

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:**

2022 USACE NCMP Phase One Natural Color 8 Bit Imagery: Stamp Sands, MI

1.2. Summary description of the data:

These files contain 3-band RGB orthorectified mosaic imagery tiles generated from data collected using a Phase One iXM-150F digital camera. This full frame medium-format aerial survey camera collected imagery data in tandem with a bathymetric lidar sensor and a hyperspectral imager on a single remote sensing platform. Native imagery data is not generally in a format accessible to most Geographic Information Systems (GIS). Specialized in-house and commercial software packages were used to process the native imagery data into 3-band orthorectified mosaic imagery that can be imported into GIS software for visualization and further analysis. Trajectories were transformed into positional coordinates using the HTDP (Horizontal Time-Dependent Positioning) software to maintain consistency with the NGS (National Geodetic Survey) reference to the North American Datum of 1983 (NAD83) and the North American tectonic plate coordinates realized from the National Adjustment of 2011, or NAD83 (2011). Horizontal positions, provided in decimal degrees of latitude and longitude, are referenced to NAD83 (2011) at the 2010.00 epoch. Vertical positions, provided in meters, are referenced to the NAD83 (2011) ellipsoid. NGS hybrid geoid model GEOID12B was used to transform the vertical positions from ellipsoidal heights to orthometric heights referenced to the North American Datum of 1988 (NAVD88). The imagery data are in TIF files tiled using 1 km boxes defined by the Military Grid Reference System (MGRS). The file naming convention references the year, effort, area, box number, and data product type. An example file name is, 2022_StampSands_MI_Superior_16TDT0324_RGB.tif, where 2022 is the year of data collection, NCMP is the effort under which data were collected, FL is the area of data collection, 16TDT0324 is the box number and RGB is the data product type.

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:

2022-10-27

1.5. Actual or planned geographic coverage of the data:

W: -88.276, E: -88.081, N: 47.268, S: 47.135

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Map (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):

Process Steps:

- 2022-11-01 00:00:00 - Phase One iXM-150F data were converted from raw Intelligent Image Quality (IIQ) files created during the data collection to unrectified TIF images using the Capture One Processing Engine (COPE) which is a command line file processing utility developed by Phase One as part of their software development toolkit (SDK). A Smoothed Best Estimate of Trajectory (SBET) solution was resolved from the raw aircraft GNSS-IMU positional data using the Applanix POSPac Mobile Mapping Suite (MMS) software package. The Exterior Orientation (EO) parameters and camera misalignments for the imagery were then computed using the Leica IPAS CO+ software package where the values were checked against the known current calibration values for this camera installation. A Digital Elevation Model (DEM) was generated from lidar data collected concurrently with the imagery using an adjacent sensor in tandem with the digital camera on a single remote sensing platform. The unrectified TIF files, EO data, DEM file, SimActive Tile Definition File (TDF), and camera calibration file were given as input to the SimActive Correlator3D software package for processing. Using Correlator3D, the data went through Aerial Triangulation (AT), orthorectification, color balancing, and mosaicking. The mosaic data were exported from Correlator3D as TIF files tiled according to 1 km MGRS grid cells. The mosaic image files were compressed using Geospatial Data Abstraction Library (GDAL) tools by applying the LZW lossless compression method. The compressed mosaic image files were finalized using GDAL and the Esri ArcGIS Desktop software package. GDAL was used to calculate statistics and build pyramids, while ArcGIS was used to create metadata for each image tile. The data processing workflow, including software packages, algorithms and parameters are provided in detail, within this metadata as Process Steps.

- 2022-11-01 00:00:00 - POSPac MMS transformations are based on the NNR-MORVEL56 (No-Net-Rotation Mid-Ocean Ridge VElocity) tectonic plate model. NNR-MORVEL56 is a set of angular velocities that describe the motions of 56 plates relative to a no-net-rotation reference frame. This SBET file was then transformed from the ITRF00 datum with an epoch corresponding to the mission date to the North American Datum of 1983 (NAD83) and the North American tectonic plate

coordinates realized from the National Adjustment of 2011, or NAD83 (2011) at the 2010.00 epoch. The National Geodetic Survey (NGS) has produced several adjustment realizations to NAD83, including NAD83 (2011). While WGS 84 is updated to match ITRF realizations, NAD83 is tied to the North American tectonic plate where its coordinates have been gradually drifting farther from the WGS 84 and ITRF adjustments with the passage of time. Trajectories were transformed into positional coordinates using the HTDP (Horizontal Time-Dependent Positioning) software to maintain consistency with the NGS (National Geodetic Survey) reference to the North American Datum of 1983 (NAD83) and the North American tectonic plate coordinates realized from the National Adjustment of 2011, or NAD83 (2011). Horizontal positions, provided in decimal degrees of latitude and longitude, are referenced to NAD83 (2011) at the 2010.00 epoch. Vertical positions, provided in meters, are referenced to the NAD83 (2011) ellipsoid. NGS hybrid geoid model GEOID12B was used to transform the vertical positions from ellipsoidal heights to orthometric heights referenced to the North American Datum of 1988 (NAVD88).

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):

These data have been developed from the best available sources. Although efforts have been made to ensure that the data are accurate and reliable, errors and variable conditions originating from physical sources used to develop the data may be reflected in the data supplied. Users must be aware of these conditions and bear responsibility for the appropriate use of the information with respect to possible errors, scale, resolution, rectification, positional accuracy, development methodology, time period, environmental and climatic conditions and other circumstances specific to these data. The user is responsible for understanding the accuracy limitations of the data provided herein. The burden for determining fitness for use lies entirely with the user. The user should refer to the accompanying metadata notes for a description of the data and data development procedures.

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
- 7.3. Data access methods or services offered
- 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/72125>

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/#/imagery/search/where:ID=10070>

https://coastalimagery.blob.core.windows.net/digitalcoast/StampSandsMI_RGB_2022_10070/index.htm

7.3. Data access methods or services offered:**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.