

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:

2005 C-CAP Land Cover of Oahu, Hawaii

1.2. Summary description of the data:

This data set consists of land cover derived from high resolution imagery according to the Coastal Change Analysis Program (C-CAP) protocol. This data set utilized 29 full or partial Quickbird multispectral scenes which were processed to detect C-CAP land cover features on the island of Oahu.

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:

2005-12-31

1.5. Actual or planned geographic coverage of the data:

W: -158.287559, E: -157.624997, N: 21.714257, S: 21.243777

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:

- 2014-06-19 00:00:00 - This section outlines the classification procedure for the Oahu High Resolution C-CAP. Quickbird imagery used in producing this land cover product was also utilized in producing an associated impervious surfaces layer for the island. The mapping approach utilized a boundary summary and refinement procedure developed by Sanborn to leverage previous C-CAP mapping efforts to create the high resolution land cover data set. While a calibration visit was required,

the use of training data for classification of specific land cover classes was minimal.

Non impervious features were mapped using a 0.5 acre minimum mapping unit (MMU). Pre-processing steps: The Quickbird mosaic utilized for this project was provided from Digital Globe as an orthorectified, georeferenced product and was consistent with the quoted 1:12000 spatial accuracy. In conjunction with the Quickbird mosaic, Sanborn used an air photo mosaic from the USGS for the island collected in 2004. High resolution topographic data was also provided to Sanborn in the form of a DTM created from a 5m IfSAR collect for the island. The Orthorectified Radar Image (ORI) was also utilized. Field-Collected Data: While a calibration visit was required, the use of training data for classification of specific land cover classes was minimal. 5 days were spent by Sanborn and NOAA staff, travelling sections of the island collecting point locations and digital photographs for various land cover types. Initial Segmentation: This was performed at multiple scales using the multispectral (2.4 m) imagery in order to group like spectral and textural objects within the imagery. The initial segments were created at a larger scale (scale refers to the target size and shape of like features generalized by Definiens software) of 100. Larger segments are required to leverage the 30 m data sets and incorporate the IfSAR data that is collected at spatial resolution of 5 m. For consistency, the associated impervious data set was incorporated into the segmentation layer as a boundary delimiter. Segments can share boundaries of an impervious surface, but can never overlap an impervious surface. Rule set Creation: An initial map of the island of Oahu was created by incorporating an existing C-CAP 2001 land cover data set into the derived image objects through a logical rule set created by a Sanborn analyst. The rules are created such that image segments are labelled to the C-CAP classification scheme based on their underlying medium resolution components. - 2014-06-19 00:00:00 - Initial Label and Edits: The automated labelling procedure created a reasonable representation of land cover using the labelling routine, however errors did occur. Gross inaccuracies in the data product that would inhibit the further classification of the segments at a smaller scale factor were corrected through knowledge based models or manual edits. Secondary Segmentation: Further refinement of the map was only possible through classification of the image segments directly. Classification of the image segments is a hierarchical process, whereby larger scale segments are composed of smaller scale segments. The initial segmentation was used to further aid in the automated classification of the secondary (more detailed) image segments. The final scale factor for the mosaic was 50. In some cases where further detail was required, the scale factor was reduced to 35. Automated Classification: Automated classification of the image segments was accomplished through process modeling incorporated within Definiens software. Models were built to refine or reclassify land cover areas by utilizing the wealth of attribute information linked to each segment within Definiens. In a small amount of cases, the nearest neighbor classification routine was used to refine segments. Nearest neighbor training data was collected through analyst interpretation or ancillary data sets and used to calibrate the classification algorithm. Automated Classification Edits: As with any automated or semi-automated land cover

classification there are often inconsistencies in the land cover map. The final step before map finalization was to remove inaccuracies through manual segment labelling as interpreted by an analyst. Map Finalization: Sanborn used an independent reviewer's comments to further refine the land cover map. Wetland Class Development: It was the responsibility of NOAA to incorporate the wetland classes into the final land cover map produced by Sanborn. To accomplish this task, NOAA utilized an updated National Wetland Inventory (NWI) dataset that was completed during 2007. This required cross-walking all of the NWI classes to the C-CAP scheme and rasterizing for use within an ERDAS Imagine Spatial Model. A zonal analysis was performed on this NWI raster layer using image objects generated from the 2.4m Quickbird imagery. The objects were derived using a scale factor of 25 since more detail was required to properly characterize the islands wetland features. Information from the zonal analysis was used to create percent layers for each C-CAP wetland class. The resulting layers depicted the amount of wetland occupying an image object with a percentage estimate. Each layer was recoded based on an analyst determined threshold and inserted into Sanborn's final land cover map. Manual Editing: The final map with wetland information was reviewed again by NOAA analysts to identify site specific errors. Once these locations were compiled, corrections were made manually through heads up digitizing and the seed tool in ERDAS Imagine. Post processing: The change detection process used to create the 2011 Oahu C-CAP product highlighted some errors in the 2005 land cover map. To create a more accurate product these issues we addressed by NOAA through a combination of spatial models and manual edits. While the changes may not be large in area and/or be directly reflected in the accuracy assessment, we feel the products more accurately reflect the land cover for the time period.

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
- 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
- 7.3. 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/48276>

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=370>

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.