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:

2018 USACE NCMP Topobathy Lidar: Lake Ontario, NY

1.2. Summary description of the data:

These files contain classified topo/bathy lidar data. Data are classified as 1 (valid non-ground topographic data), 2 (valid ground topographic data), and 29 (valid bathymetric data). Classes 1 and 2 are defined in accordance with the American Society for Photogrammetry and Remote Sensing (ASPRS) classification standards. These data were collected by the Coastal Zone Mapping and Imaging Lidar (CZMIL) system. CZMIL integrates a lidar sensor with simultaneous topographic and bathymetric capabilities, a digital camera and a hyperspectral imager on a single remote sensing platform for use in coastal mapping and charting activities. Native lidar data is not generally in a format accessible to most Geographic Information Systems (GIS). Specialized in-house and commercial software packages are used to process the native lidar data into 3-dimensional positions that can be imported into GIS software for visualization and further analysis. The 3-D position data are sub-divided into 1-km by 1-km tiles, which are based on the Military Grid Reference System (MGRS).

In addition to the lidar point data, topobathy bare earth Digital Elevation Models (DEMs) at a 1 meter grid spacing, created from the lidar point data, and the hyperspectral and RGB imagery are also available from the NOAA Digital Coast. Links to these data are provided in the URL section of this metadata record. DEMs at a a 1meter grid spacing, created from all classifications, are available by request at coastal.info@noaa.gov.

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:

2018-09-04 to 2018-09-20

1.5. Actual or planned geographic coverage of the data:

W: -79.097839, E: -75.791024, N: 44.440908, S: 43.191618

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Point Cloud (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?

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):

Lineage Statement:
The steps below outline the basic workflow Jalbtcx employs to produce lidar point clouds.

Process Steps:

- 2018-09-04 00:00:00 - These data were collected using the CZMIL system. It is owned and operated by the U.S. Army Corps of Engineers (USACE). The system collects topobathy lidar data at 10 kHz and RGB imagery at 2 Hz. A CASI-1500 hyperspectral line scanner is integrated with the system as well. Aircraft position, velocity and acceleration information are collected through a combination of NovAtel and POS A/V 610 equipment. All raw data streams are transferred to the office for downloading and processing in CZMIL's HydroFusion software. Aircraft position data are processed using POSPac software and the results are combined with the lidar data to produce 3-D positions for each lidar shot. Upon inspection and QA/QC in the software packages Fledermaus and PFM_ABE, anomalous data are flagged as invalid and have the withheld bit set.
- 2020-07-16 00:00:00 - LAS files are imported into TerraScan V13 module within MicroStation V8i, classifies valid topobathy data as ground points (2) and unclassified points (1), and valid bathymetric points (29). Upon completion the macro, the classification results undergo quality control and any misclassified points are manually edited. In areas of dense vegetation the bare earth ground points might be incorrectly classified due to the inability of the laser to penetrate the canopy and reach the bare ground. In these areas, JALBTCX defaults to the algorithm's "ground" surface instead of manually reclassifying those points. They are partitioned into a series of 1-km delivery boxes, one Classified LAS file per box. The format of the file is LAS version 1.2. Data are classified as 1 (valid non-ground topographic data), 2 (valid ground topographic data), and 29 (valid bathymetric data). The National Geodetic Survey's (NGS) GEOID12B model is used to transform the horizontal positions from UTM to Geographic coordinates referenced to the North American Datum of 1983 National Adjustment of 2011 (NAD83 NA11). The files are then compressed with the open-source LASzip utility, which is part of the LAStools package (LAStools, "Efficient LiDAR Processing Software" (version 170923, unlicensed)), obtained from http://rapidlasso.com/LAStools.
- 2021-02-11 00:00:00 - The NOAA Office for Coastal Management (OCM) received 1342 laz files from USACE JALBTCX for the Lake Ontario coastline in New York. The lidar data had elevation and intensity measurements. The data were in geographic

coordinates (NAD83 2011) and ellipsoid elevations in meters. The data were classified as: 1 - Unclassified, 2 - Ground, 29 - Bathymetric Point. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV). Classes available on the DAV are: 1, 2, 29. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. An internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges. 2. Internal OCM scripts were run on the laz files to assign the geokeys, to sort the data by gps time and zip the data to database and to https.
- 2023-10-24 00:00:00 - The NOAA Office for Coastal Management (OCM) received 185 laz files from USACE JALBTCX for along the Niagara River in New York. The lidar data had elevation and intensity measurements. The data were in geographic coordinates (NAD83 2011) and ellipsoid elevations in meters. The data were classified as: 1 - Unclassified, 2 - Ground, 29 - Bathymetric Point. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV). Classes available on the DAV are: 1, 2, 29. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. An internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges. 2. Internal OCM scripts were run on the laz files to assign the geokeys, to sort the data by gps time and zip the data to database and 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):
JALBTCX evaluates final data coverage using techniques that are common to the lidar industry. These techniques are performed in a 3D environment for visual review of the final data coverage and verification of data alongside lidar waveforms and imagery collected concurrent with the lidar. Data reviewers perform checks to verify (1) extreme high and/or low elevation values have been invalidated, (2) elevations in areas of swath overlap are internally consistent, (3) binned standard deviation values meet CZMIL specifications, (4) point cloud classifications are valid, and (4) CZMIL processing modes are valid.

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
- 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
- 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/58408

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=8594
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/8594/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)

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.