

NOAA Environmental Data Management Committee (EDMC) Procedural Directive
NOAA Data Sharing Policy for Grants and Cooperative Agreements
Date of Implementation: XX/XX/XXXX

Summary

All NOAA Grantees must share data in a timely fashion produced under NOAA grants and cooperative agreements, except where limited by law, regulation, policy or security requirements. Grantees must formally address this requirement by preparing a Data Sharing Plan as part of their grant project narrative.

Definitions

Environmental data are recorded and derived observations and measurements of the physical, chemical, biological, geological, and geophysical properties and conditions of the oceans, atmosphere, space environment, sun, and solid earth, as well as correlative data, such as socio-economic data, related documentation, and metadata. Media, including voice recordings and photographs, may be included. Environmental Data in the context of the Grants Data Sharing Policy at NOAA also have one or more of the following attributes: potential broad utility, significant NOAA funds were spent creating/collecting the data, are a reference data set, or are associated with community buy-in.

Sharing data refers to making data visible, accessible, and independently understandable to users in a timely manner at minimal cost, except where limited by law, regulation, policy or by security requirements. NOAA facilities that archive data and make the data openly available should be considered for the disposition of the data.

Implementation Process

- ❖ In the first year of implementation of this directive, program managers will have the option to require a Data Sharing Plan for new competitions, grants and cooperative agreements. All competitions, grants and cooperative agreements will be required to follow this procedural directive in the second year of implementation. Program managers should familiarize themselves with the definition of Environmental Data in the context of the Grants Data Sharing Policy at NOAA (above) to determine if their grantees are likely to produce Environmental Data. Lessons learned will be reported by program managers to the Environmental Data Management Committee and incorporated into this procedural directive as needed.
- ❖ The default language in competition announcements will indicate Environmental Data must be shared starting no later than 90 days after the end date of the project and that a 2-page Data Sharing Plan is required to be part of the project narrative.
 - The timeliness for sharing data (90 days after the end date of the project) allows program managers to determine if data were shared at the time they are approving the final report and take enforcement actions if necessary. Meeting this 90-day target will place NOAA in a leadership role with regard to expanding access to data collected using federal funds. However, program managers should consider that in many cases the data available at this time will be pre-publication data and not of archival quality. The cost to make data

available prior to final analyses by the Principal Investigator (and the risk to the Principal Investigator not being the first to publish scientific results based on their own data) should be weighed against the potential benefit of the provisional data to the wider community. Should the program manager choose not to support the default requirement “90 days after the end date of the project”, the program manager can indicate the actual timeliness desired in the competition announcement.

- Similarly, if a 2-page Data Sharing Plan would not be adequate, the program manager can indicate actual information required (e.g., a complete Data Management Plan) in the competition announcement.

Implementation Language

The following language will be incorporated for competition announcements:

Environmental data and information collected and/or created under NOAA grants/cooperative agreements must be made visible, accessible, and independently understandable to general users in a timely manner free of charge or at minimal cost that is no more than the cost of distribution, except where limited by law, regulation, policy or by security requirements.

1. Unless otherwise noted in the federal funding announcement, data should be made available no later than 90 days after the end date of the project.
2. Unless otherwise noted in the federal funding announcement, a Data Sharing Plan of no more than two pages shall be required as part of the Project Narrative. A typical plan may include descriptions of the types of environmental data created during the course of the project; the standards to be used for data format and content; policies addressing data stewardship and preservation; previous data sharing experience; and procedures for providing access, sharing, and security. The Data Sharing Plan will be reviewed as part of the NOAA Standard Evaluation Criterion “Importance and/or relevance and applicability of proposed project to the mission goals.”

There will be a flier/PDF with Frequently Asked Questions about the grants data sharing policy distributed widely to the grants community via NOAA Grants Management Advisory Council members. The Environmental Data Management Committee will circulate the flier/PDF to NOAA program managers and maintain a website with guidance and answers to questions raised by NOAA and non-NOAA persons. At a minimum, the flier/PDF/website with Frequently Asked Questions will address what is considered “independently understandable”, “a reference dataset”, “data associated with community buy-in” and more information about the meaning of the required disclaimer “These environmental data have not been formally disseminated by NOAA, and do not represent and should not be construed to represent any agency determination, view, or policy.”

The following language will be incorporated in new competitive awards:

Environmental data and information collected and/or created under this grant/cooperative agreement will be made visible, accessible and independently understandable to general

users in a timely manner free of charge or at minimal cost that is no more than the cost of distribution, except where limited by law, regulation, policy or by security requirements.

1. Unless otherwise noted in the federal funding announcement, data should be made available no later than 90 days after the end date of the project.
2. Environmental data produced under this award and made available to the public must include the following statement: These environmental data have not been formally disseminated by NOAA, and do not represent and should not be construed to represent any agency determination, view, or policy.

The following language (or modified to reflect timeline/plan needed by the program) will be incorporated in new non-competitive awards:

Environmental data and information collected and/or created under this grant/cooperative agreement will be made visible, accessible and independently understandable to general users in a timely manner free of charge or at minimal cost that is no more than the cost of distribution, except where limited by law, regulation, policy or by security requirements.

1. Data should be made available no later than 90 days after the end date of the project.
2. A Data Sharing Plan of no more than two pages must be submitted for review and acceptance by the NOAA Federal Program Officer and/or NOAA Grants Officer prior to or as part of the first progress report for this grant.
3. Environmental data produced under this award and made available to the public must include the following statement: These environmental data have not been formally disseminated by NOAA, and do not represent and should not be construed to represent any agency determination, view, or policy.

Directive Review and Metrics

This procedural directive shall be reviewed by the NOAA/EDMC annually and lessons learned will be incorporated as needed. Success occurs if a high percentage of data produced under NOAA Grants/Cooperative Agreements is made visible, accessible and independently understandable to users in a timely manner at minimal cost. Indicators of success will be:

- A low number of enforcement actions taken by NOAA due to lack of data sharing by the grantees
- Spot checks by NOAA personnel requesting data indicate grantees are following their Data Sharing Plans and the data are visible, accessible and independently understandable in a timely manner at minimal cost

- NOAA Federal Program Officers report benefits of data sharing
- NOAA Archive Centers report benefits of data sharing
- NOAA grantees report benefits of data sharing
- Users of data report benefits of data sharing
- Other agencies use NOAA policy as a model for data sharing

[Attention NOAA Grantees: New policy for sharing environmental data collected/created using NOAA funds](#)

Frequently Asked Questions

What is meant by "environmental data"? Environmental data are recorded and derived observations and measurements of the physical, chemical, biological, geological, and geophysical properties and conditions of the oceans, atmosphere, space environment, sun, and solid earth, as well as correlative data, such as socio-economic data, related documentation, and metadata. Media, including voice recordings and photographs, may be included. Environmental Data in the context of the Grants Data Sharing Policy at NOAA also has one or more of the following attributes: potential broad utility, significant NOAA funds were spent creating/collecting the data, are a reference data set, or are associated with community buy-in. Refer to the solicitation and/or contact the funding program if you are unsure if the data you are collecting/creating meets the criteria. Examples of data that meet the criteria are:

- data for location/measurement/time that has large multidisciplinary community interest (potential broad utility),
- data collected at a cost to NOAA exceeding \$500K (significant NOAA funds spent to collect the data),
- data intended for use evaluating other data sets (reference data set), or
- data that others in the scientific discipline must concur are accurate prior to the data serving its primary purpose (data associated with community buy-in).

What is meant by "sharing"? Sharing data refers to making data visible, accessible, and independently understandable to users in a timely manner at minimal cost, except where limited by law, regulation, policy or by security requirements. NOAA facilities that archive data and make the data openly available should be considered for the disposition of the data.

- **What is considered "timely"?** This will depend on the program awarding the grant or cooperative agreement, and the nature of the research project conducted. Time requirements for data sharing will generally be spelled out in the Federal Funding Opportunity (FFO) announcement

In general, data that have potential usefulness to others are expected to be made available as soon as possible consistent with logistical considerations. Data from small studies can be analyzed and ready for publication and sharing relatively quickly. If data from large studies are collected over several discrete time periods or waves, data should be released in waves as they become available or main findings from waves of the data are published.

NOAA recognizes that the investigators who collected the data have a legitimate interest in benefiting from their investment of time and effort. NOAA continues to expect that the initial investigators may benefit from being the first user of the data, but not from prolonged or indefinite exclusive use.

In any case, unless otherwise indicated in the FFO, data must be shared no later than 90 days after the project end date. Documentation and metadata should clearly indicate the status of the dataset (initial raw data, draft data with only rudimentary quality controls, partial dataset, final data, etc).

- **What is meant by “independently understandable”?** The data must be accompanied with documentation, metadata and, if needed, tools to read the data that allow a user to interpret the data properly. If there are concerns with understandability, they can be reported to NOAA, who will do an independent check.
- **Who will determine if my data are visible, accessible and independently understandable?** The person generating the data will have first responsibility for determining this. Common data quality standards in your scientific discipline may help you decide if the data are understandable. Ultimately, others who use your data will know whether they are visible, accessible and understandable to them. If there are concerns with data access or understandability, they can be reported to NOAA, who will do an independent check.
- **What are examples of law, regulation, policies or security requirements that may limit my ability to share data?** Policies applicable to protection of personally identifiable information, critical infrastructure information or proprietary trade information as well as regulations related to export control may impact your ability to share data, among other items.

Why share data? The greater the availability of the data, the more quickly and effectively user communities can develop innovative practical applications for public benefit. In many cases these applications will be in areas not originally anticipated by the principal investigator. In addition, NOT making data available that supports scientific findings may provide reason to doubt the validity of the findings and limit their usefulness. More information about data sharing concerns are in a 2007 GAO Report, <http://www.gao.gov/new.items/d071172.pdf>, “Climate Change Research: Agencies Have Data-Sharing Policies but Could Do More to Enhance the Availability of Data from Federally Funded Research.” The GAO report specifically recommends NOAA consider evaluating data sharing plans as part of the grant review process.

Data sharing is widely accepted as a good practice. National scientific organizations have made a commitment to the sharing and archiving of data through their ethical codes (e.g., the American Sociological Association) or publication policies (e.g., the American Psychological Association). More than 15 years ago, the National Academy of Sciences described the benefits of sharing data. (See <http://books.nap.edu/catalog/2033.html>) For many years, the National Science Foundation (NSF) Economics Program has required data underlying an article arising from an NSF grant to be placed in a public archive. Similar expectations exist at the National Institute of Health, and the National Institute of Justice. Moreover, many scientific journals require that authors make available the data included in their publications.

How must data be shared? This depends on the nature of the project and the data, and will be proposed by the investigator himself. Grant and cooperative agreement proposals will need to include a Data Sharing Plan as part of the Project Narrative. A typical plan may include descriptions of the types of environmental data created during the course of the project; the standards to be used for data format and content; policies addressing data stewardship and preservation; and timelines and procedures for providing access, sharing, and security. Data sharing can be accomplished through:

Data Archive—place where data are acquired, manipulated, documented, and distributed. NOAA facilities that archive data and make the data openly available should be considered.

Data Enclave—controlled, secure environment in which eligible researchers can perform analyses using data resources.

Publishing—articles in scientific publications.

Researcher's Efforts—investigator responds directly to data requests (e.g., posting data on a Web site).

Environmental data and information made available to the public by the grantee must include the following statement: *These environmental data have not been formally disseminated by NOAA, and does not represent and should not be construed to represent any agency determination, view, or policy.* In order to remove this disclaimer NOAA must verify that the data meets NOAA Information Quality Act guidelines and approve the dissemination of the data to the public.

Who benefits from data sharing? Everyone benefits, including investigators, funding agencies, the scientific community, and, most importantly, the public. Data sharing provides more effective use of NOAA resources by avoiding unnecessary duplication of data collection. It also conserves research funds to support more investigators. The initial investigator benefits, because as the data are used and published more broadly, the initial investigator's reputation grows.

Does data sharing pertain only to published data? No. Data-sharing plans should encompass all data from funded research that can be shared without compromising individual subjects' rights and privacy, regardless of whether the data have been used in a publication. Furthermore, data sharing prior to the publication of major results is encouraged in many instances, for example, when data are collected to provide a resource for the scientific community (as in the case of many large surveys).

Is data sharing the same as data archiving? No, an archive is one way to share data but not the only way. For instance, data sharing could be a conference presentation followed by providing a personal or institutional website link upon request that has both data and metadata/contextual details describing the data included.

Data from my studies are generated from a very small number of experimental samples, and I publish the final data. Am I expected to provide these data to other investigators as well? Publishing these final data can constitute an acceptable mechanism for sharing data. If only some of the final data are published, however, you would need another mechanism to share the remaining data.

What is the significance of "90 days after the project end date"? Unless otherwise noted in the Federal Funding Opportunity, data must be shared no later than 90 days after the project end date. This strikes a balance between providing grantees with initial periods of exclusive use time to prepare and submit publications and providing NOAA Federal Program Officers the ability to verify compliance.

Can I get an exemption? If you determine it is impractical or not possible to share data according to NOAA policy you may include a request for an exemption of this requirement in your original proposal to collect/create data. If your proposal is funded verify the special award conditions indicate you are exempt from the data sharing requirement prior to accepting the award. If you determine post-award you require an exemption you may submit a request with an explanation as a post-award action request to the NOAA Federal Program Officer for consideration. You do not need to request an exemption when data sharing is limited by law, regulation, policy or security requirements. You do need to request an exemption if you are holding onto data until publication well after the project end date.

What if I don't want to share my data? Data sharing plans will become a part of every new research grant and cooperative agreement proposal to NOAA. By accepting a grant award, you are agreeing to perform the work proposed, including the data sharing. If you fail to share your data as you proposed, you could be subject to a number of sanctions, including denial of future grant awards, freezing of funds in your current award, or in extreme cases even being forced to repay the grant award to the government.

Can I share data with colleagues under my own auspices? Yes. Your data-sharing plans should indicate the criteria for deciding who can receive your data and whether or not you will place any conditions on their use. Data should be made as widely and freely available as possible while safeguarding the confidentiality of the data and privacy of participants. You should not place limits on the questions or methods others might pursue nor should you require co-authorship as a condition for receiving the data.

I'm a busy investigator. I don't have time to process requests for my data. What should I do? In addition to publishing small datasets, there are several alternatives to responding to each separate request to share data (e.g., putting data in an archive or restricted access facility, and setting up a web site for data access). Archives and data enclaves provide technical assistance for users with questions or problems and may spare busy investigators time.

Can I get additional funding to share my data? Unless otherwise noted in the federal funding announcement, funding to address data sharing must be requested as part of the proposal to collect/create data. The data sharing plans and related funds requested should consider the anticipated benefit of the data, the likely number of interested users of the data and the priorities of the program as outlined in the solicitation.

I am the PI of a large [Cooperative Institute/Sea Grant/similar] program funded by an omnibus grant which in turn manages a number of individual research projects. Must every individual project have its own data sharing plan, or can I develop a program-wide data sharing plan? As the omnibus grant recipient, you have a responsibility to see that data sharing plans are followed for all research projects under your program. This may be done with a single Program-wide data sharing plan, individual plans for individual projects, or something in between, as long as all the relevant data generated is covered under some data sharing plan.

What web resources are available to help me do this and obtain more information? There is information available at the NOAA Environmental Data Management Committee website reachable from www.nosc.noaa.gov. In general considering data sharing requirements **prior** to finalizing the methods for collecting/creating/storing the data will save time and effort later on. Unless otherwise noted in the federal funding announcement there is no specific data sharing plan template required.

The NOAA Program I apply to already requires an extensive Data Management Plan. Do I still need to do a Data Sharing Plan? Not necessarily, refer to the specific NOAA Program federal funding announcement to determine if a Data Sharing Plan is needed.

My question wasn't on this list, is there a person I can call or email? Questions about specific sharing plans, grants, or RFPs should go to your Federal Program Officer or the contact listed in the specific Federal Funding Opportunity announcement of interest. More general questions can go to members of the NOAA Environmental Data Management Committee, who are listed at <https://www.nosc.noaa.gov/EDMC/membership.php>. Specifically the chair or deputy chair will take your general questions and work to answer them and add them to this list.