6. The algorithms for filtering data were utilized within Fugro EarthData's proprietary software and commercial software written by TerraSolid. 7. The flight line overlap points were merged back into filtered data set for delivery product. 8. The point cloud data were delivered tiled in LAS 1.1 format; class 12 - flight line overlap points, class 9 - points in water, class 8 - model-key points, class 2 - ground points, and class 1 - all other.
- 2008-11-11 00:00:00 - Lidar intensity images were generated in TerraSolid software. The images are then brought up in Photoshop to see if a curve is needed to modify the radiometrics and to ensure they match from group to group. Along with looking for missing coverage and clipping to the boundary, the following steps are run in Photoshop: 1. Flip 0 values to 1 2. Change 3-band images to 1 band 3. Restore GeoTIFF headers. The intensity images were delivered in GeoTIFF format.
- 2008-11-12 00:00:00 - Tiled lidar LAS datasets are imported into a single multipoint geodatabase featureclass. Only Ground and Model-Keypoint are imported. An ArcGIS geodatabase terrain feature class is created using the terrain creation dialogue provided through ArcCatalog. The multipoint featureclass is imported as mass point features in the terrain. An overall tile boundary for the county is input as a soft clip feature for the terrain. The terrain pyramid level resolutions and scales are automatically calculated based on the point coverage for the county.
- 2009-09-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received files in LAS format. The files contained lidar intensity and elevation measurements. OCM performed the following processing on the data to make it available within Digital Coast: 1. The data were converted from State Plane, SPCS Zone 3900 coordinates to geographic coordinates. 2. The data were converted from NAVD88 heights to ellipsoid heights using Geoid03.
- 2019-07-16 00:00:00 - Georeferencing information in the files was changed from generic NAD83 to NAD83(HARN) 3D. The proper codes were not available during the initial processing. Values of the coordinates were not changed

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:
- 1.6. Type(s) of data
- 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/49976

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=516
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/516/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

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.