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 Oregon Parks and Recreation Department Lidar: Northeast (Clyde Holliday, Cove Palisades, Lake Owyhee, and White River Falls State Parks)

    1.2. Summary description of the data:
        This data set provides the lidar elevations for four Oregon State Parks. The four state parks are Clyde Holliday (766 square acres) in

        Grant County, Cove Palisades (15,220 square acres) in Jefferson County, Lake Owyhee (2496 square acres) in Malheur County, and White River

        Falls (2333 square acres) in Wasco County. This data set was collected on May 5, 6, 11, 31, and June 1, 2011. The lidar data are multiple

        return and are classified as unclassified and bare earth.

        The LiDAR survey used a Leica ALS50 Phase II sensor in a Cessna Caravan 208B. The sensor operates with Automatic Gain Control (AGC) for

        intensity correction. Depending on acquisition day, weather, and terrain, the Leica system was set to acquire 105,000 (120,000 on

        6/1/11) laser pulses per second (i.e. 105-120 kHz pulse rate) and flown at 900 (700 on 6/1/11) meters above ground level (AGL),

        capturing a scan angle of plus or minus 14 degrees from nadir. These settings were developed to yield points with an average native

        pulse density of greater than or equal to 8 pulses per square meter over terrestrial surfaces. It is not uncommon for some types of

        surfaces (e.g. dense vegetation or water) to return fewer pulses than the laser originally omitted. These discrepancies between

        the native and delivered density will vary depending on terrain, land cover, and the prevalence of water bodies.

        Watershed Sciences, Inc. collected the LiDAR and created this data set for Oregon Parks

and Recreation Department.

Original contact information:

Contact Name: Brady Callahan

Contact Org: Oregon Parks and Recreation

Phone: 503-986-0783

Email: brady.callahan@state.or.us

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:
2011-05-05, 2011-05-06, 2011-05-11, 2011-05-31, 2011-06-01

1.5. Actual or planned geographic coverage of the data:
W: -121.320138, E: -117.222838, N: 45.253805, S: 43.601805

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:

- 2011-01-01 00:00:00 - Acquisition The LiDAR survey used a Leica ALS50 Phase II sensor in a Cessna Caravan 208B. The sensor operates with Automatic Gain Control (AGC) for intensity correction. Depending on acquisition day, weather, and terrain, the Leica system was set to acquire 105,000 (120,000 on 6/1/11) laser pulses per second (i.e. 105-120 kHz pulse rate) and flown at 900 (700 on 6/1/11) meters above ground level (AGL), capturing a scan angle of plus or minus 14 degrees from nadir. These settings were developed to yield points with an average native pulse density of greater than or equal to 8 pulses per square meter over terrestrial surfaces. It is not uncommon for some types of surfaces (e.g. dense vegetation or water) to return fewer pulses than the laser originally omitted. These discrepancies between the native and delivered density will vary depending on terrain, land cover, and the prevalence of water bodies. All areas were surveyed with an opposing flight line side-lap of greater than or equal to 50 percent (equal to 100 percent overlap) to reduce laser shadowing and increase surface laser painting. The Leica laser systems allow up to four range measurements (returns) per pulse, and all discernible laser returns were processed for the output data set. To accurately solve for laser point position (geographic coordinates x,y,z) the positional coordinates of the airborne

sensor and the attitude of the aircraft were recorded continuously throughout the LiDAR data collection mission. Aircraft position was measured twice per second (2 Hz) by an onboard differential GPS unit. Aircraft attitude was measured 200 times per second (200 Hz) as pitch, roll, and yaw (heading) from an onboard inertial measurement unit (IMU). To allow for post-processing correction and calibration, aircraft/sensor position and attitude data were indexed to GPS time.

- 2011-01-01 00:00:00 - Processing 1. Laser point coordinates were computed using the IPAS and ALS Post Processor software suites based on independent data from the LiDAR system (pulse time, scan angle), and aircraft trajectory data (SBET). Laser point returns (first through fourth) were assigned an associated (x,y,z) coordinate along with unique intensity values (0 to 255). The data were output into large LAS v1.2 files; each point maintains the corresponding scan angle, return number (echo), intensity, and x,y,z (easting, northing, and elevation) information. 2. These initial laser point files were too large for subsequent processing. To facilitate laser point processing, bins (polygons) were created to divide the data set into manageable sizes (less than 500 MB). Flightlines and LiDAR data were then reviewed to ensure complete coverage of the survey area and positional accuracy of the laser points. 3. Laser point data were imported into processing bins in TerraScan and manual calibration was performed to assess the system offsets for pitch, roll, heading, and scale (mirror flex). Using a geometric relationship developed by Watershed Sciences, each of these offsets were resolved and corrected if necessary. 4. LiDAR points were then filtered for noise, pits (artificial low points) and birds (true birds, as well as erroneously high points) by screening for absolute elevation limits, isolated points, and height above ground. Each bin was then manually inspected for remaining pits and birds and spurious points were removed. In a bin containing approximately 7.5 to 9.0 million points, an average of 50 to 100 points are typically found to be artificially low or high. Common sources of non-terrestrial returns are clouds, birds, vapor, haze, decks, brush piles, etc. 5. Internal calibration was refined using TerraMatch. Points from overlapping lines were tested for internal consistency and final adjustments were made for system misalignments (i.e., pitch, roll, heading offsets, and scale). Automated sensor attitude and scale corrections yielded 3 to 5 cm improvements in the relative accuracy. Once system misalignments were corrected, vertical GPS drift was then resolved and removed per flight line, yielding a slight improvement (less than 1 cm) in relative accuracy. 6. The TerraScan software suite is designed specifically for classifying near ground points (Soininen, 2004). The processing sequence began by removing all points that were not near the earth based on geometric constraints used to evaluate multi-return points. The resulting bare earth (ground) model was visually inspected and additional ground point modeling was performed in site-specific areas to improve ground detail. This manual editing of ground often occurs in areas with known ground modeling deficiencies such as: bedrock outcrops, cliffs, deeply incised stream banks, and dense vegetation. In some cases, automated ground point classification erroneously included known vegetation (i.e., understory, low/dense shrubs, etc.). These points were manually reclassified as non-grounds. Ground

surface rasters were developed from triangulated irregular networks (TINs) of ground points.

- 2011-01-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received the files in las format. The files contained lidar elevation and intensity measurements. The data were in Lambert Conformal Conic projection and NAVD88 Geoid 03 vertical datum. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The data were converted from Lambert Conformal Conic coordinates to geographic coordinates. 2. The data were converted from NAVD88 (orthometric) heights in feet to GRS80 (ellipsoid) heights in meters using Geoid 03. 3. The data were filtered to remove outliers. 4. The LAS data were sorted by latitude and the headers were updated.

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/49927

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=1118
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid12a/1118/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.