

Data and Information Sharing Plan Information and Guidance

NOAA Ocean Exploration (NOAA Office of Ocean Exploration and Research) is subject to NOAA Public Access to Research Results (PARR)¹ policy and the implementing guidance contained in NOAA Environmental Data Management Committee (EDMC) procedural directives.² The PARR policy is NOAA's response to the White House Office of Science and Technology Policy (OSTP) memorandum dated February 22, 2013: Increasing Access to the Results of Federally Funded Scientific Research.³

The Data and Publication Sharing Directive for NOAA Grants, Cooperative Agreements, and Contracts is the procedural directive specific to competitive awards.⁴ This procedural directive requires NOAA Ocean Exploration to 1) provide guidance for applicants to use in developing a data management plan, 2) confirm data management plans ensure public accessibility and long-term preservation of NOAA-funded data, and 3) track and enforce conditions imposed on grant recipients.

Environmental data and information collected or created under NOAA grants and cooperative agreements must be archived (long term) and made discoverable by and accessible to the general public in a timely fashion (preferably within one year, but no later than publication of a peer-reviewed article based on the data, or two years after the data are collected and verified, or two years after the original end date of the grant, whichever is soonest, unless a delay has been authorized by NOAA Ocean Exploration). It must be free of charge or at a cost no greater than the cost of reproduction, except where limited by law, regulation, security requirements, or policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information).⁵ Data must be made available in at least one machine-readable format, preferably a widely used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards (i.e., ISO 19139).

Proposals submitted in response to the Ocean Exploration Fiscal Year 2023 Funding Opportunity must include a data and information sharing plan (DISP) of no more than two pages describing how NOAA Ocean Exploration's requirements for environmental data and information will be satisfied. The DISP should be aligned with the data management guidance provided by NOAA in the funding announcement and within this document. The content of the DISP (or absence thereof) and past compliance with such plans will be considered as part of the proposal review.

A typical DISP should include:

- Descriptions of all the types of environmental data, information, and products expected to be collected or created during the course of the project (with instruments if applicable), including those that may lead to publication.
- The expected open-access, machine readable data formats for all data types (e.g., .csv, ASCII, .shp, etc.).
- The expected metadata standard to be used (ISO 19139) and/or additional data descriptors.
- The anticipated archive location(s) for each data type planned.
- Method(s) to be used for providing data access.
- The tentative date by which all data will be shared.
- Approximate total volume of data to be collected (volume of each data type with totals preferred).
- A note that documents and pre-publication manuscripts will be submitted to the NOAA Central Library's Institutional Repository (and be made section 508 compliant).^{8,9}
- Prior experience in making such data accessible and discoverable (preferably with links to access the data).

At a minimum, grant recipients are expected to submit all applicable raw data to NOAA's National Centers for Environmental Information (NCEI), which will provide public access, discoverability, and permanent archiving.^{6,7} Accepted submission of properly formatted data to the NCEI archive is one way to satisfy NOAA Ocean Exploration's data sharing and archiving requirements. However, NCEI is not obligated to accept all data and may charge a fee, particularly for large or unusual datasets. The costs of data preparation, data management, and making data publicly accessible are necessary to meet the requirements of the data sharing procedural directive,⁴ and applicants should include these costs in their proposal budget. For example, if more than 100GB of data are expected to be produced, an applicant will be asked to provide NCEI with their data on a hard drive that will be returned to them once archived. NOAA Ocean Exploration's data management team may be available to provide some assistance if needed.

At NOAA's discretion, NOAA may make a funded proposal's DISP publicly available. NOAA may also use information from a recipient's DISP to produce a formal metadata record and include that metadata record in an online catalog to indicate the pending availability of new data.

Applicants are hereby notified that scholarly publications and reports on work partially or fully funded by NOAA must be submitted to the NOAA Institutional Repository. The final pre-publication manuscript of articles should be submitted to the repository after acceptance by the journal, and no later than upon publication. Grant recipients must provide NOAA Ocean

Exploration with a citation and link to the publication. Submitted documents are also required to be compliant with Section 508, an amendment to the United States Workforce Rehabilitation Act of 1973.^{8,9} Manuscripts will be made publicly available by the NOAA Institutional Repository one year after publication by the journal. Grant recipients are encouraged to publish in open-access journals, where appropriate. Publications produced via funding under this notice of funding opportunity should cite the NOAA Ocean Exploration and the grant number as the funding source.

PARR Compliance Guide

NOAA Ocean Exploration will consult with grant recipients on DISPs to help them fully comply with PARR requirements. Responsibility for meeting these requirements may rest solely with the grant recipient or be shared between the grant recipient and NOAA, depending on the terms of the final DISP. For reference, the following additional requirements define full PARR compliance including specifications set by NOAA Ocean Exploration:

- Datasets (at least raw data) from every instrument/sensor (including ship-based and submersible-based data) are provided in archive-ready, machine-readable, open-source, nonproprietary formats at a minimum to NCEI, if applicable.
- Datasets of scientific logging and first-hand scientific observations are preserved and converted into archive-ready formats.
- All datasets used to support the conclusions of a peer-reviewed publication are made available in a form that permits verification and reproducibility of the results.
- Datasets are accompanied by ISO metadata with all mandatory elements completed, including any additional information, such as data quality, acquisition software settings, etc., necessary for an end user to completely understand the dataset and be able to use it.
- Post-processed datasets, data products, and reports generated by the researcher are made discoverable and accessible to the public (preferably through NCEI) and documented with metadata, including descriptions of processing steps and quality assurance methods.
- The full complement of data is archived (long-term), stewarded, and made discoverable by and accessible to the public (preferably through NCEI).
- Final pre-publication manuscripts, compliant with Section 508,^{8,9} of scholarly articles produced by recipients of federal funds are submitted to the NOAA Institutional Repository after acceptance, and no later than upon publication.

Further Guidance

If applicable, provide geospatial information for data collection locations to improve data visualization, data discovery, and data access via NCEI-NOAA Ocean Exploration map viewers and data access portals. More information is provided in the ArcGIS guidance materials.¹⁰

- Provide ship tracks to accompany expedition-level data access (preferably shapefiles).
- Provide ROV/AUV dive tracks (or in-water coordinates) to accompany dive-level data visualization (preferably shapefiles for dive tracks).
- Provide coordinates of stationary data collection stations.
- Provide a geographic coordinate system and/or projected coordinate system for the submitted geospatial information to ensure accurate representation of data collection sites.

Additionally, NOAA Ocean Exploration asks grant recipients to send a full file manifest to NCEI to aid in archiving and data tracking for the project.

¹<https://repository.library.noaa.gov/view/noaa/10169>

²<https://nosc.noaa.gov/EDMC/PD.all.php>

³<https://repository.library.noaa.gov/view/noaa/13809>

⁴https://nosc.noaa.gov/EDMC/documents/Data_Sharing_Directive_v3.0.pdf

⁵http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_212/212-15.html

⁶<https://www.ncei.noaa.gov/archive>

⁷<https://www.ncei.noaa.gov/sites/default/files/2019-10/NCEI%20Archive%20Collecting%20Policy.pdf>

⁸<https://libguides.library.noaa.gov/friendly.php?s=Section508>

⁹<https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule>

¹⁰https://www.ncei.noaa.gov/sites/default/files/2022-03/NOAA_NCEI_OceanExploration_AGOL_Guidance.pdf