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:

2006 USFS Lidar DEM: Rogue River - Siskiyou National Forest - Ashland, OR

1.2. Summary description of the data:

No metadata record for this data set was provided to the NOAA Office for Coastal Management (OCM). This record was created with information from the data report. A link to the data report is provided in the URL section of this metadata record.

Geographic Extent: Ashland study area, covering approximately 46,253 acres.

Dataset Description: Watershed Sciences, Inc. acquired and processed lidar data in the Ashland, OR Study Area in the Rogue River - Siskiyou National Forest. Lidar data acquisition occurred July 1 - 4, 2006. Settings for lidar data capture produced an average resolution of at least 7.5 points per square meter. The resolution of the DEM is 1 meter.

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:

2006-07-01 to 2006-07-04

1.5. Actual or planned geographic coverage of the data:

W: -122.820694, E: -122.614692, N: 42.219549, S: 42.062313

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?
Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):
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:

- The LiDAR survey utilized an Opetch ALTM 3100 mounted in the belly of a Cessna Grand Caravan 208B. The survey was conducted on July 1st-4th, 2006 (Julian Days 182-185). Quality control (QC) pre-mission flights were performed based on manufacturer's specifications prior to the survey. The QC flight was conducted at the Ashland, Oregon Airport using known surveyed control points. The positional accuracy of the LiDAR (x, y, z) returns are checked against these known locations to verify the calibration and to report base accuracy. The Optech ALTM 3100 system was set to acquire 70,000 laser pulses per second (i.e. 70kHz pulse repetition rate) and flown at 1,100 meters above ground level (AGL), capturing a scan angle of +/- 14o from nadir1, to yield points with an average density of ≥7.5 points per square meter. The entire area was surveyed with opposing flight line sidelap of 50% (100% overlap) to reduce laser shadowing and increase surface laser painting. The system allows up to four range measurements per pulse, and all laser returns were processed for the output dataset. To solve for laser point position, it is vital to have an accurate description of aircraft position and attitude. Aircraft position is described as x, y and z and measured twice a second (2 Hz) by an onboard differential GPS unit. Aircraft attitude is measured 200 times a second (200 Hz) as pitch, roll and yaw (heading) from an onboard inertial measurement unit (IMU). Throughout the survey, two dual frequency DGPS base stations at monuments placed by Watershed Sciences and corrected by the Online Positioning User Service (OPUS), recorded fast static (1 Hz) data. The fast static ground GPS data were used to calculate a kinematic correction for the aircraft position.
- Two Thales Z-max units were used for the ground survey portion of the survey. To collect accurate ground surveyed points, a GPS base unit was set up to broadcast a kinematic correction to a roving GPS unit. The ground crew used a roving unit to receive radio-relayed kinematic corrected positions from the base unit. 859 RTK points were collected throughout the study area and were used to assess the LiDAR data accuracy.
- Laser point coordinates were computed using the REALM v. 3.5.2 software suite based on independent data from the LiDAR system (pulse time, scan angle), aircraft attitude, and aircraft position. Laser point returns (first through fourth) are assigned an associated (x, y, z) coordinate, along with unique intensity values (1-255) . The data are output into one very large LAS v. 1.0 file format; each point has a corresponding scan angle, return number (echo), intensity, and x,y,z (easting, northing, and elevation) information. The initial laser point file is too large to process. To facilitate laser point processing, bins (polygons) were created to divide the dataset into manageable sizes (less than 500 MB and approximately 1 km2 each). Flight lines and LiDAR data were then reviewed to ensure complete coverage of the study area and positional accuracy of the laser points. These processing bins were ultimately aggregated into areas of 0.9375-minute quadrangles (1/64th of a standard USGS 7.5-minute quadrangle.
- Once the laser point data are imported into bins in TerraScan, a manual calibration test is performed to assess the system offsets for pitch, roll, yaw and scale. Using a geometric relationship developed by Watershed Sciences, each of

these offsets is resolved and corrected if necessary. The LiDAR points are then filtered for noise, pits and birds by screening for absolute elevation limits, isolated points and height above ground. Each bin is then inspected for pits and birds manually, and spurious points are removed. For a bin measuring 1 km2, an average of 20-40 points are found to be artificially low or high. The internal calibration is refined using TerraMatch. Points from overlapping lines are tested for internal consistency and final adjustments are made for system misalignments (i.e. pitch, roll, yaw and scale offsets). Once these misalignments are corrected, GPS drift can then be resolved and removed. The resulting dataset is internally calibrated using both manual and automated routines. At this point in the workflow, remaining data have passed initial screening and are deemed accurate. The TerraScan software suite is designed specifically for classifying near-ground laser points (Soinenen, 2004). The processing sequence begins by 'removing' all points that are not 'near' the earth based on evaluation of the multi-return layers. The resulting bare earth (ground) model is visually inspected and additional ground modeling is performed in site specific areas (over a 50 meter radius) to improve ground detail. This is only done in areas with known ground modeling deficiencies, such as: bedrock outcrops, cliffs, deeply incised stream banks, and dense vegetation. Custom vegetation modeling is also performed using Fusion v.2.1 deforestation algorithms (Haugerud and Harding, 2001; Andersen et al. 2003; McGaughey and Carson, 2003; McGaughey, in progress2).
- The ground model rasters were created in TerraScan by creating TINs of the ground points and developing an ArcINFO GRID of the TIN. A raster of the bare ground surface was created at a 1-meter resolution, with z-units (elevation units) in meters. A Fusion v.2.1 5x5 model was used to develop a raster of buildings and vegetation (above ground surfaces) at a 1-meter resolution, with z-units (elevation units) in meters. All rasters were converted to ESRI GRID format and delivered with metadata.
- 2020-08-27 00:00:00 - The NOAA Office for Coastal Management (OCM) received 6 raster DEM files in ESRI ArcGrid format from DOGAMI. The data were in UTM Zone 10 (NAD83) coordinates and NAVD88 (Geoid03) elevations in meters. The bare earth raster files were at a 1 m 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 (Horiz - 26910, Vert - 5703) and convert to GeoTiff format. 2. Copied 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
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

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/62821

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?

Yes

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=9176/details/9176
https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/OLC_Rogue_Siskiyou_DEM_2006

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)
NCEI_CO

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
Data is backed up to tape and to cloud storage.

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.