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 USACE Post Sandy Topographic LiDAR: Rhode Island and Massachusetts Coast

1.2. Summary description of the data:

This topographic elevation point data derived from multiple return light detection and ranging (LiDAR) represents 354.272 square miles of coastline for Rhode Island and Massachusetts.

The LiDAR point cloud is delivered in LAS 1.2 format with the following classifications:

Class 1: Unclassified

Class 2: Ground

Class 9: Water

Class 10: Ignored Points

Class 12: Overlap

Original contact information:

Contact Name: Steve Newman

Contact Org: ERDC-CRREL, RS/GIS and Water Branch

Phone: (603) 646-4372

Email: Stephen.D.Newman@usace.army.mil

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:

2012-11-11 to 2012-11-22

1.5. Actual or planned geographic coverage of the data:

W: -71.9092352, E: -69.944377, N: 41.6023329, S: 41.1295003

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:

- 2012-11-01 00:00:00 - LIDAR ACQUISITION: A LiDAR survey was conducted between Nov 11 and Nov 22, 2012. An Optech 3100 sensor aboard a Cessna 206/G was utilized for the survey. Flight altitude was planned at 1,250-meters. See " PROJEC REPORT" for details regarding the flight.
- 2012-11-01 00:00:00 - CHECK POINT SURVEY: A GPS survey was conducted to assess the accuracy of the LiDAR data. See "SURVEY REPORT" for details of the check point survey.
- 2012-12-01 00:00:00 - LiDAR CALIBRATION: Data collection of the survey area resulted in a total of one-hundred and five flightlines, including eight control lines, covering the project area. The range files, flight logs, raw air and ground GPS files were then taken to the office for data processing using DashMap v 5.2 (Optech, Inc.). DashMap uses the SBET to generate a set of data points for each laser return in the LAS file format. Each data point is assigned an echo value so it can be segregated based on the first and last pulse information. This project's data were processed in strip form, meaning each flight line was processed independently. Processing the lines individually provides the data analyst with the ability to QC the overlap between lines. Each strip was then imported into a project using TerraScan (Terrasolid, Ltd.) and the project management tool GeoCue (GeoCue Corp.). By creating a project the various flightlines are combined while breaking the dataset as a whole into manageable pieces. This process also converts the dataset from UTM (NAD83, 2011) to the Geographic Coordinate System (NAD 83, 2011). The ellipsoid height values were converted to NAVD88, Meters, orthometric values using Geoid 12A, provided by National Geodetic Survey (NGS). Individual lines were then checked against adjacent lines and intersecting control lines to ensure a cohesive dataset.
- 2012-12-01 00:00:00 - LiDAR CLASSIFICATION & BREAKLINE COLLECTION: A classification routine was applied to extract the initial surface model. This initial surface model was then reduced using Magnolia Rivers' proprietary methods to create the final bare-earth dataset. Upon reaching a satisfactory classification result, the bare-earth data were then checked against the control and validation points across the project area. The results of these checks showed the DEM meeting accuracy requirements. Hydro-Flattening breaklines were collected where necessary to support the final digital elevation models. A Triangular Irregular Network (TIN) was generated using the lidar ground points for each preliminary

tiled deliverable and the breaklines were placed in 2D with each element's height being adjusted to the surface to create a 3D element in the MicroStation (Bentley Systems, Inc.) environment.
- 2012-12-01 00:00:00 - INTENSITY IMAGERY: The intensity images were created for this project using GeoCue (version 2012.1.27.5). The images were derived from the full LiDAR point cloud native radiometric intensity values. As per the project specifications the intensity orthos were produced at a 1-meter pixel size for the entire project. The initial GeoTIFF images were produced in UTM Zone 19N NAD83(2011) and were then transformed (reprojected) to the geographic coordinate system for delivery using Global Mapper software (version 13.2.2; Blue Marble Geographics) and clipped to the deliverable tile boundaries with an additional 2-meter buffer applied to each tile.
- 2012-12-01 00:00:00 - MODEL KEY POINTS: Model key-points were classified (ASPRS Class 8) using the TerraScan (Terrasolid Ltd.) Classify Model Keypoints routine to classify LiDAR points that fell within a specified tolerance of the full resolution ground model (i.e. all classified ground returns) resulting in a reduced resolution surface model that meets a given accuracy. An accuracy tolerance of 0.15 meters was used for this processing.
- 2012-12-01 00:00:00 - DIGITAL ELEVATION MODELS: Digital Elevation Models (DEMs) of the bare earth ground surface were generated using the TerraModeler (Terrasolid Ltd.) software. The DEMs were produced by sampling elevations at a 1-meter posting from a triangulated irregular network (TIN) model based on all classified ground returns and 3-D breakline features and output as an ESRI ASCII GRID formatted file. These ASCII GRID files were then converted to ESRI Binary GRID format. Initially, these GRIDs were generated from points and breaklines in the UTM projection (Zone 19N, NAD83(2011)). These UTM GRIDs were then transformed to geographic coordinates, using Global Mapper software, for delivery. Geographic GRIDs were clipped to the deliverable tile extents with an additional 2-meter buffer applied to each tile.
- 2012-12-01 00:00:00 - LIDAR FLIGHT LINE POLYGONS: Boundary polygons were created from the collected LiDAR swaths as ESRI shapefiles using a triangulation algorithm that produces an tight fitting outer boundary with concavities that accurately represent the swaths as flown. The planned flight line number, swath file name and date of acquisition were then added as shapefile attributes.
- 2013-01-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received topographic files in LAS format. The files contained lidar elevation and intensity measurements. The data were received in NAD83 Geographic Coordinates with units of decimal degrees. The files were vertically referenced to NAVD88 using the Geoid12a model. The vertical units of the data were meters. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The topographic las files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid12a.

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/49609

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=1435
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/1435/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=1435

;

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.