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:

2020 OLC Lidar DEM: Harney - Silver Creek, OR

1.2. Summary description of the data:

Original Product: This GIS dataset contains hydro-flattened Bare Earth (BE) raster grids depicting lidar-derived elevation data for the 2020 Harney-Silver Creek 3DEP project area.

Original Dataset Description: the 2020 Harney-Silver Creek 3DEP Lidar project area encompasses 596,275.2 acres; and is primarily in Harney County, Oregon, but extends into Crook County and Grant County. The delivered data are composed of legacy and new collection LiDAR data. Newly collected LiDAR data were acquired in July 2020 and this metadata record describes that data. Legacy datasets include 2015 OLC Harney, 2017 OLC Silver Creek, and 2018 OLC Harney lidar data and are not part of this metadata record.

This project called for the Planning, Acquisition, processing and derivative products of lidar data to be collected at a nominal pulse spacing (NPS) of 0.35 meter. Project specifications are based on the U.S. Geological Survey National Geospatial Program Base Lidar Specification, Version 1.3. The native projection is Lambert Conic Conformal, units are in International feet. The native horizontal datum is North American Datum of 1983 (NAD83(2011)); the native vertical datum is North American Vertical Datum of 1988 (NAVD88); (Geoid 12B). Hydro-flattened bare earth DEMs were derived from the classified LiDAR data and delivered within a 3000 ft x 3000 ft schema. Points that were determined to be geometrically invalid, or invalid surface returns, were removed from the data set.

Original Dataset Collection Ground Conditions: 2020 Lidar was collected between July 27 and July 28, 2020, while no snow was on the ground and rivers were at or below normal levels. Please see reports from the 2015 Harney, 2017 OLC Silver Creek, and 2018 Harney projects for acquisition details specific to those projects. The Raw Swath NVA were tested with checkpoints located in bare earth and urban (non-vegetated) areas. These checkpoints were not used in the calibration or post processing of the lidar point cloud data. For legacy data areas, the resulting NVA was 0.160 meters tested against the BE

DEM; 0.158 meters tested against the TIN. The resulting VVA was 0.145 meters tested against the BE DEM. For newly collected data, the resulting NVA was 0.048 meters tested against the BE DEM; 0.075 meters tested against the TIN. The resulting VVA was 0.082 meters tested against the BE DEM. NVA and VVA values included within the data quality section were tested against the combined legacy and new collection areas. Quantum Spatial Inc. collected the lidar and created this dataset in partnership with the Oregon Department of Geology and Mineral Industries (DOGAMI).

This metadata record supports the data entry in the NOAA Digital Coast Data Access Viewer (DAV). For this data set, the DAV is leveraging the USGS GeoTiff files hosted by USGS on Amazon Web Services.

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:
2020-07-27 to 2020-07-28

1.5. Actual or planned geographic coverage of the data:
W: -119.840942, E: -119.13, N: 43.986658, S: 43.45

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):
Lineage Statement:
The NOAA Office for Coastal Management (OCM) ingested references to the USGS GeoTiff files that are hosted on Amazon Web Services (AWS), into the Digital Coast Data Access Viewer (DAV). The DAV accesses the raster data as it resides on AWS.

Process Steps:
- 2020-07-31 00:00:00 - 2020 Lidar data acquisition occurred between July 27, 2020 and July 28, 2020. Please see reports from the 2015 OLC Harney, 2017 OLC Silver Creek, and 2018 OLC Harney projects for acquisition details specific to those projects. The 2020 survey utilized the Riegl 1560i laser systems mounted in a Cessna 208-B Grand Caravan. Near nadir scan angles were used to increase penetration of vegetation to ground surfaces. Ground level GPS and aircraft IMU were collected during the flight. Processing.1. Airborne GPS and IMU data were merged to develop a Single Best Estimate (SBET) of the lidar system trajectory for each flight line. Flight lines and data were reviewed to ensure complete coverage of the study area and positional accuracy of the laser points. 2. Laser point return coordinates were

computed using ALS Post Processor software and IPAS Pro GPS/INS software, based on independent data from the LiDAR system, IMU, and aircraft. 3. The raw LiDAR file was assembled into flight lines per return with each point having an associated x, y, and z coordinate. 4. Visual inspection of swath to swath laser point consistencies within the study area were used to perform manual refinements of system alignment. 5. Custom algorithms were designed to evaluate points between adjacent flight lines. Automated system alignment was computed based upon randomly selected swath to swath accuracy measurements that consider elevation, slope, and intensities. Specifically, refinement in the combination of system pitch, roll and yaw offset parameters optimize internal consistency. 6. Noise (e.g., pits and birds) was filtered using ALS postprocessing software, based on known elevation ranges and included the removal of any cycle slips. 7. Using TerraScan and Microstation, ground classifications utilized custom settings appropriate to the study area. 8. The corrected and filtered return points were compared to the RTK ground survey points collected to verify the vertical and horizontal accuracies. 9. Points were output as laser points, TINed and GRIDed surfaces.
- 2020-07-31 00:00:00 - Lidar Post-Processing: The calibrated and controlled lidar swaths were processed using automatic point classification routines in proprietary software. These routines operate against the entire collection (all swaths, all lifts), eliminating character differences between files. Data were then converted from Las 1.2 to Las 1.4 and lidar intensities were scaled from 8-bit to 16-bit. Time stamps were adjusted from Minutes of the Week to GPS Standard Time, and the classification scheme was adjusted to include class 9, In-land Water, in the dataset. RGB extraction of las to point cloud was performed using Terraphoto. Data were then distributed as virtual tiles to experienced lidar analysts for localized automatic classification, manual editing, and peer-based QC checks. Supervisory QC monitoring of work in progress and completed editing ensured consistency of classification character and adherence to project requirements across the entire project. All classification tags were stored in the original swath files. After completion of classification and final QC approval, the NVA and VVA for the project were calculated. Upon acceptance, the complete classified lidar swath files were delivered to the client. Points that were determined to be geometrically invalid, or invalid surface returns, were removed from the data set.
- 2020-11-16 00:00:00 - Hydro-Flattened Raster DEM Processing: Class 2 (Ground) LiDAR points in conjunction with the hydro-breaklines were used to create a 3-foot hydro-flattened raster DEM. Using automated scripting routines within LasTools, an GeoTIFF file was created for each tile. Each surface is reviewed using ArcMap to check for any surface anomalies or incorrect elevations found within the surface.
- 2024-10-17 00:00:00 - The NOAA Office for Coastal Management (OCM) created references to the USGS GeoTiff files that were ingested into the NOAA Digital Coast Data Access Viewer (DAV). No changes were made to the data. The DAV will access the raster data as it resides on Amazon Web Services (AWS). This is the location of the GeoTiffs that are being accessed: https://prd-tnm.s3.amazonaws.com/index.html?prefix=StagedProducts/Elevation/OPR/Projects/OR_HarneySilver_2020_A20/

OR_HarneySilver_4_2020/TIFF/

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/73687

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=10189/details/10189
https://prd-tnm.s3.amazonaws.com/index.html?prefix=StagedProducts/Elevation/OPR/Projects/OR_H

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_NC

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 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.