

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:

2018-2019 NOAA NGS 4-band Ortho-rectified Mosaic of Chesapeake Bay (Tilghman to Hoopersville, MD)

1.2. Summary description of the data:

This orthoimagery data set includes 0.3 meter digital orthoimages in 8-bit 4-band (RGB-IR) GeoTIFF tiles. Geographic Extent: 4 counties in Maryland, covering approximately 628 total square miles. Dataset Description: The Chesapeake Bay NOAA Option 1 project called for the planning, acquisition, processing, and derivative products of imagery data to be collected at a ground sample distance (GSD) of 0.3 meter. Project specifications are based on the American Society of Photogrammetry and Remote Sensing (ASPRS) standards. The data were developed based on a horizontal projection/datum of NAD 1983 2011 UTM Zone 18N, Meter. Imagery data were delivered as 0.3 meter 8-bit 4-band (RGB-IR) GeoTIFF tiles. Tiled deliverables contained 181 individual 3000 m x 3000 m tiles. Ground Conditions: Imagery was collected in fall 2018 and spring 2019, while no snow was on the ground and rivers were at or below normal levels. In order to post process the imagery data to meet task order specifications and meet ASPRS horizontal accuracy guidelines, Quantum Spatial, Inc. utilized a total of 3 ground control points to assess the horizontal accuracy of the data.

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:

2018-11-11 to 2019-03-23

1.5. Actual or planned geographic coverage of the data:

W: -76.472428, E: -75.948814, N: 38.7277668, S: 38.2629254

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
remote-sensing image

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:

National Geodetic Survey (NGS)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

National Geodetic Survey (NGS)

2.4. E-mail address:

2.5. Phone number:

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:

Aerial imagery was acquired using a UltraCam Eagle camera with a flight design that included a total of 16 flight lines. Aerial imagery was supplemented with the simultaneous acquisition of airborne GPS/IMU data, which captured the ground coordinate for the nadir point of each photograph. Aerial imagery was exposed at an altitude of 13100 feet above mean terrain. Softcopy aerotriangulation was performed utilizing the airborne GPS/IMU data, GPS ground control and image coordinate measurements allowing the direct computation of the exterior orientation parameters for each image of the project. A compilation of topographic land form elevation datasets developed using in-house LiDAR data and data from the National Elevation Dataset for use in developing digital ortho imagery. Quantum Spatial performed a geodetic control survey in support of the digital orthophoto production project. A total of 3 points were used for QC testing.

Process Steps:

- 2019-11-19 00:00:00 - Imagery Acquisition: Digital aerial imagery was obtained using a UltraCam Eagle camera equipped with Airborne GPS/IMU. A total of 16 flight lines were collected in the fall 2018 and spring 2019 in multi-spectral (RGB-IR) format. The 0.3 meter imagery was acquired at an altitude above mean terrain of 13100 feet to yield a pixel resolution suitable for photogrammetric mapping and orthophoto production. The imagery was collected under conditions free from clouds and cloud shadows, smoke, fog, haze, light streaks, snow, ice on water bodies, flooding, excessive soil moisture, and foliage. The imagery consisted of blue, green, red, and infrared bands. Imagery for the photogrammetric mapping and digital orthophotos was captured according to task order specifications regarding snow, haze, and cloud cover.
- 2019-11-19 00:00:00 - Ground Control Point Collection: A total of 3 control points were established throughout the project area using a combination of conventional and GPS survey methods in order to support softcopy aerotriangulation and photogrammetric mapping meeting the accuracies specified in this Scope of Work. Ground control collection followed requirements set forth in the task order specifications. Please see the survey report for more information
- 2019-11-19 00:00:00 - Aerotriangulation: Softcopy aerotriangulation was performed on one large block of imagery. The airborne GPS/IMU data, GPS ground control, and image coordinate measurements were utilized to allow the direct computation of the exterior orientation parameters for each image frame to support the photogrammetric process and orthophoto production.
- 2019-11-19 00:00:00 - Surface Creation: This process involved the development of seamless topographic landform elevation dataset utilizing in-house LiDAR data and data from the National Elevation Dataset to support the production of digital

orthophotography that meet or exceed required orthophoto horizontal accuracy. The topographic features included a grid of elevation points and may include break lines that define ridges, valleys, edge of water, transportation features and abrupt changes in elevation. The final DEM is suitable for orthophoto production only (not suitable for contour generation). The DEM is used to then generate a Triangulated Irregular Network (TIN) to support orthophoto production. The final DEM used for orthophoto production was delivered in countywide rasters in a file geodatabase.

- 2019-11-19 00:00:00 - Orthophoto Processing: Utilizing all four bands [blue (B), green (G), red (R), and infrared (IR)] digital orthorectification was performed using bilinear interpolation algorithms resulting in a spatial and radiometric transformation of the digital image from line/sample space into NAD 1983 2011 UTM Zone 18N, Meter. The interior and exterior orientation parameters from the aerotriangulation process were used to project each pixel into the ground coordinate system, while the ortho grade DEM was used to correct for relief displacement. Radiometric correction software and techniques were used to create orthophoto files that minimize the appearance of image seams and without loss of feature signature. Orthophotos are checked for geometric accuracy, image quality, and are tonally balanced to produce a uniform contrast and tone across the entire project. The individual overlapping orthophoto frames were mosaicked together. The ortho photos meet ASPRS horizontal accuracy standards.

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)
- 2.4. Point of Contact Email
- 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
- 5.2. Quality control procedures employed

- 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/64525>

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=9285>

https://coastalimagery.blob.core.windows.net/digitalcoast/HoopersvilleMD_RGBN_2019_9285/index.html

7.3. Data access methods or services offered:

Data is available online for 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.