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:
2020 NOAA/OCM Multibeam Bathymetry: Bayfield, WI

1.2. Summary description of the data:
In July-September 2020, a hydrographic survey was conducted in three survey areas located on the western side of Bayfield Peninsula in southwestern Lake Superior. Survey operations took place over three legs: Leg 1 (7/25-8/5), Leg 2 (8/25-9/2), and Leg 3 (9/16-9/28). The survey platform was the Research Vessel (R/V) Echo, which was equipped with a Teledyne-Reson SeaBat 7125 multibeam echosounder for simultaneously acquiring bathymetry and acoustic backscatter imagery.

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:
2020-07-25 to 2020-08-05, 2020-08-25 to 2020-09-02, 2020-09-16 to 2020-09-28

1.5. Actual or planned geographic coverage of the data:
W: -91.201383, E: -90.970578, N: 46.978095, S: 46.850024

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
raster digital data

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:
- 2020-09-28 00:00:00 - A hydrographic survey was conducted in three survey areas located on the western side of Bayfield Peninsula in southwestern Lake Superior. Survey operations took place over three legs: Leg 1 (7/25-8/5), Leg 2 (8/25-9/2), and

Leg 3 (9/16-9/28). The survey platform was the Research Vessel (R/V) Echo, which was equipped with a Teledyne-Reson SeaBat 7125 multibeam echosounder for simultaneously acquiring bathymetry and acoustic backscatter imagery.
- Bathymetry data were processed in CARIS HIPS (v11.3.8). Upon import into CARIS HIPS software, the raw multibeam data were converted from native Teledyne-Reson s7k file format into CARIS HDCS format. The converted multibeam data were stored logically by survey day. Soundings with a Reson quality flag of 0 or 1 (indicating poor brightness and/or collinearity of data) were rejected automatically on import. These soundings were reviewed later during manual inspection. A CARIS HIPS Vessel File (HVF), which stored sensor offsets for the survey vessel, was constructed using values for the Echo as provided and documented by CPC hydrographers. Multibeam patch test data (conducted 7/25/2020) were analyzed and alignment corrections were calculated and applied to soundings. Vessel attitude (heading, pitch, roll, heave) and position data (global navigation satellite system (GNSS) corrections) were manually reviewed and verified. Applanix POSPac software was used to calculate Smoothed Best Estimate of Trajectory (SBET) files, which combined the vessel attitude and position data to produce a corrected horizontal position solution and to extract ellipsoidally referenced heights. (Citation: Raw Multibeam soundings)
- Soundings were converted from ellipsoid heights (North American Datum of 1983; NAD83) to the project vertical datum (North American Vertical Datum of 1988; NAVD88) in CARIS HIPS using the GEOID12B model. Sound speed profiles were incorporated to correct multibeam slant range measurements and compensate for refraction in the water column. Sound speed profiles were imported into CARIS HIPS and applied to soundings using the “closest in distance and time” function. Static draft measurements were conducted periodically during hydrographic survey operations. Draft measurements were used to compute Global Positioning System (GPS) tides relative to the ellipsoid and to obtain an approximate waterline for the application of sound speed profiles.
- After position, motion, waterline, and sound velocity corrections were applied, soundings were gridded for review and directed editing. Review of bathymetric data was conducted by reviewing multiple bathymetry child layers (e.g. standard deviation, density) in CARIS HIPS and using editing and QC tools to view and edit erroneous soundings (“fliers”), systematic biases, timing errors, or alignment offsets. After the completion of bathymetric data processing, review, and analysis, soundings were gridded using a standard swath angle filter to produce bathymetric surfaces. Bathymetry data were gridded at 2m. Interpolation was applied to fill small gaps. The BAG format contains two data layers: Depth and Uncertainty (standard deviation of depth). Bathymetry products are referenced to NAD83 Universal Transverse Mercator (UTM) Zone 15 North with horizontal units in meters and vertical elevation in meters relative to NAVD88.
- 2021-03-17 00:00:00 - NOAA Office for Coastal Management ingested GeoTiff versions of the grid into the Data Access Viewer. The GeoTiff version is the elevation band of the BAG file. The bag file is available through the bulk download.

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
- 7.4. 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/64386

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=9267/details/9267
https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/WI_Bayfield_Multibeam_Bathy_

7.3. Data access methods or services offered:

Data is available online for bulk or 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.