

**LIVING MARINE RESOURCES PROGRAM
BAA SOLICITATION
APPENDIX C**

GEOSPATIAL DATA REQUIREMENTS

August 2020

1 REFERENCES

- a) U. S. Navy Living Marine Resources Program Data Agreement (Appendix B)
- b) Contributing Data to OBIS-SEAMAP. http://seamap.env.duke.edu/about/provider_faq
- c) Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE), Defense Installations Spatial Data Infrastructure (DISDI) Group.
<https://www.sdsfieonline.org/Components/DISDI>
- d) North American Profile (NAP) of ISO 19115: 2003, Geographic Information – Metadata.
<http://www.fgdc.gov/nap/metadata>
- e) *Geospatial Positioning Accuracy Standards, Part 4: Architecture, Engineering, Construction, and Facilities Management* (FGDC-STD-007.4-2002), Federal Geographic Data Committee (FGDC), 2002.
<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part4>
- f) *Geospatial Positioning Accuracy Standards, Part 1: Reporting Methodology* (FGDC-STD-007.1-1998), FGDC, 1998.
http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part1/index_html
- g) *Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy* (FGDC-STD-007.3-1998), FGDC, 1998.
<https://www.fgdc.gov/standards/projects/accuracy/part3/chapter3>
- h) *FGDC endorses ISO metadata and data quality standards, Federal Geographic Data Committee (FGDC), 2016.* <https://www.fgdc.gov/standards/news/fgdc-iso-metadata-standards>

2 GENERAL SPECIFICATIONS

With regards to all digital files prepared for this contract, including source data acquired, source code generated and/or used, and related materials, including that furnished by the government, the contractor shall adhere to reference (a).

Specifically, for all geospatial data produced under this contract, the Contractor will adhere to the requirements as specified in Section 3. In addition, the Contractor must submit all source visual survey data to Ocean Biogeographic Information System Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP). Data sets should be designated for the Navy's partner contribution page (<http://seamap.env.duke.edu/partner/NAVY>) and attributed to the original collector with acknowledgement of appropriate the U.S. Navy Command(s) as the funding source. Reference (b) provides information on submitting data to OBIS-SEAMAP.

3 GEOSPATIAL DATA REQUIREMENTS

3.1 Data Standards

Data standards facilitate the development, sharing, and use of geospatial data. The Contractor shall ensure that all geospatial data is delivered in a single Esri file geodatabase, and source data layers associated with digital map files (.mxd files) by a relative file pathway to the file geodatabase. A data inventory spreadsheet with fields for File Geodatabase Name, Feature Dataset, Feature Class, Feature Label Name, Feature Legend Designation, Data Source, and Comments shall accompany the file geodatabase. In addition, all geospatial data delivered by the Contractor shall adhere to the following criteria:

- a) precise geographic coordinates in decimal degree format with four decimal precision;
- b) units of nautical miles (nm) for expansive marine areas and statute miles (mi) for expansive land areas;
- c) reference the GRS 1980 spheroid and the North American Datum 1983 (WGS-84); and
- d) US NAVY SDSFIE data model in reference (c) for newly-created GIS data only.

NOTE: The Contractor shall categorize 3rd Party data into SDSFIE Feature Data Sets of the geodatabase (fauna, flora, air transportation, military operations, etc.) but keep the integrity and format of the 3rd Party attributes and metadata.

3.2 Metadata Standards

The term "metadata" is defined as data about data. The term is often used to refer to information that allows either: (1) discovery of data, (2) understanding the provenance and quality of the data, or/and (3) analysis of the data via a set of machine readable instructions that describe the data and its relationships. The contractor shall provide metadata in accordance with Content Standard for Digital Geospatial Metadata (CSDGM), reference (h), the current U.S. federal metadata standard.

The Contractor shall ensure that metadata is provided for all geospatial data delivered, including data furnished by the Government, a third party, or generated as a result of this project, and is compliant with reference (h). All metadata shall be in XML format. The Contractor shall reference the North American Profile of ISO 19115 2003, reference (d), metadata style sheet in

ArcCatalog when populating Service-level and Feature Class-level metadata. The Contractor is required to supply metadata for all fields within this style sheet.

3.3 Mapping Guidelines

The Contractor shall comply with FGDC Geospatial Positioning Accuracy Standards, Part 4: Architecture, Engineering, Construction, and Facilities Management, reference (e), which provides accuracy standards for engineering drawings, maps, and surveys. Map or drawing scales will be determined by the COR, given specific project requirements.

3.4 Global Positioning System (GPS) Surveys

The Contractor shall comply with the FGDC Geospatial Positioning Accuracy Standards, Part 1: Reporting Methodology, reference (f), when conducting GPS surveys and collecting geospatial data. Specifically, the Contractor shall ensure that the horizontal accuracy for planning grade GPS data collection shall be sub-meter, unless otherwise specified. Every effort shall be made to capture feature locations without using offsets, unless obstructions are present. If offsets are used, the Contractor shall ensure that they are agreed to by the government and documented, per direction of the COR, given specific project requirements.

Data sets derived from GPS data collection efforts (mapping or survey grade) shall include metadata that records the following:

- a) Description of receiver and other equipment used during collection and processing;
- b) Base stations used for differential corrections;
- c) Statements of estimated horizontal and vertical accuracy at the 90% confidence interval, including the method of determination per the FGDC Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy, reference (g)
- d) Conversion routines used to translate the data into final geospatial data delivery format per Section 3.1 above.

All GPS metadata shall comply with the metadata format requirements of Section 3.2 above.

3.5 Data Integrity

The Contractor shall employ appropriate quality control standards to ensure that data is topologically correct, accurate, and complete, including:

- a) no erroneous overshoots, undershoots, dangles or intersections in the line work;
- b) point and line features snap together where appropriate to support networks (e.g. do not break linear features for labeling or other aesthetic purposes);
- c) all features clip to the spatial extent of the map display areas or study area boundary as appropriate (e.g. no global rasters for a northeast U.S. document);
- d) continuous lines and point features digitized as points;

- e) no sliver polygons;
- f) coincident common boundaries for all digitally-represented graphic features, regardless of feature layer;
- g) attributes used for consistency and labeling throughout a GIS project;
- h) no 'NULL' geometries in feature classes;
- i) data deliverables consistent with all map documents (.mxd or image);
- j) file names contain no spaces or special characters aside from '_' (includes data, .mxd, and image files), and match between .mxd and images.