

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:

2017 GA DNR Lidar DEM: Middle Chattahoochee - Walter F Watershed

### 1.2. Summary description of the data:

Product: These are Digital Elevation Model (DEM) data as part of the required deliverables for the Lidar project. Class 2 (ground) lidar points in conjunction with the hydro breaklines were used to create a 2 meter (6 feet) hydro-flattened Raster DEM data product consists of processed topographic elevation point data derived from multiple return light detection and ranging (lidar) measurements. The lidar data was planned and acquired at 2 points per square meter for the project boundary identified in the shapefile provided NOAA on January 6th, 2017. The developed lidar derivatives are hydro-flattened DEMs.

In addition to these bare earth Digital Elevation Model (DEM) data, the lidar point data that these DEM data were created from, and the hydro breaklines are also available. These data are available for download at the links provided in the URL section of this metadata record.

### 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:

2017-11-25 to 2018-01-24

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

W: -85.142949, E: -84.000872, N: 33.190413, S: 31.484983

### 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?**

**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:

- 2017-10-27 00:00:00 - Survey Data Acquisition: Project Introduction: Platinum Geomatics, LLC entered into contract with the Atlantic Group on March 1st, 2017 to perform geodetic control surveying for the calibration and quality control of 9 counties of LiDAR in South Georgia. This is a report of the methodology used and calculated accuracy of the survey performed by Platinum Geomatics, LLC. Procedures Used: The Trimble Virtual Reference System (VRS) was employed to obtain real-time GNSS corrections for most of the points. When real-time corrections could not be obtained, due to either poor cellular connection or aerial obstructions affecting the geometric dilution of precision (GDOP), a static GNSS session was run and receiver independent exchange format (RINEX) files of the navigated position were downloaded from the VRS. Static GNSS baselines were post-processed using Trimble Business Center (TBC) software. Real-time VRS observations consisted of a minimum of 180 1-second epochs and point tolerances were set to record within 0.049' horizontal and 0.066' vertical accuracies. Equipment Used: Trimble R-7, R-8, and R-10 dual frequency GNSS receivers were used. Project Datum: Individual point coordinates were reported to NAD83 (2011) Georgia West zone. Coordinates and elevations were reported in US Survey Feet. Reported Elevations are relative to NAVD88 as derived from Geoid 12B. Point Description Quantity Non-vegetated LiDAR Quality Control 50, Vegetated LiDAR Quality Control 37, and LiDAR Calibration 26
- 2017-11-25 00:00:00 - Flight Acquisition: Atlantic acquired one hundred eighty-one (181) passes of the AOI as a series of perpendicular and/or adjacent flight-lines. Differential GNSS unit in aircraft recorded sample positions at 2 Hz or more frequency. Lidar data was only acquired when a minimum of 6 satellites were in view. Atlantic lidar sensors are calibrated at a designated site located at the Fayetteville Municipal Airport (FYM) in Fayetteville, TN and are periodically checked and adjusted to minimize corrections at project sites. Atlantic operated a Cessna 210TL (N732JE) and Partenavia P68 (N775MW) outfitted with a Leica ALS70-HP lidar system during the collection of the project area. Data acquisition was completed between 24th November 2017 and 24th January 2018.
- 2019-07-02 00:00:00 - Lidar Pre-processing: Atlantic used a combination of Waypoint and Leica software products to extract the lidar swath data from the raw flight records. Waypoint Inertial Explorer is used to extract the raw IPAS ABGPS/IMU data, which is further processed in combination with controlled base stations to provide the final Smoothed Best Estimate Trajectory (SBET) for each mission. The SBET's are combined with the raw laser scan files to export the (\*.las) formatted swath point clouds.
- 2019-07-02 00:00:00 - LiDAR ranging data were initially calibrated using previous best parameters for this instrument and aircraft. Using a combination of GeoCue,

and TerraSolid's TerraScan and TerraMatch the overlapping swath point clouds are corrected for any orientation or linear deviations to obtain the best fit swath-to-swath calibration. 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 missions, was reduced to 2 cm or less. A final analysis of the calibrated LiDAR is preformed using a TerraMatch Tie Line report for an overall statistical model of the project area. Upon completion of the data calibration, Atlantic runs a complete set of Delta-Z (dZ) ortho images. A user-defined color ramp is applied depicting the offsets between overlapping swaths based on project specifications. The dZ orthos provide an opportunity to review the data calibration in a qualitative manner. Atlantic assigns green to all offset values that fall below the required interswath accuracy RMSDz requirement of the project. A yellow color is assigned for offsets that fall between the RMSDz value and 1.5x of that value. Finally, red values are assigned to all values that fall beyond 1.5x of the RMSDz requirements of the project. The calibrated point cloud data from the laser sensor was merged to produce processed (\*.las) file(s) including but not limited to 3D position, intensity, and time-stamp. A filtering methodology was utilized to produce a multi-return surface elevation model dataset with bare-earth conditions. GeoCue, TerraScan, and TerraModel software was used for the initial batch processing and manual editing of the (\*.las) point clouds. Atlantic utilized collected breakline data to perform classification for classes' 9-Water and 10-Ignored Ground in LP360.

- 2019-07-02 00:00:00 - Lidar Intensity Imagery Creation: All lidar intensity imagery was created from the final calibrated and classified lidar point cloud. Intensity images were produced from all classified points.

- 2019-07-02 00:00:00 - Hydro line Collection: Hydro lines were compiled as water bodies (ponds and lakes) 2 acres or greater, and streams and rivers ("double-line") 100 nominal feet wide or greater, using the lidar intensity data and surface terrain model of the entire project area. After the collection of hydro lines all features were validated for monotonicity and vertical variance, to ensure that no points were floating above ground. The hydro break lines were encoded into the lidar surface and used to hydro-enforce/flatten all significant water bodies. These final hydro lines were then used in the production of bare Earth digital models to hydro flatten significant water bodies.

- 2019-07-19 00:00:00 - Bare-Earth Hydro-flattened DEMs were created in LP-360 from the hydro lines and bare-earth (ground) LiDAR data. All DEMs were created with a cell size of 6 feet. Delivery in an industry-standard, GIS-compatible, 32-bit ERDAS GeoTIFF raster format and cut to the project index tiles. Each surface is reviewed using Global Mapper to check for any surface anomalies or incorrect elevations found within the surface.

- 2019-08-22 00:00:00 - The NOAA Office for Coastal Management (OCM) received 3052 raster DEM files in GeoTiff format from Tetra Tech. The data were in GA State Plane West, NAD83(2011), US Survey feet, coordinates and NAVD88 (Geoid12b) elevations in meters. The bare earth raster files were at a 6 ft grid spacing. OCM

performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. Used internal script to assign the EPSG codes. 2. Copied to the files to https.

**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/57266>

**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?**

**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=8840>

[https://coast.noaa.gov/htdata/raster2/elevation/GA\\_Chattahoochee\\_DEM\\_2017\\_8840](https://coast.noaa.gov/htdata/raster2/elevation/GA_Chattahoochee_DEM_2017_8840)

### **7.3. Data access methods or services offered:**

Data is available online for bulk and 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)*

**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.*