

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:

2021-2023 NOAA NGS Topobathy Lidar DEM: French Frigate Shoals and Nihoa, Hawaii

1.2. Summary description of the data:

These data were collected by Woolpert using a Leica Hawkeye4X system. Data for Nihoa and French Frigate Shoals were acquired from February 7, 2021 through July 27, 2023.

The data includes raster topobathy data in geotiff format created from ground (2) and bathymetric point (40) lidar point values.

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:

2021-02-07 to 2021-10-12, 2021-03-06 to 2023-07-24, 2022-04-11 to 2023-07-27

1.5. Actual or planned geographic coverage of the data:

W: -167.01, E: -161.66, N: 24.29, S: 22.89

W: -167.23, E: -167.01, N: 24.47, S: 24.18

W: -166.4, E: -165.99, N: 23.91, S: 23.59

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):

Process Steps:

- 2024-01-17 00:00:00 - Woolpert acquired, calibrated, and performed the refraction correction of the lidar data. Light travels at different speeds in air versus water and its direction of travel or angle is changed or refracted when entering the water

column. The refraction correction process corrects for this difference by adjusting the depth (distance traveled) and horizontal position (change of angle/direction) of the lidar data acquired within water. Relative accuracy of the swaths compared to overlapping and adjacent swaths was verified through the use of Delta-Z (DZ) orthos created in LASTools software. Profiles of elevated planar features, such as roofs, were used to verify horizontal alignment between overlapping swaths. The NovAtel software was utilized for GPS and inertial processing, Data were processed to an initial LAS format using the Leica Lidar Survey Studio software. Algorithms in TerraScan was used to create the initial ground surface. All lidar data was peer-reviewed. QAQC also included creating void polygons for use during review. All necessary edits were applied to the dataset. LASTools was used to update LAS header information, including all projection and coordinate reference system information. The final lidar data is in LAS format 1.4 and point data record format 6. Data were processed in NAD83 (PA11) horizontal and vertical datum. The National Oceanic and Atmospheric Administration (NOAA) received files in laz format. The files contained lidar elevation and intensity measurements. With the exception of Niihau, data was delivered in UTM Zone 3 coordinates and ellipsoid elevations in meters. Horizontal Datum-NAD83 (PA11) epoch: 2010.0 Projection-UTM Zone 3 North Horizontal Units-meters Vertical Datum-NAD83 (PA11) Ellipsoid height Vertical Units-meters The final classification scheme for all data delivered to NOAA is as follows: 1-Unclassified 2-Ground 7-Low Noise 9-Topo Water Surface 18-High Noise 40-Bathymetric Point 41-Bathymetric Water Surface 42-Synthetic Derived Water Surface 43-Submerged Object 44-International Hydrographic Organization (IHO) S-57 Object 64-Submerged Aquatic Vegetation 65-Bathymetric Bottom Temporal Changes

- 2021-10-01 00:00:00 - The lidar data is referenced to the NAD83 (PA11) ellipsoid. The GEOID12B model does not exist over the AOI. The lidar data in ellipsoid heights was used to create the final topobathymetric DEMs in ellipsoid heights. Lidar data were used to generate a raster in geotiff format with 1 meter pixel resolution for the entire area. The raster was then clipped to the tile grid and named according to project specifications to result in tiled topobathymetric DEMs. Bathy void polygons represent bathymetric areas with no bathymetric bottom returns and accompany the DEMs. Void polygon creation is described in the final project report and the void polygon metadata. A confidence layer has been created and provided to NOAA as part of the deliverables. Except where there are not enough lidar data points in a pixel to calculate a standard deviation value, the confidence layer is a raster product in geotiff format with 1 meter square pixels. The confidence layer provides a standard deviation value for every pixel by calculating the standard deviation of all ground and/or submerged topography lidar points that are located within a single pixel. The confidence layer pixels align to the pixels in the topobathy DEMs. The confidence layer can be displayed by unique values or classified into desired bins/ranges for analysis over larger areas.

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/73693>

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=10191>

https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/dem/NGS_NWHawaiianIslands_Topobathy_20

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.