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:

2023 IN DNR Lidar: Indiana Coastline

1.2. Summary description of the data:

Product: These lidar data are processed Classified LAS 1.4 files, formatted to 2503 individual 1250 ft x 1250 ft tiles clipped to the DPA; used to create intensity images, 3D breaklines, and hydro-flattened DEMs as necessary.

Geographic Extent: Cook county, Illinois; Lake, LaPorte, and Porter counties, Indiana; and Berrien county, Michigan; covering approximately 136 square miles.

Dataset Description of the Original Data: The lidar 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 meters. Project specifications are based on the U.S. Geological Survey National Geospatial Program Base Lidar Specification. The data was developed based on a horizontal projection/datum of NAD83(HARN), Indiana West Feet, and vertical datum of NAVD88 (GEOID18) Feet. Lidar data was delivered as processed Classified LAS 1.4 files, formatted to 2503 individual 1250 ft x 1250 ft tiles clipped to the DPA, as tiled Intensity Images and tiled bare-earth DEMs; all tiled to the same 1250 ft x 1250 ft schema.

Ground Conditions: Lidar was collected in March 2023, while no snow was on the ground and rivers were at or below normal levels. Sanborn Map Company, Inc. established a total of 25 accuracy check points, 20 in Bare Earth and Urban landcovers (20 NVA points), 5 in Tall Grass and Brushland/Low Trees categories (5 VVA points), that were used to assess the vertical accuracy of the data.

The NOAA Office for Coastal Management (OCM) received a copy of this data. The data were processed to the NOAA Digital Coast Data Access Viewer (DAV) to make the data available for bulk and custom downloads. In addition to these lidar point data, the bare earth Digital Elevation Models (DEM) created from the lidar point data are also available. These data are available for custom download at the link 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:
2023-03-27 to 2023-03-28

1.5. Actual or planned geographic coverage of the data:
W: -87.56112357, E: -86.72200761, N: 41.81305444, S: 41.54770236

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:
Data were collected by the Sanborn Mapping Company. The data were provided to the NOAA Office for Coastal Management (OCM) and processed to make it available for custom download from the NOAA Digital Coast Data Access Viewer (DAV) and for bulk download from AWS S3.

Process Steps:

- 2022-01-01 00:00:00 - The boresight was completed prior to project execution. The following steps describe the Raw Data Processing process: 1) Technicians processed the raw data to LAS format flight lines using the final GNSS/IMU solution. This LAS data set was used as source data for lidar matching. 2) 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. 3) Once all lifts were completed with lidar matching, 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 6 cm RMSEz within individual swaths and less than or equal to 8 cm RMSEz or within swath overlap (between adjacent swaths). 4) The technicians ran a final vertical accuracy check of the 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 2021, Revision A, and breaklines were collected for water features. Bare-earth DEMs were exported from the classified point cloud using collected breaklines for hydroflattening.
- 2022-01-01 00:00:00 - LAS Point Classification: The point classification is performed as described below. The bare-earth surface is then manually reviewed to ensure correct classification on the Class 2 (Ground) points. After the bare-earth surface is finalized, it is then used to generate all hydro-breaklines through heads-up

digitization. All Class 2 (Ground) lidar data inside of the Lake Pond and Double Line Drain hydro-flattened breaklines were then classified to Class 9 (Water) using LP360 functionality. A buffer of 1 ft was also used around each hydro-flattened feature to classify these Class 2 (Ground) points to Class 20 (Ignored Ground). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the Class 2 (Ground) points were reclassified to the correct classification after the automated classification was completed. All data was manually reviewed and any remaining artifacts removed using functionality provided by LP360, TerraScan and TerraModeler. Global Mapper was used as a final check of the bare-earth dataset. GeoCue was then used to create the deliverable industry-standard LAS files. Sanborn Map Company, Inc. proprietary software was used to perform final statistical analysis of the classes in the LAS files, on a per tile level to verify final classification metrics and full LAS header information.
- 2023-01-01 00:00:00 - Data was tested at 0.32 meter aggregate nominal pulse spacing and at 9.7 aggregate points per meter. The aggregate nominal pulse spacing was tested on classified tiled LAS using geometrically reliable first-return points. ANPS was tested using Delaunay Triangulation that produced average point spacing between all nearest neighbors.
- 2024-04-18 00:00:00 - The NOAA Office for Coastal Management (OCM) were provided 2367 las point data files from the Indiana DNR. The data were in Indiana State Plane West NAD83 HARN, US feet coordinates and NAVD88 (Geoid18) elevations in feet. The data were classified as: 1 - Unclassified, 2 - Ground, 7 - Low Noise, 9 - Water, 17 - Bridge Decks, 18 - High Noise, 20 - Ignored Ground. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV), the classes available for download from the DAV are: 1, 2, 7, 9, 17,18, 20. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. Internal OCM scripts were run to check the number of points by classification and by flight ID and the gps, elevation, and intensity ranges. 2. Internal OCM scripts were run on the las files to: a. Convert the files from las format to copc laz format b. Convert from orthometric (NAVD88) elevations to NAD83 (2011) ellipsoid elevations using the Geoid18 model c. Convert from Indiana State Plane West NAD83 HARN, US feet coordinates to geographic coordinates d. Assign the geokeys, sort the data by gps time and zip the data to database and to AWS S3.

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/72458

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=10112/details/10112
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/10112/index.html

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.