

*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:**

2019 WROC Lidar: WI Counties (Adams, Jefferson, Lafayette, Monroe, Pepin)

**1.2. Summary description of the data:**

WI\_Adams\_2019 (Work Unit 177786)

The Adams County lidar project area covers approximately 696 square miles which includes a 100 meter buffer around the county boundary. The lidar data was acquired at a nominal point spacing (NPS) of 0.7 meters and a single swath nominal point density (NPD) of 2.0. Project specifications are based on Adams County requirements and on the U.S. Geological Survey National Geospatial Program LiDAR Base Specification, Version 1.3. The data was developed based on a horizontal projection/datum of NAD83(2011) / Adams County (ftUS) (EPSG Code: 7587), and vertical datum of NAVD88 - Geoid12B (Feet). LiDAR data was acquired using the Leica ALS 80 LiDAR sensor serial number SN 8146 from April 21, 2019 to April 23, 2019 in 3 total lifts. Acquisition occurred with leaves absent from deciduous trees, when no snow was present on the ground, and with rivers at or below normal levels.

WI\_Jefferson\_2019 (Work Unit 173957)

The Jefferson County lidar project area covers approximately 589 square miles which includes a 100 meter buffer around the county boundary. The lidar data was acquired at a nominal point spacing (NPS) of 0.7 meters and a aggregate nominal point density (ANPD) of 2.0. Project specifications are based on Jefferson County requirements and on the U.S. Geological Survey National Geospatial Program LiDAR Base Specification, Version 1.3. The data was developed based on a horizontal projection/datum of NAD83(2011) / Wisconsin State Plane, South Zone (ftUS) (EPSG Code: 6609), and vertical datum of NAVD88 - Geoid12B (Feet). LiDAR data was acquired using two Riegl VQ 1560i sensors with serial numbers SN546 and SN061 from April 20, 2019 to April 21, 2019 in 2 total lifts. Acquisition occurred with leaves absent from deciduous trees, when no snow was present on the ground, and with rivers at or below normal levels.

WI\_Lafayette\_2019 (Work Unit 177783)

The Lafayette County lidar project area covers approximately 641 square miles which

includes a 100 meter buffer around the county boundary. The lidar data was acquired at a nominal point spacing (NPS) of 0.7 meters and a aggregate nominal point density (ANPD) of 2.0. Project specifications are based on Lafayette County requirements and on the U.S. Geological Survey National Geospatial Program LiDAR Base Specification, Version 1.3. The data was developed based on a horizontal projection/datum of NAD83(2011) / Lafayette County (ftUS) (EPSG Code: 7608), and vertical datum of NAVD88 - Geoid12B (Feet). LiDAR data was acquired using the Riegl VQ 1560i SN061 Sensor on April 8, 2019 in 2 total lifts. Acquisition occurred with leaves absent from deciduous trees, when no snow was present on the ground, and with rivers at or below normal levels.

WI\_Monroe\_2019 (Work Unit 177789)

The Monroe County lidar project area covers approximately 916 square miles which includes a 100 meter buffer around the county boundary. The lidar data was acquired at a nominal point spacing (NPS) of 0.7 meters and a aggregate nominal point density (ANPD) of 2.0. Project specifications are based on Monroe County requirements and on the U.S. Geological Survey National Geospatial Program LiDAR Base Specification, Version 1.3. The data was developed based on a horizontal projection/datum of NAD83(2011) / Monroe County (ftUS) (EPSG Code: 7621), and vertical datum of NAVD88 - Geoid12B (Feet). LiDAR data was acquired using the Riegl VQ 1560i SN061 Sensor from April 9, 2019 through April 28, 2019 in three total lifts. Acquisition occurred with leaves absent from deciduous trees, when no snow was present on the ground, and with rivers at or below normal levels.

WI\_Pepin\_2019 (Work Unit 177780)

The Pepin County lidar project area covers approximately 255 square miles which includes a 100 meter buffer around the county boundary. The lidar data was acquired at a nominal point spacing (NPS) of 0.7 meters and a aggregate nominal point density (ANPD) of 2.0. Project specifications are based on Pepin County requirements and on the U.S. Geological Survey National Geospatial Program LiDAR Base Specification, Version 1.3. The data was developed based on a horizontal projection/datum of NAD83(2011) / Pepin County (ftUS) (EPSG Code: 7624), and vertical datum of NAVD88 - Geoid12B (Feet). LiDAR data was acquired using the Riegl VQ 1560i SN061 Sensor on May 4, 2019 in 1 total lift. Acquisition occurred with leaves absent from deciduous trees, when no snow was present on the ground, and with rivers at or below normal levels.

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 Entwine Point Tiles (EPT) 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:**

2019-04-21, 2019-04-23, 2019-04-09, 2019-04-19, 2019-04-28, 2019-05-04, 2019-04-08, 2019-

04-20 to 2019-04-21

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

W: -90.030164, E: -89.593469, N: 44.250431, S: 43.639605

WI\_Adams\_2019 (Work Unit 177786)

W: -90.98, E: -90.3, N: 44.16, S: 43.72

WI\_Monroe\_2019 (Work Unit 177789)

W: -92.32, E: -91.65, N: 44.69, S: 44.4

WI\_Pepin\_2019 (Work Unit 177780)

W: -90.43, E: -89.84, N: 42.82, S: 42.5

WI\_Lafayette\_2019 (Work Unit 177783)

W: -89.02, E: -88.53, N: 43.2, S: 42.84

WI\_Jefferson\_2019 (Work Unit 173957)

**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 Entwine Point Tile (EPT) files hosted on Amazon Web Services (AWS) into the Digital Coast Data Access Viewer (DAV). The DAV accesses the point cloud as it resides on AWS under the usgs-lidar-public-container.

Process Steps:

- 2019-05-28 00:00:00 - The boresight for each lift was done individually as the solution may change slightly from lift to lift. The following steps describe the Raw Data Processing and Boresight process: 1) Technicians processed the raw data to LAS format flight lines using the final GPS/IMU solution. This LAS data set was used as source data for boresight. 2) Technicians first used Leica LMS software to calculate initial boresight adjustment angles based on sample areas selected in the lift. These areas cover calibration flight lines collected in the lift, cross tie and production flight lines. These areas are well distributed in the lift coverage and cover multiple terrain types that are necessary for boresight angle calculation. The technician then analyzed the results and made any necessary additional adjustment until it is acceptable for the selected areas. 3) Once the boresight angle calculation was completed for the selected areas, the adjusted settings were applied to all of the flight lines of the lift and checked for consistency. The technicians utilized

commercial and proprietary software packages to analyze how well flight line overlaps match for the entire lift and adjusted as necessary until the results met the project specifications. 4) Once all lifts were completed with individual boresight adjustment, the technicians checked and corrected the vertical misalignment of all flight lines and also the matching between data and ground truth. The relative accuracy was less than or equal to 7 cm RMSEz within individual swaths and less than or equal to 10 cm RMSEz or within swath overlap (between adjacent swaths). 5) The technicians ran a final vertical accuracy check of the boresighted flight lines against the surveyed check points after the z correction to ensure the requirement of NVA = 19.6 cm 95% Confidence Level (Required Accuracy) was met. Point classification was performed according to USGS Lidar Base Specification 1.3, and breaklines were collected for water features. Bare earth DEMs were exported from the classified point cloud using collected breaklines for hydroflattening.

- Original point clouds in LAS/LAZ format were restructured as Entwine Point Tiles and stored on Amazon Web Services. The data were re-projected horizontally to WGS84 web mercator (EPSG 3857) and no changes were made to the vertical elevations in NAVD88 (GEOID12B).
- 2023-08-24 00:00:00 - The NOAA Office for Coastal Management (OCM) created references to the Entwine Point Tile (EPT) 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 point cloud as it resides on Amazon Web Services (AWS) under the usgs-lidar-public container. These are the URLs being accessed: [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI\\_Adams\\_2019/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI_Adams_2019/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI\\_Jefferson\\_2019/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI_Jefferson_2019/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI\\_Lafayette\\_2019/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI_Lafayette_2019/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI\\_Monroe\\_2019/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI_Monroe_2019/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI\\_Pepin\\_2019/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/WI_Pepin_2019/ept.json)

**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/70629>

**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?**

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=9885/details/9885>

[https://rockyweb.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/WI\\_Statewide\\_2019\\_A19](https://rockyweb.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/WI_Statewide_2019_A19)

**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.*