

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:

2011 - 2012 New York State Department of Environmental Conservation (NYSDEC) Lidar:
Coastal New York (Long Island and along the Hudson River)

1.2. Summary description of the data:

Light Detection and Ranging (LiDAR) data is remotely sensed high-resolution elevation data collected by an airborne collection

platform. This LiDAR dataset is a survey of areas of coastal New York, including Long Island, eastern Westchester, and the tidal

extents of the Hudson River. The project area consists of approximately 950 square miles. The project design of the LiDAR

data acquisition was developed to support a nominal post spacing of 1.0 meter or better (1.0 meter GSD). The LiDAR data vertical

accuracy is in compliance with the National Standard for Spatial Data Accuracy (NSSDA) RMSE estimation of elevation data in support

of 1 ft. contour mapping products. GMR Aerial Surveys Inc. d/b/a Photo Science, Inc. acquired 740 flight lines in 63 lifts

between November 2011 and April 2012, while no snow was on the ground, rivers were at or below normal levels, no strong onshore winds,

high waves, floods, or other anomalous weather conditions. Specified areas of the project were collected at a tide stage where

water levels are at least 1-foot below mean sea level (MSL). This collection was a joint effort by the NOAA Office for Coastal Management (OCM) and the New York State Department of Environmental Conservation. The data collection was performed with three

Cessna 206 single engine aircrafts, utilizing Optech Gemini sensors; collecting multiple return x, y, and z as well as intensity data.

The data were classified as Unclassified (1), Ground (2), Low Point (Noise) (7), Water (9), Breakline Edge (10), Withheld (11),

Tidal Water (14), Overlap Default (17), and Overlap Ground (18), Overlap Water (25), and Overlap Tidal Water (30). Upon receipt,

the NOAA Office for Coastal Management (OCM), for data storage and Digital Coast provisioning purposes, converted these classifications

to the following:

1 - Unclassified

2 - Ground

7 - Low Point (Noise)

9 - Water

NOAA tide gauges were used as the basis for flight planning the tidally coordinated areas. The Stevens Institute NY Harbor

Observation and Prediction System (NYHOPS) data were used to confirm accuracy of NOAA predicted tides in Hudson. Some areas were

collected using tidal restraints as listed below:

Tidal Wetlands and tributary mouths selected for tidal coordination at Mean Sea Level (MSL) minus 1 foot were:

Rondout Creek Outlet; Vanderburg Cove, Moodna Creek, Constitution Marsh, Iona Marsh, Annsville Creek, Croton River

Outlet, Marlboro Marsh, Manitou Marsh, Fishkill Creek Outlet, and Wappingers Creek Outlet. The Upper Hudson area from North

of Goose Island was also collected to the same specification.

Tidal Wetlands and tributary mouths selected for tidal coordination at Mean Sea Level (MSL) were Haverstraw at Minisceongo Creek

and Piermont Marsh.

On Long Island the following areas were collected at MSL:

1) the northern shore of Nassau and Suffolk counties from approximately Glen Cove on the western boundary to Nissequogue on

the eastern boundary

2) the Peconic Bay from Riverhead on the western boundary to the east end of Shelter Island and Accabonac Harbor on the eastern

boundary

3) western Great South Bay.

The remainder of the project area had no tidal restrictions for collection. LAS tiles indicate if they are tidally coordinated or not.

If tidal coordination only covers part of the tile the tile will be labeled tidally coordinated (i.e.MSL-1).

In order to post process the LiDAR data to meet task order specifications, Photo Science, Inc. established a total of 81 control

points that were used to calibrate the LiDAR to known ground locations established throughout the New York project area.

Trimble R8-3 GNSS receivers were used to complete the collection. Real Time Kinematic (RTK) survey methodology was

typically performed using the New York State Spatial Reference Network (NYSNet), a CORS/Real Time GPS Network.

Additionally, control values from various other projects completed by Photo Science in and around the project area, were used as

supplemental control points to assist in the calibration of the LiDAR dataset.

The dataset was developed based on a horizontal projection/datum of UTM NAD83 (NSRS2007), UTM Zone 18, meters and

vertical datum of NAVD1988 (GEOID09), meters. Upon receipt, for data storage and Digital Coast provisioning purposes, the NOAA

Office for Coastal Management converted the data to GRS80 Ellipsoid (GEOID09) heights, to geographic (NAD83, NSRS2007) coordinates,

and from las format to laz format.

LiDAR data were collected in RAW flightline swath format, processed to create Classified LAS 1.2 files formatted to 2093

individual 750m x 750m tiles, Hydro Flattening Breaklines in ESRI shapefile format, 1.0 meter gridded Tidal Water ERDAS IMAGINE (.img)

files formatted to 670 individual 3000m x 3000m tiles, and 1.0 meter gridded V-Datum ERDAS IMAGINE (.img) files formatted to the same

3000m x3000m tile schema. LiDAR data were originally delivered to NOAA/Dewberry for quality control validation under Delivery Lots 1 and 2.

The lineage (data quality), positional, content (completeness), attribution, logical consistency, and accuracies of all digital

elevation data produced conform to the specifications stipulated in NOAA Task Order EA133C11CQ0009 - T011.

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:

2011-11-26, 2011-12-12, 2011-12-13, 2011-12-14, 2011-12-16, 2011-12-18, 2011-12-19, 2012-01-07, 2012-01-09, 2012-01-11, 2012-01-15, 2012-01-16, 2012-01-18, 2012-01-20, 2012-01-25, 2012-01-28, 2012-01-30, 2012-01-31, 2012-02-02, 2012-02-03, 2012-02-04, 2012-02-05, 2012-02-06, 2012-02-09, 2012-02-10, 2012-02-13, 2012-02-14, 2012-02-17, 2012-02-18, 2012-02-19, 2012-02-20, 2012-02-22, 2012-02-23, 2012-04-06, 2012-04-07

1.5. Actual or planned geographic coverage of the data:

W: -74.078028, E: -71.828074, N: 42.786433, S: 40.558624

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:

- 2012-01-01 00:00:00 - Control Process: Photo Science, Inc. established a total of 81 control points that were used to calibrate the LiDAR to known ground locations established throughout the New York project area to be used in the post processing of the LiDAR data. The points were located on relatively flat terrain on surfaces that generally consisted of grass, gravel, pavement or bare earth and were in well-defined discrete locations. Additionally, points collected for Photo Science from various projects located in the region were also used to adjust the LiDAR data to the final elevation. Surveyed points were used from the Northeast LiDAR and Fire Island, NY LiDAR projects for United States Geological Survey (USGS). See Final Survey Reports for additional collection parameters and methodologies. Raw Flight Line Process: Applanix software was used in the post processing of the airborne GPS and inertial data that is critical to the positioning and orientation of the sensor during all flights. POSpac MMS provides the smoothed best estimate of trajectory (SBET) that is necessary for Optech's post processor to develop the point cloud from the LiDAR missions. The point cloud is the mathematical three dimensional collection of all returns from all laser pulses as determined from the aerial mission. At this point this data is ready for analysis, classification, and filtering to generate a bare earth surface model in which the above ground features are removed from the data set. The point cloud was manipulated within the Optech software; GeoCue, TerraScan, and TerraModeler software was used for the automated data classification, manual cleanup, and bare earth generation from this data. Project

specific macros were used to classify the ground and to remove the side overlap between parallel flight lines. All data was manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler. Classified LAS Process: All ground (ASPRS Class 2) LiDAR data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were then classified to water (ASPRS Class 9) using TerraScan macro functionality. A buffer of 1 meter was also used around each hydro flattened feature to classify these ground (ASPRS Class 2) points to ignored ground (ASPRS Class 10). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the ground (ASPRS Class 2) were reclassified to the correct classification after the automated classification was completed. A class has been added to the dataset to represent the tidal water of the ocean/tidal areas collected throughout the project area. ASPRS Class 14 is being used to represent the tidal water ocean surface. While attempts were made to remove all extraneous features above the surface of the water, there may be above surface features classified to this class. Some islands below the required collection specifications have been classified to this class as well. This class was also used during the creation of the ERDAS Imagine Tidal Water Raster DEM files. The Tidal Water breaklines were used to complete the automated classification of these classes within the final LAS files. (Citation: LiDAR)

- 2012-01-01 00:00:00 - All overlap data was processed through automated functionality provided by TerraScan to classify the overlapping flight line data to approved classes by USGS. The overlap data was classified to Class 17 (USGS Overlap Default) and Class 18 (USGS Overlap Ground). These classes were created through automated processes only and were not verified for classification accuracy. Due to software limitations within TerraScan, these classes were used to trip the Withheld bit within various software packages. These processes were reviewed and accepted by NOAA through numerous conference calls and pilot study areas. Data was then run through additional macros to ensure deliverable classification levels matching the ASPRS LAS Version 1.2 Classification structure. GeoCue functionality was then used to ensure correct LAS Versioning. In-house software was used as a final QA/QC check to provide LAS Analysis of the delivered tiles. QA/QC checks were performed on a per tile level to verify final classification metrics and full LAS header information. All ground (ASPRS Class 2) LiDAR data inside of the collected inland breaklines were then classified to water (ASPRS Class 9) using TerraScan macro functionality. A buffer of 1 meter was also used around each hydro flattened feature. These points were moved from ground (ASPRS Class 2) to Ignored Ground (ASPRS Class 10). All ground (ASPRS Class 2) LiDAR data inside of the collected tidal/ocean breaklines were then classified to tidal water (USGS Class 14) using TerraScan macro functionality. A buffer of 1 meter was also used around each hydro flattened feature. These points were moved from ground (ASPRS Class 2) to Ignored Ground (ASPRS Class 10). A manual QA review of the tiles was completed using in-house proprietary software to ensure full coverage, correct deliverable classification within the project area. (Citation: LiDAR)

- 2012-11-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received the

data in las format. The files contained lidar elevation and intensity measurements. The data were received in UTM, Zone 18 coordinates and vertically referenced to NAVD88 using the Geoid09 model. The vertical units of the data were meters. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. Files were filtered for elevation outliers. 2. Files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid09. 3. Files were converted from UTM, Zone 18 coordinates to geographic (NAD83, NSRS2007) coordinates 4. Classifications were changed from Unclassified (1), Ground (2), Low Point (Noise) (7), Water (9), Breakline Edge (10), Withheld (11), Tidal Water (14), Overlap Default (17), and Overlap Ground (18), Overlap Water (25), and Overlap Tidal Water (30) to Unclassified (1), Ground (2), Low Point (Noise) (7), and Water (9).

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/49888>

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=1408>

<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/1408/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=1408>

;

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.