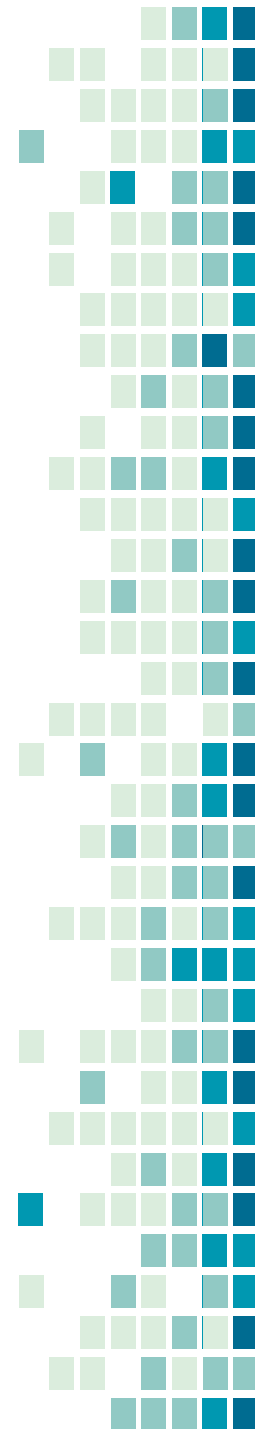


Creating Effective Data Management Plans for Ecological Research

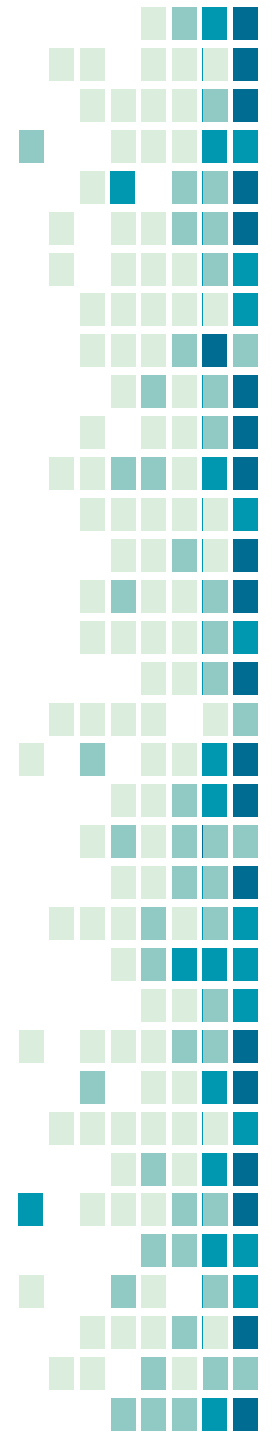
Agenda

- Creating an effective data management plan
- DMPTool overview, demo and resources



Why plan?

- Ensures you and others will be able to understand and use your data now and in the future



Ten Simple Rules for Creating a Good Data Management Plan

William K. Michener 

Published: October 22, 2015 • <https://doi.org/10.1371/journal.pcbi.1004525>

329 Save	10 Citation
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Article	Authors	Metrics	Comments	Related Content
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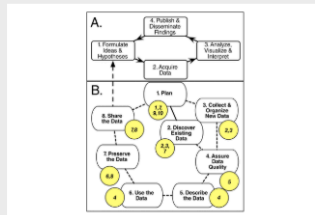
Print **Share**

 Check for updates

Introduction

- Rule 1: Determine the Research Sponsor Requirements
- Rule 2: Identify the Data to Be Collected
- Rule 3: Define How the Data Will Be Organized
- Rule 4: Explain How the Data Will Be Documented
- Rule 5: Describe How Data Quality Will Be Assured
- Rule 6: Present a Sound Data Storage and Preservation Strategy
- Rule 7: Define the Project's Data Policies
- Rule 8: Describe How the Data Will Be

Figures








<p>Citation: Michener WK (2015) Ten Simple Rules for Creating a Good Data Management Plan. PLoS Comput Biol 11(10): e1004525. https://doi.org/10.1371/journal.pcbi.1004525</p>
<p>Editor: Philip E. Bourne, National Institutes of Health, UNITED STATES</p>
<p>Published: October 22, 2015</p>
<p>Copyright: © 2015 William K. Michener. This is an open access article distributed under</p>

Included in the Following Collections

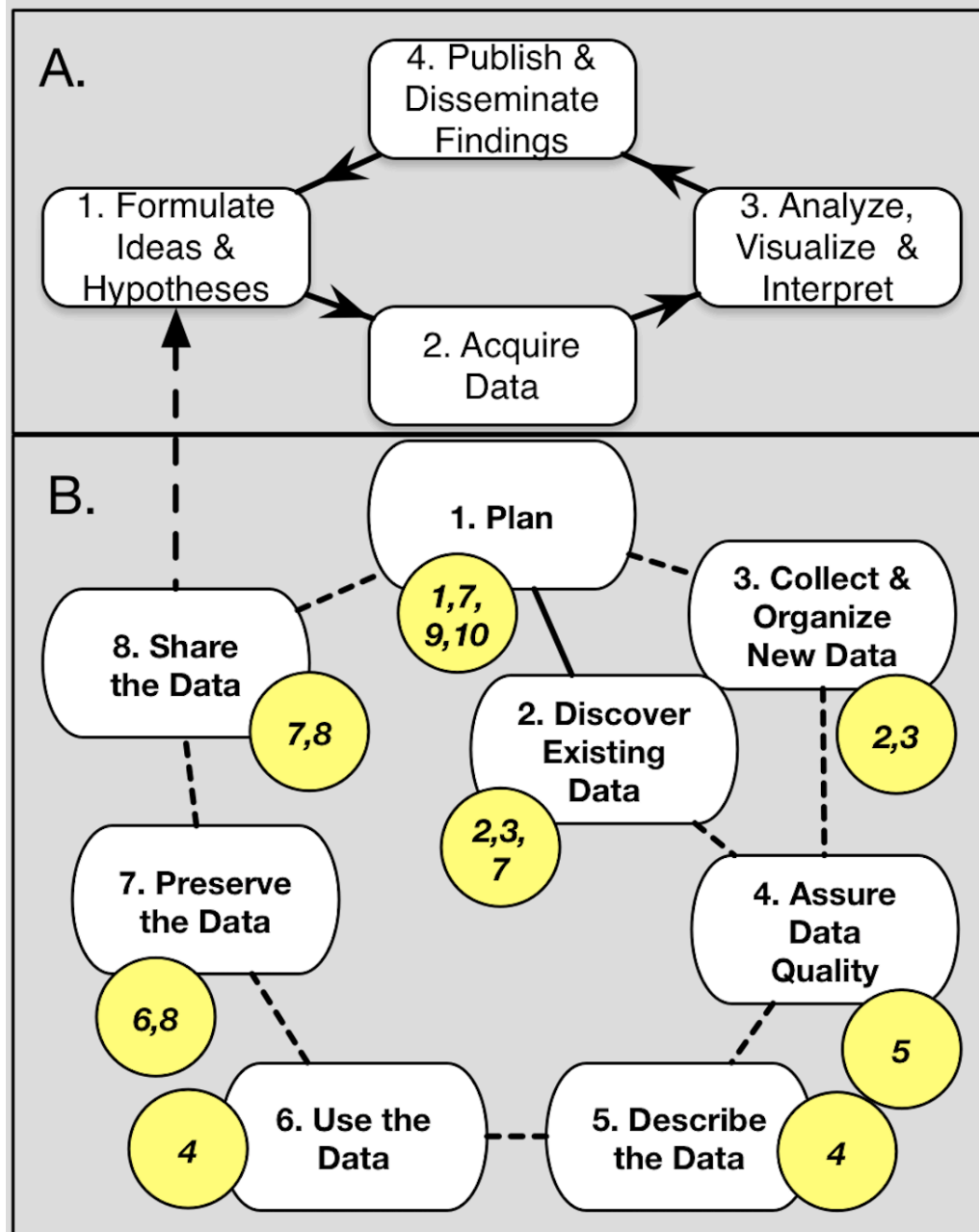
[Ten Simple Rules Open Data](#)

ADVERTISEMENT

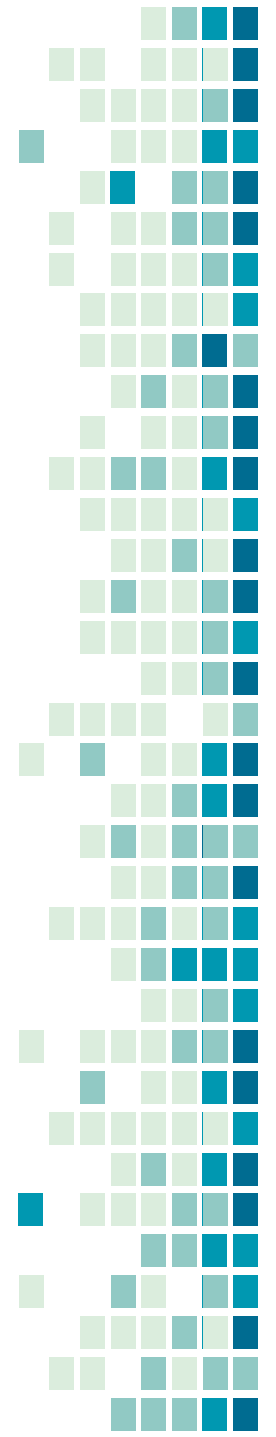
Subject Areas

- Data management** 
- Data processing** 
- Data visualization** 
- Data acquisition** 
- Biological data man** 

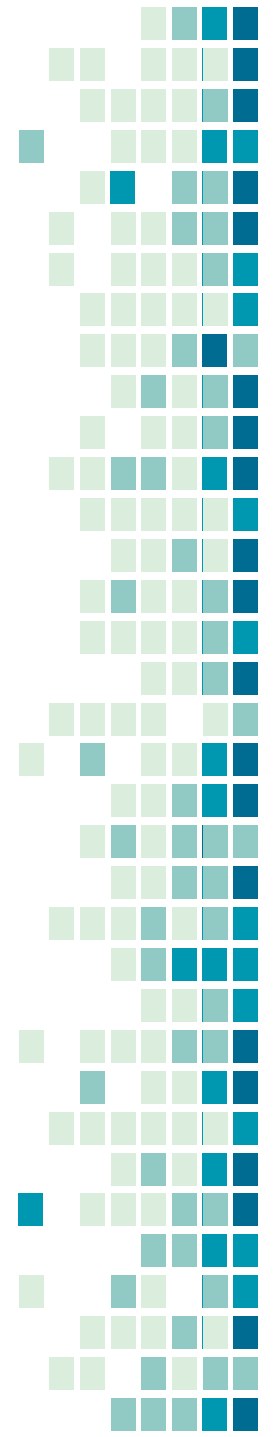
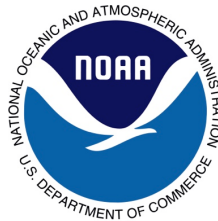
Research Life Cycle



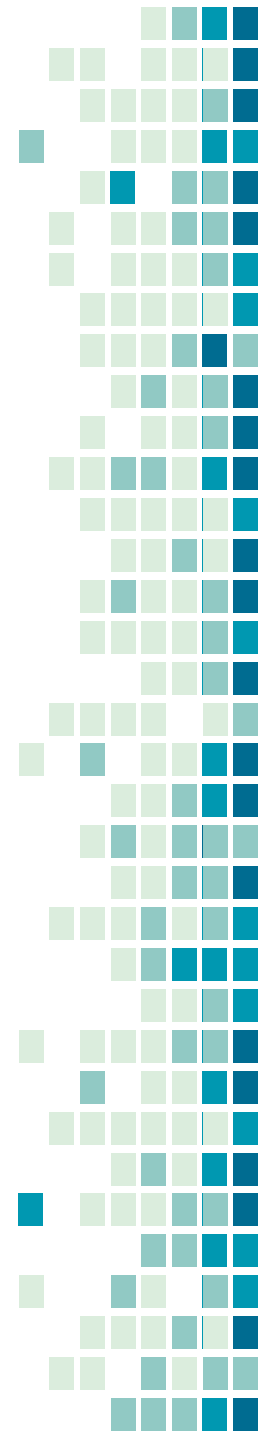
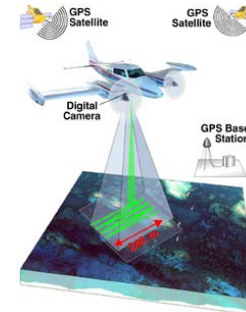
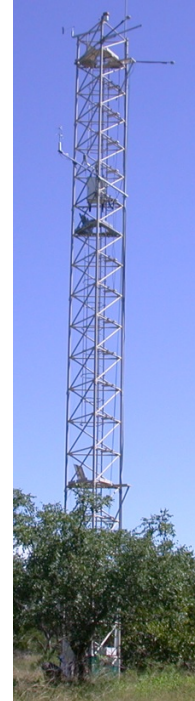
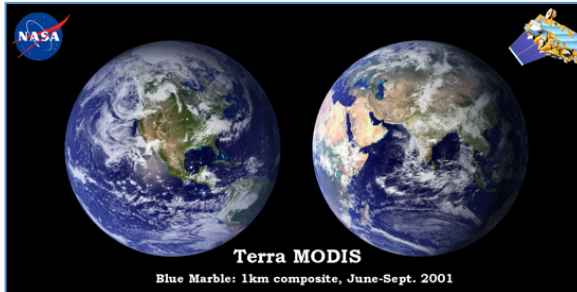
Data Life Cycle



Determine the research sponsor requirements



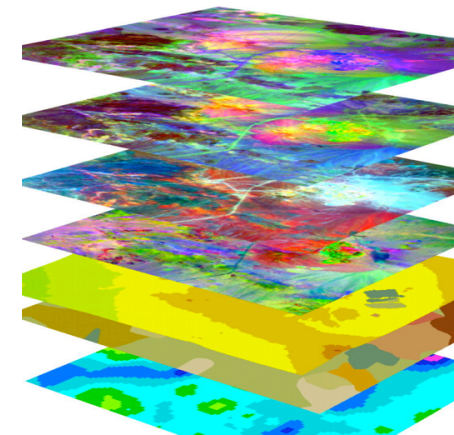
Identify the data to be collected: types; sources; volume; and data and file formats



Define how the data will be organized



A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Site	Date	Plot	Species	Weight	Acult	Rodent Trapping 3/15/2010							
2	DeepWell	2/13/2010	1	DIPO	12.1	j	Site	Plot	Adult	RodentSp	Weight			
3	Deep Well	Feb-10	2	Pero	13.22	j	DW		1 y	Pero		12		
4	rioSalado	2/13/2010	1a	pero	16	N	RS		2 j	PERO	escaped <15			
5	riuSladu	"	1*	CleGap	18.92	gut away	RS		3 n	Clegap		91		
6			Mean1		15.06									
7														
8														
9														
10														
11														
12	Rodent Trapping		MJK & ALN	10-Apr-10										
13	Site	Plot	Adult	Species	grams	Comments								
14	deep well		1 y	woodrat	13									
15	riosalado		2 y	PERO	24.5									
16	riosalado		3 y	Clegap	91									
17														
18														
19														
20														



Explain how the data will be documented

- Dublin Core, ISO 19115, EML
- Morpho, metavist, readme.txt
- Electronic notebooks

The Knowledge Network for Biocomplexity
Home Data People Informatics Biocomplexity Education Software

Morpho Data Management Software

Morpho allows you to create and manage your data, and to share it with others. It was created to provide an easy-to-use, cross-platform application for accessing and manipulating metadata and data (both locally and on the network).

Morpho allows ecologists to create metadata, (i.e. describe their data in a standardized format), and create a catalog of data & metadata upon which to query, edit and view data collections. In addition, it also provides the means to access network servers, in order to query, view and retrieve all relevant, public ecological data! Check the [Morpho User Guide](#) for details.

The basic operations that can be carried out using Morpho are:

- Create and Edit Metadata
- Search and Query Metadata Collections
- View Data and Data Collections
- Verify/Edit Data
- Provide Access Control
- Share Data via the KNB

Welcome to Morpho!

Data & Metadata (EML)

The image shows a data table with columns for TimeStep, Treatment, Replicate, TimeStep No., and various numerical values. Below the table is an XML file named 'jsci_example.xml' containing metadata for a scientist named Joe, including contact information and administrative details.

Jupyter nbviewer

JUPYTER FAQ </> [Icons]

Covariance function

The behavior of individual realizations from the GP is governed by the covariance function. The Matern class of functions is a flexible choice.

```
In [34]: from pymc.gp.cov_funcs import matern
import numpy as np
C = Covariance(eval_fun=matern.euclidean, diff_degree=1.4, amp=0.4, scale=1, rank_limit=1000)

subplot(1,2,2)
contourf(x, X, C(x,x).view(ndarray), origin='lower', extent=(-1,1,-1,1), cmap=cm.bone)
colorbar()

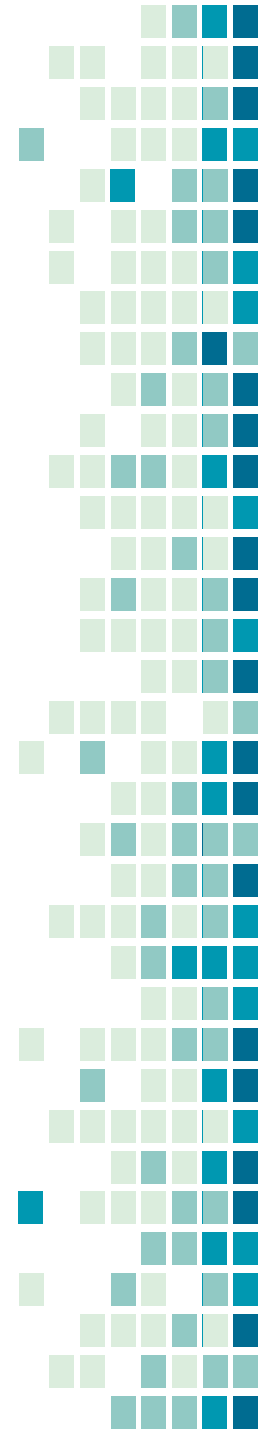
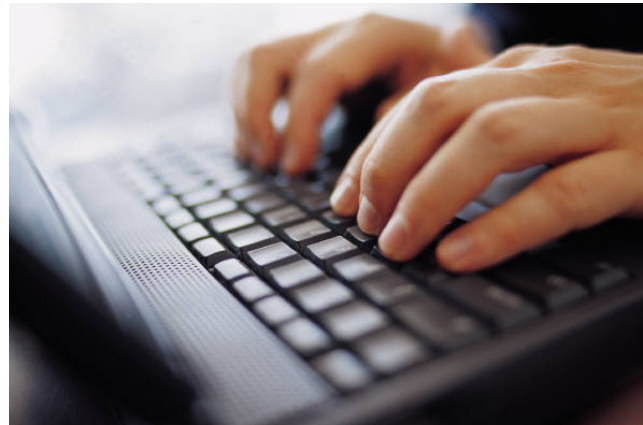
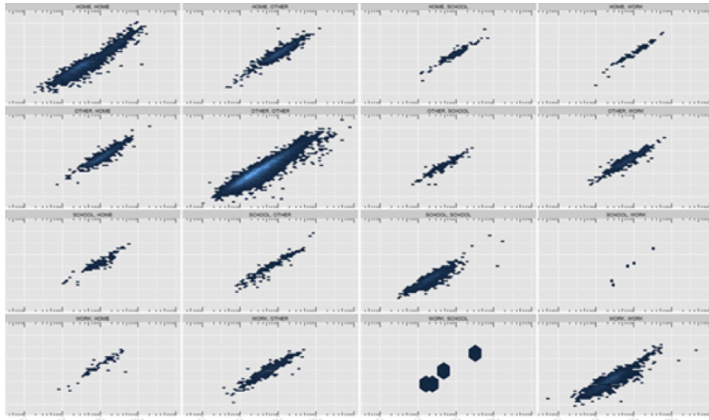
subplot(1,2,1)
plot(x, C(x,0).view(ndarray), 'k-')
ylabel('C(x,0)')
```

Out[34]: <matplotlib.text.Text at 0x112713290>

The figure displays a contour plot of the covariance function C(x,x) and a line plot of C(x,0) versus x. The contour plot shows a smooth, bell-shaped curve centered at x=0, with a color scale ranging from 0.000 to 0.175. The line plot shows the same curve as a solid black line, with the y-axis labeled C(x,0) ranging from 0.04 to 0.16.

Describe how data quality will be assured

- Training activities, instrument calibration and verification tests, double-blind data entry, and statistical and visualization approaches to error detection



Present a sound data storage and preservation strategy

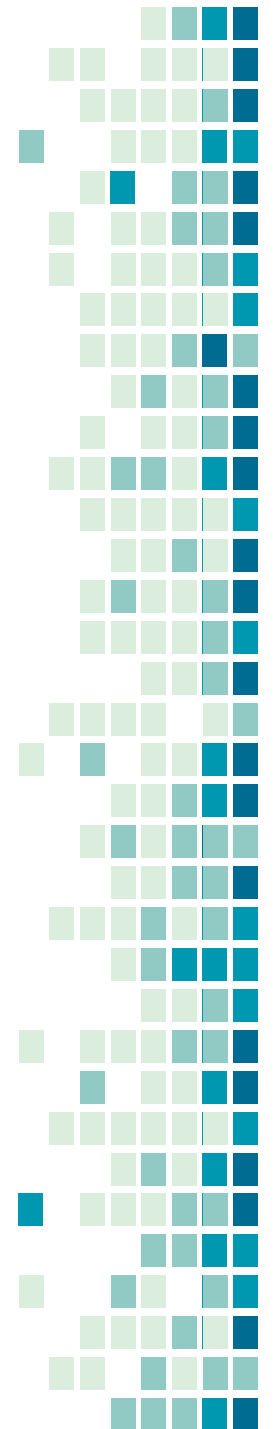
- How long will the data be accessible?
- How will data be stored and protected during the project?
- How will data be preserved and made available for future use?



GitHub

Define the project's data policies

- Licensing and data sharing arrangements
- Human subject and other sensitive data



Describe how the data will be disseminated

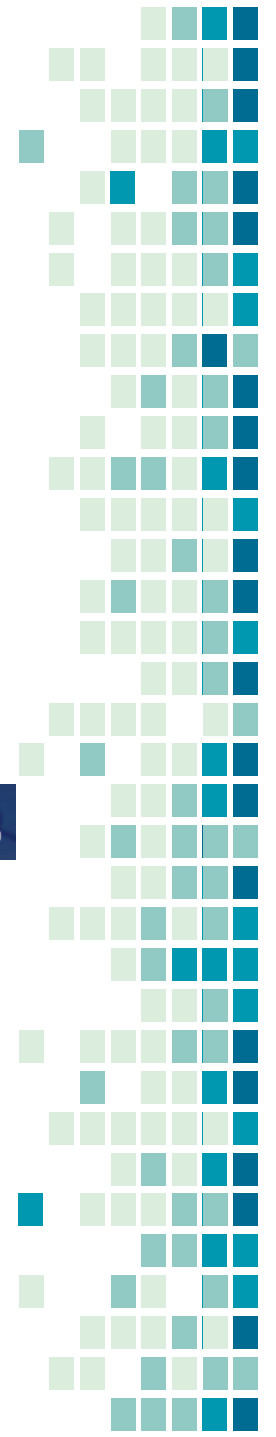
- More active, robust and preferred approaches include: (1) publishing the data in an open repository or archive; (2) submitting the data as appendices or supplements to journal articles; and (3) publishing the data, metadata, and relevant code as a “data paper”.



SCIENTIFIC DATA

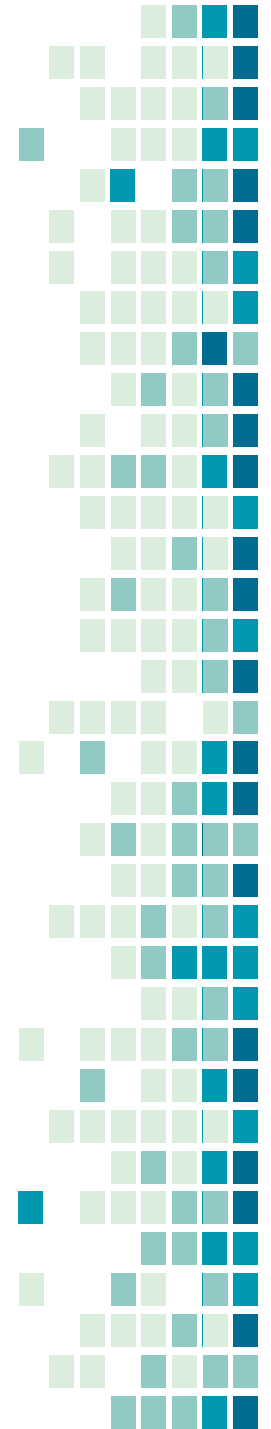
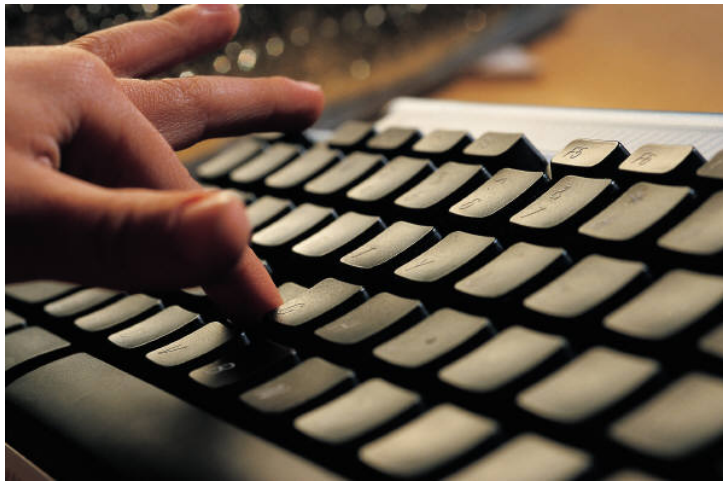
(GIGA)ⁿ
SCIENCE

GitHub



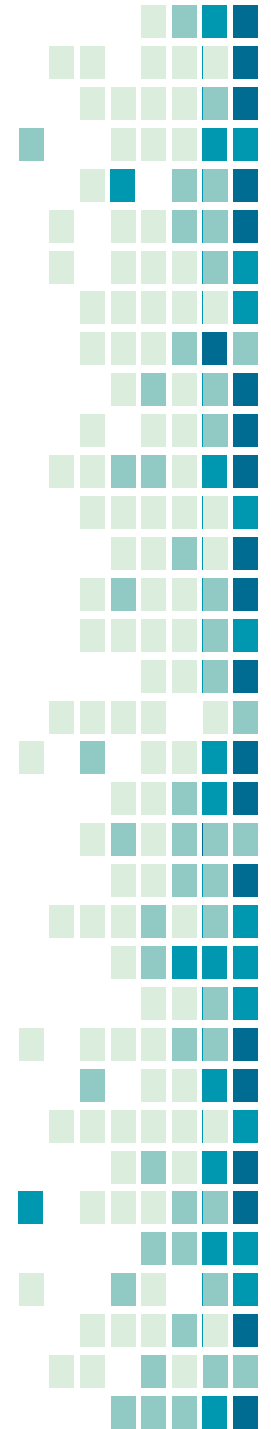
Assign roles and responsibilities

- Roles may include data collection, data entry, QA/QC, metadata creation and management, backup, data preparation and submission to an archive, and systems administration.



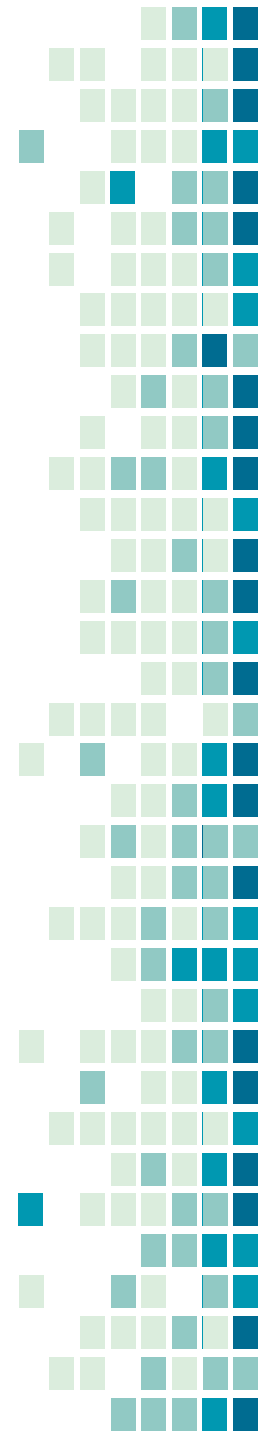
Prepare a realistic budget

- Review your plan and make sure that there are lines in the budget to support the people that manage the data as well as pay for the requisite hardware, software



How does one create a good DMP ?

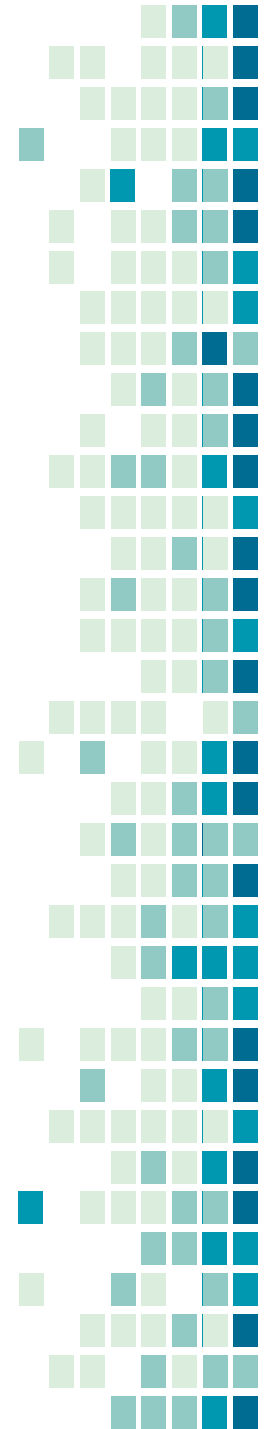
TRICKS
TRICKS





Tips & Tricks

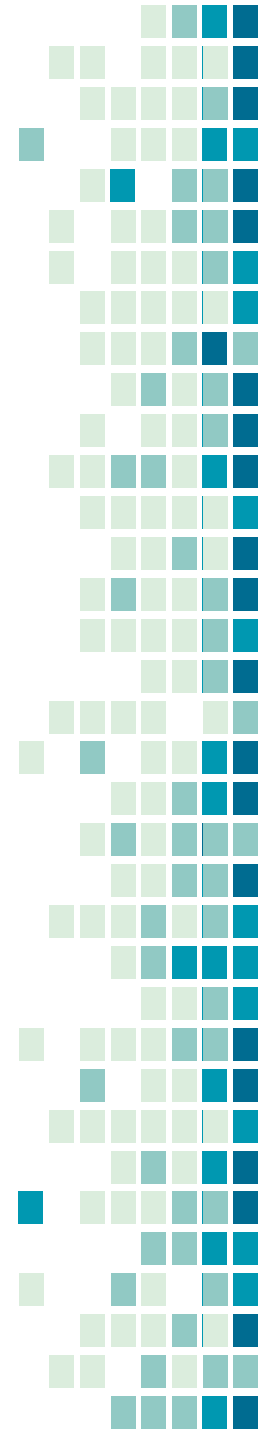
1. Engage everyone





Tips & Tricks

1. Engage everyone
2. Plan from the start





Tips & Tricks

1. Engage everyone
2. Plan from the start
3. Follow good advice
 - DataONE
 - Institutional Libraries

DataONE

www.dataone.org

Primer on Data Management: What you always wanted to know*

* but were afraid to ask

Carly Strasser, Robert Cook, William Michener, Amber Budden

Contents

1. Objective of This Primer	1
2. Why Manage Data?	1
2.1. It will benefit you and your collaborators	1
2.2. It will benefit the scientific community	2
2.3. Journals and sponsors want you to share your data	2
3. How To Use This Primer	2
4. The Data Life Cycle: An Overview	3
5. Data Management Throughout the Data Life Cycle	4
5.1. Plan	4
5.2. Collect	4
5.3. Assure	5
5.4. Describe: Data Documentation	5
5.5. Preserve	6
5.6. Discover, Integrate, and Analyze	7
6. Conclusion	7
7. Acknowledgements	8
8. References	8
9. Glossary	9



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5.6.	<i>Discover, Integrate, and Analyze</i>	7
6.	Conclusion	7
7.	Acknowledgements	8
8.	References	8
9.	Glossary	9



Your university librarian



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DMPTool
Build your Data Management Plan

Welcome
Create data management plans that meet institutional and funder requirements. [Get started](#)

DMPTool by the Numbers

30,846 Users 27,387 Plans [More](#)

Plan

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- Middlebury College
- Mississippi State University
- Missouri University of Science and Technology (MST)
- Montana State University (MSU)
- Moss Landing Marine Laboratories (CSU MLML)
- Mount Holyoke College (Mt Holyoke)
- Nanyang Technological University, Singapore (NTU)
- National Aeronautics and Space Administration (NASA)
- National Endowment for the Humanities (NEH)
- National Institute of Justice (DOJ)
- National Institutes of Health (NIH)
- National Science Foundation (NSF)
- National University of Singapore (NUS)
- Natural Resources Institute Finland (L)
- New York University (NYU)**
- North Carolina State University (NCSU)
- North Dakota State University (NDSU)
- Northeast Ohio Medical University (NEOH)
- Northeastern University (NEU)
- Northern Arizona University (NAU)
- Northwestern University (NU)
- Oakland University
- Ohio State University (OSU)
- Oklahoma State University
- Old Dominion University (ODU)
- Oregon State University
- Queen's University (QSU)

About Terms of use Privacy statement

expand all | collapse all [DSR @Research](#) Learn | Kathryn Meyer | English (US)

- + Data and Materials Produced (0 / 1)
- + Standards, Formats and Metadata (0 / 1)
- + Roles and Responsibilities (0 / 1)
- + Dissemination Methods (0 / 1)
- + Policies for Data Sharing and Public Access (0 / 1)
- Archiving, Storage and Preservation (0 / 1)

Where relevant, describe plans for archiving data, samples, software, and other research products, and for ongoing access to these products through their lifecycle of usefulness to research and education. Consider which data (or research products) will be deposited for long-term access and where. (What physical and/or cyber resources and facilities (including third party resources) will be used to store and preserve the data after the grant ends?)

Save

Guidance Comments

NSF DMPTool

Guidance

- NSF-BIO Guidance on DMPs
- NSF Proposal & Award Policies & Procedures Guide (PAPPG)
- NSF plans for data management and sharing of the products of research (PAPPG)
- NSF Frequently Asked Questions (FAQs) for Public Access

Discover




Tips & Tricks

1. Engage everyone
2. Plan from the start
3. Follow good advice
 - DataONE
 - Institutional Libraries
4. Use good tools
 - DMPTool
 - DMPOnline



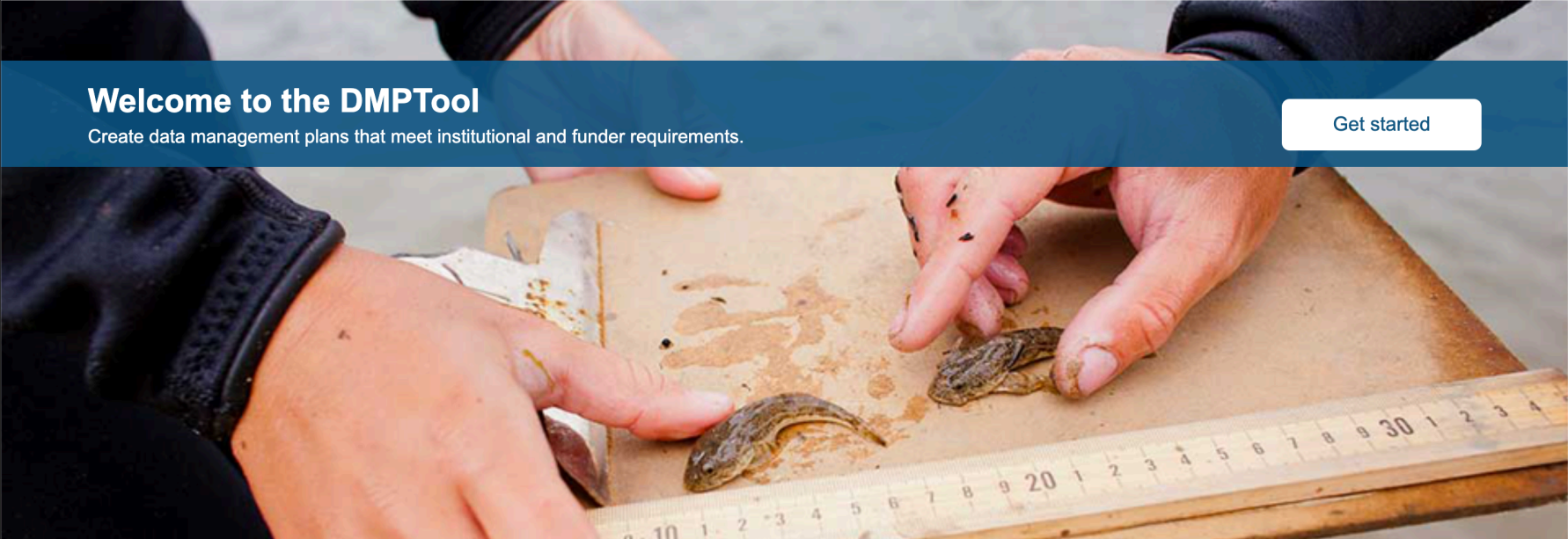
Browser tabs: DMPTool x +
Address bar: https://dmptool.org
Navigation: Learn Sign in Language






Welcome to the DMPTool

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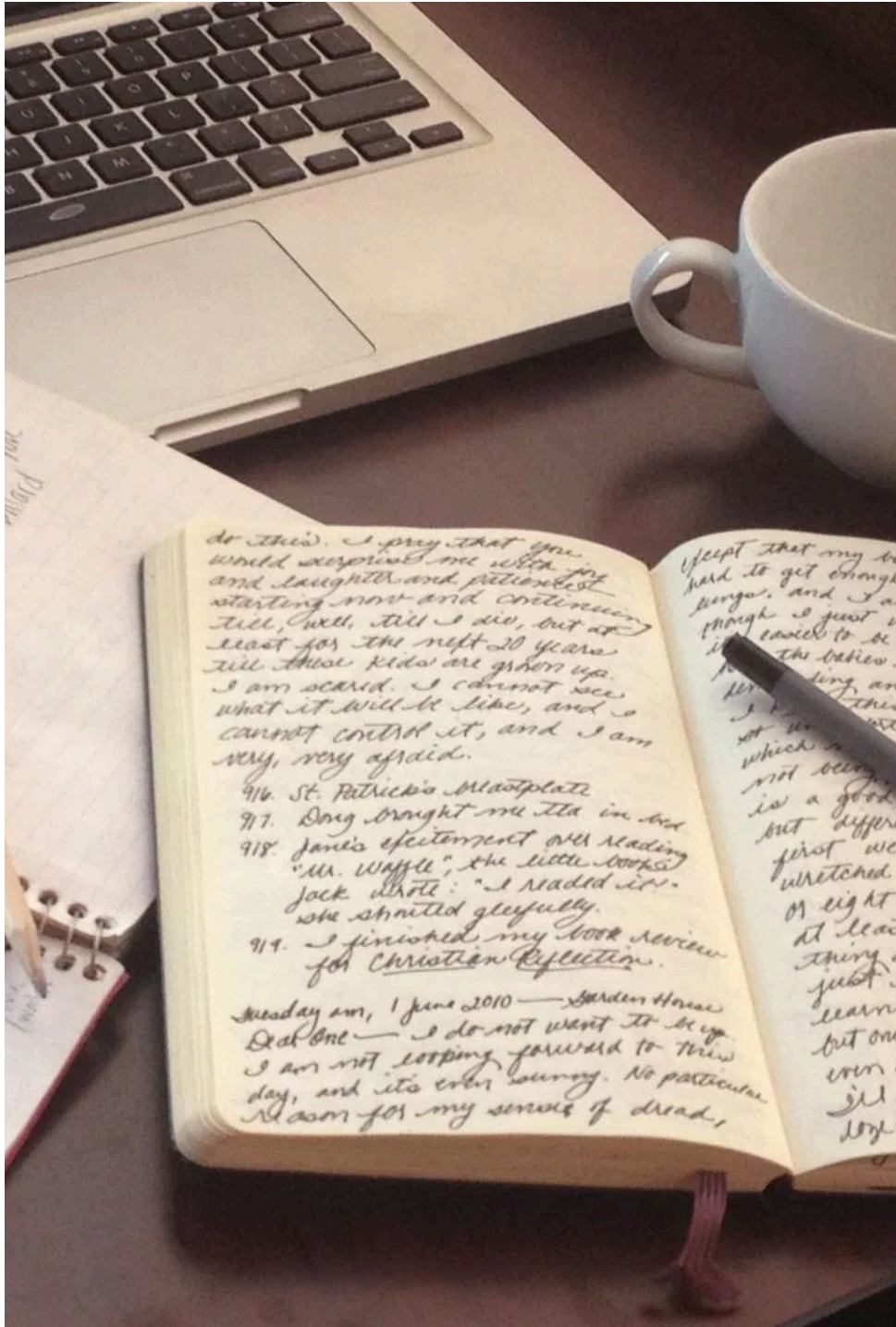
DMPTool by the Numbers

 39,658 Users	 36,636 Plans More	 252 Participating Institutions More
--	--	--

Top Templates

- Digital Curation Centre
- NSF-ENG: Engineering
- USDA-NIFA: National Institute of Food and Agriculture
- NIH-GEN: Generic
- NSF-SBE: Social, Behavioral, Economic Sciences

[More](#)



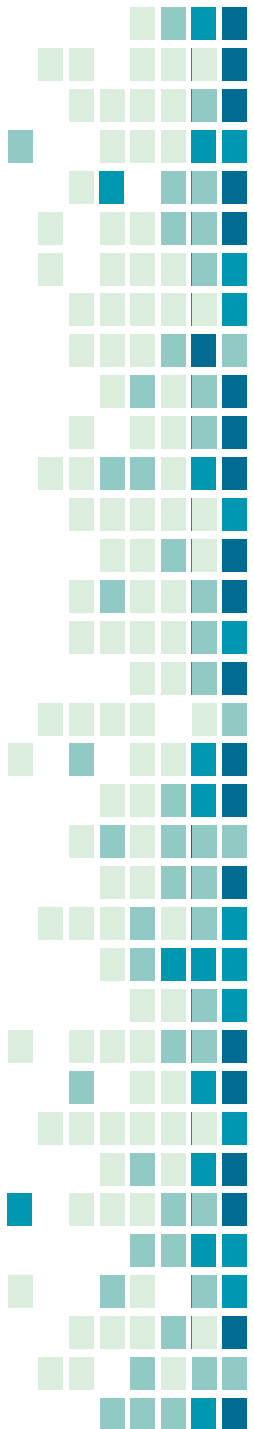
Tips & Tricks

1. Engage everyone
2. Plan from the start
3. Follow good advice
 - DataONE
 - Institutional Libraries
4. Use good tools
 - DMPTool
 - DMPOnline
5. Review and revise





Current DMP Tools



From [https://www.pinterest.com/](#)

DMPonline: dmponline.dcc.ac.uk

Welcome

DMPonline helps you to create, review, and share data management plans that meet institutional and funder requirements. It is provided by the Digital Curation Centre (DCC).

Join the growing international community that have adopted DMPonline:



17,622 Users



203 Organisations



23,083 Plans



89 Countries

Some funders mandate the use of DMPonline, while others point to it as a useful option. You can [download funder templates](#) without logging in, but the tool provides tailored guidance and example answers from the DCC and many research organisations. Why not sign up for an account and try it out?

Sign in Create account

* Email

* Password

Forgot password?

Remember email

Sign in

- or -

Sign in with institutional credentials (UK only)

Step-by-step wizard for generating DMP

Create | edit | re-use | share | save | generate

Open to community

DMPTool

https://dmptool.org

Learn Sign in Language




DMPTool
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DMPTool

Build your Data Management Plan

dmptool.org

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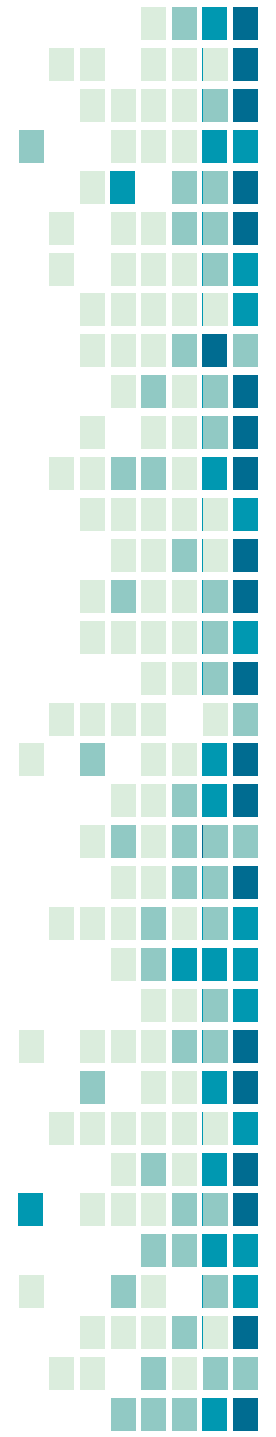
 39,658 Users	 36,636 Plans More	 252 Participating Institutions More
---	---	---

Top Templates

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[More](#)

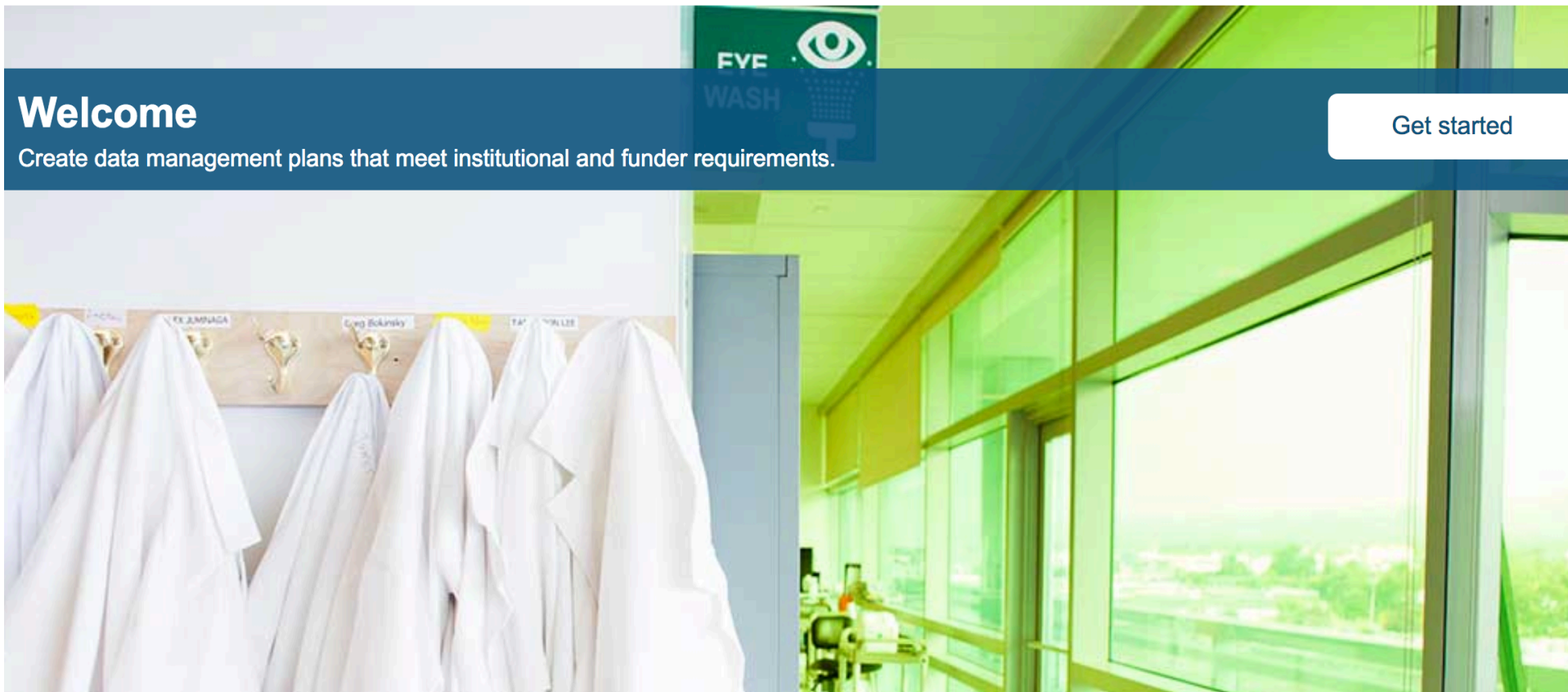
Data Management Planning Tool Guided Walk-Through



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Create data management plans that meet institutional and funder requirements.

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Users



27,622
Plans [More](#)



236
Participating Institutions [More](#)

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- Digital Curation Centre
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- NSF-SBE: Social, Behavioral, Economic Sciences
- USDA-NIFA: National Institute of Food and Agriculture
- NIH-GEN: Generic

[More](#)

- Funder Requirements
- Public Plans
- Participating Institutions
- FAQ
- For Researchers
- Start Guide
- General Guidance




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Create data management plans that meet institutional and funder requirements.


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236
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- Digital Curation Centre
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- NSF-SBE: Social, Behavioral, Economic Sciences
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- NIH-GEN: Generic

Funder Requirements

Templates for data management plans are based on the specific requirements listed in funder policy documents. The DMPTool maintains these templates, however, researchers should always consult the program officers and policy documents directly for authoritative guidance. Sample plans are provided by a funder or another trusted party.

Template ^	Download	Funder ⇅	Last Updated ⇅	Funder Links	Sample Plans (if available)
Alfred P. Sloan Foundation	DOCX PDF	Alfred P. Sloan Foundation	04-18-2018	Sloan Grant Proposal Guidelines	
Arctic Data Center: NSF Polar Programs [DRAFT]	DOCX PDF	National Science Foundation (NSF)	07-19-2018	NSF Arctic Data Center DMP Resources	
BCO-DMO NSF OCE: Biological and Chemical Oceanography	DOCX PDF	National Science Foundation (NSF)	04-24-2018	NSF OCE Sample and Data Policy NSF GEO Directorate Guidance	
Department of Defense (DOD)	DOCX PDF	Department of Defense (DOD)	04-11-2018	DOD Public Access Plan	
Department of Energy (DOE): Generic	DOCX PDF	Department of Energy (DOE)	04-25-2018	DOE Policy for Digital Research Data Management DOE Suggested Elements for a Data Management Plan	
Department of Energy (DOE): Office of Science	DOCX PDF	Department of Energy (DOE)	04-10-2018	DOE Office of Science Statement on Digital Data Management DOE Suggested Elements for a Data Management Plan	
Digital Curation Centre	DOCX PDF	Digital Curation Centre (DCC)	05-29-2018		
Digital Curation Centre (português)	DOCX PDF	Digital Curation Centre (DCC)	07-11-2018		

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Library of public DMPs



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- NIH-GEN: Generic

Welcome

Create data management plans that meet institutional and funder requirements.

Data management resources

Get started



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- NSF-SBE: Social, Behavioral, Economic Sciences
- USDA-NIFA: National Institute of Food and Agriculture
- NIH-GEN: Generic

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Create data management plans that meet institutional and funder requirements.

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[Get started](#)



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- Digital Curation Centre
- NSF-BIO: Biological Sciences
- NSF-SBE: Social, Behavioral, Economic Sciences
- USDA-NIFA: National Institute of Food and Agriculture
- NIH-GEN: Generic

Sign in options

Option 1: If your institution is affiliated with DMPTool.

Your institution

Select Institution

- or -

Option 2: If your institution is not affiliated with DMPTool.

Email address

- or -

Option 3: If not affiliated and you need an account.

Create account with email address



Sign in options

Option 1: If your institution is affiliated with DMPTool.

Your institution

- or -

Option 2: If your institution is not affiliated with DMPTool.

Email address

- or -

Option 3: If not affiliated and you need an account.

Create account with email address

Select Institution

atement [Accessibility](#) [Github](#) [Contact us](#)

alifornia Curation Center of the California Digital Library
University of California

If your institution is a partner, you
will be redirected to their login page

UC SANTA BARBARA

Authentication Service

UCSBnetID

Password

LOGIN

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Questions? Please [contact us](#).

UCSB

Sign in options

Option 1: If your institution is affiliated with DMPTool.

Your institution

- or -

Option 2: If your institution is not affiliated with DMPTool.

Email address

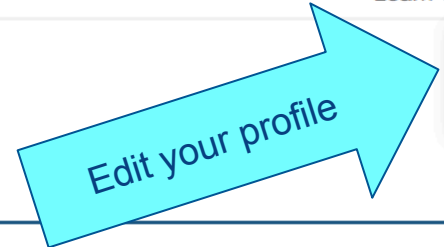
- or -

Option 3: If not affiliated and you need an account.

Create account with email address

Your institution not listed?
Use your email address to
create an account





My Dashboard

[Create plan](#)

Welcome

You are now ready to create your first DMP.
Click the 'Create plan' button below to begin.

There are no records associated

Edit profile

Personal Details

Notification Preferences

Please note that your email address is also your username. If you change this remember to use your new email address on sign in. If your account is created with your institutional credentials you must contact us to change your email or organization.

* **Email** ?

meyer@nceas.ucsb.edu

* **First name**

Kathryn

* **Last name**

Meyer

Organization ?

Language

English (US)

ORCID

 Create or connect your ORCID iD

Save

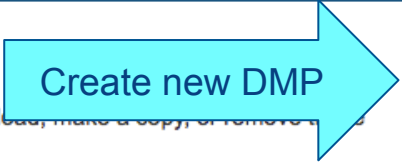
Set up your profile
& notification
preferences



My Dashboard Create plan

My Dashboard

The table below lists the plans that you have created, and that have been shared with you by others. You can edit, share, download, make a copy, or remove plans at any time.



Create plan

Project Title	Template	Edited	Role	Test	Visibility	Shared	Actions
Demo DMP	NSF-BIO: Biological Sciences	07-26-2018	Owner	<input type="checkbox"/>	Private	No	Actions

Dashboard overview of DMPs



Create a new plan

Before you get started, we need some information about your research project to set you up with the best DMP template for your needs.

* What research project are you planning?

Mock project for testing, practice, or educational purposes

* Select the primary research organization

- or - No research organization associated with this plan or my research organization is not listed

* Select the primary funding organization

- or - No funder associated with this plan or my funder is not listed

[Create plan](#)

[Cancel](#)

Create a new plan

Before you get started, we need some information about your research project to set you up with the best DMP template for your needs.

* What research project are you planning?

Provide title for plan

Mock project for testing, practice, or educational purposes

* Select the primary research organization

- or - No research organization associated with this plan or my research organization is not listed

* Select the primary funding organization

- or - No funder associated with this plan or my funder is not listed

[Create plan](#)

[Cancel](#)

Create a new plan

Before you get started, we need some information about your research project to set you up with the best DMP template for your needs.

* What research project are you planning?

* Select the primary research organization

* Select the primary funding organization

- or - No funder associated with this plan or my funder is not listed

[Create plan](#) [Cancel](#)



Select primary research organization, if available

Create a new plan

Before you get started, we need some information about your research project to set you up with the best DMP template for your needs.

* What research project are you planning?

Demonstration DMP

Mock project for testing, practice, or educational purposes

* Select the primary research organization

Begin typing to see a filtered list

- or - No research organization associated with this plan or my research organization is not listed

* Select the primary funding organization

N|

Please select a valid funding organization from the list. or my funder is not listed

Alfred P. Sloan Foundation
Department of Defense (DOD)
Department of Energy (DOE)
Department of Transportation (DOT)
Digital Curation Centre (DCC)
Gordon and Betty Moore Foundation (GBMF)
Gulf of Mexico Research Initiative (GoMRI)
Institute of Education Sciences (US Dept of Education IES)
Institute of Museum and Library Services (IMLS)
Joint Fire Science Program (JFSP)
National Aeronautics and Space Administration (NASA)
National Endowment for the Humanities (NEH)
National Institute of Justice (DOJ)
National Institutes of Health (NIH)
National Oceanic and Atmospheric Administration (NOAA)
National Science Foundation (NSF)
U.S. Department of Agriculture (USDA)
University Corporation for Atmospheric Research (UCAR)

Select Funder



Create a new plan

Before you get started, we need some information about your research project to set you up with the best DMP template for your needs.

* What research project are you planning?

Demonstration DMP


Mock project for testing, practice, or educational purposes

* Select the primary research organization

Begin typing to see a filtered list

- or - No research organization associated with this plan or my research organization is not listed

* Select the primary funding organization

National Science Foundation (NSF) 

- or - No funder associated with this plan or my funder is not listed

Which DMP template would you like to use?

Arctic Data Center: NSF Polar Programs [DRAFT]

BCO-DMO NSF OCE: Biological and Chemical Oceanography

NSF-AGS: Atmospheric and Geospace Sciences

NSF-AST: Astronomical Sciences

NSF-BIO: Biological Sciences

NSF-CHE: Chemistry Division

NSF-CISE: Computer and Information Science and Engineering

NSF-DMR: Materials Research

NSF-DMS: Mathematical Sciences

NSF-EAR: Earth Sciences

NSF-EHR: Education and Human Resources

NSF-ENG: Engineering

NSF-GEN: Generic

NSF-PHY: Physics

NSF-SBE: Social, Behavioral, Economic Sciences

We found multiple DMP templates corresponding to your funder.

Select DMP template,
based on funder



✔ Notice: Successfully created your plan.
This plan is based on the National Science Foundation (NSF): 'NSF-BIO: Biological Sciences' template.

Demonstration DMP

Provide Project Information for the DMP

- Project Details
- Plan overview
- Write Plan
- Share
- Download

* Project title
Demonstration DMP

mock project for testing, practice, or educational purposes

Funder
National Science Foundation (NSF)

Grant number (optional)

Project abstract

Principal Investigator
Name
Kathryn Meyer
ORCID iD
Email
meyer@nceas.ucsb.edu

Data Contact Person
 Same as Principal Investigator
Submit Cancel

Plan Guidance Configuration

To help you write your plan, DMPTool can show you guidance from a variety of organizations.

Select up to 6 organizations to see their guidance.

DMPTool

Find guidance from additional organizations below

[See the full list](#)

Submit

Add Data Contact, if different from PI

✔ Notice: Successfully created your plan.
This plan is based on the National Science Foundation (NSF): 'NSF-BIO: Biological Sciences' template.

Demonstration DMP

Get Support

- Project Details
- Plan overview
- Write Plan
- Share
- Download

* Project title

Demonstration DMP

mock project for testing, practice, or educational purposes

Funder

National Science Foundation (NSF)

Grant number (optional)

Project abstract

Principal Investigator

Name

Kathryn Meyer

ORCID iD

Email

meyer@nceas.ucsb.edu

Data Contact Person

Same as Principal Investigator

Submit Cancel

Plan Guidance Configuration

To help you write your plan, DMPTool can show you guidance from a variety of organizations.

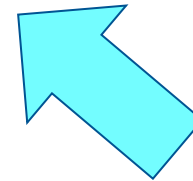
Select up to 6 organizations to see their guidance.

DMPTool

Find guidance from additional organizations below

See the full list

Submit



Demonstration DMP

[Project Details](#)[Plan overview](#)[Write Plan](#)[Share](#)[Download](#)

Template Overview

NSF-BIO: Biological Sciences

This plan is based on the "NSF-BIO: Biological Sciences" template provided by National Science Foundation (NSF).

Instructions

[Write plan](#)

Data and Materials Produced

- Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

Standards, Formats and Metadata

- Describe the standards to be used for all the data types anticipated, including data or file format and metadata.

Roles and Responsibilities

- Describe the roles and responsibilities of all parties with respect to the management of the data (including contingency plans for the departure of key personnel from the project).

Dissemination Methods

- Describe the dissemination methods that will be used to make data and metadata available to others during the period of the award, and any modifications or additional technical information regarding data access after the grant ends.

Policies for Data Sharing and Public Access

- Describe the PI's policies for data sharing, public access and re-use, including re-distribution by others and the production of derivatives. Where appropriate, include provisions for protection of privacy, confidentiality, security, intellectual property rights and other rights.

Archiving, Storage and Preservation

- Where relevant, describe plans for archiving data, samples, software, and other research products, and for on-going access to these products through their lifecycle of usefulness to research and education. Consider which data (or research products) will be deposited for long-term access and where. (What physical and/or cyber resources and facilities (including third party resources) will be used to store and preserve the data after the grant ends?)

Demonstration DMP

Template Sections

[Project Details](#)

[Plan overview](#)

[Write Plan](#)

[Share](#)

[Download](#)

[expand all](#) | [collapse all](#)

0/6 answered

+ Data and Materials Produced (0 / 1)

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

+ Dissemination Methods (0 / 1)

+ Policies for Data Sharing and Public Access (0 / 1)

+ Archiving, Storage and Preservation (0 / 1)

Expand Sections

Demonstration DMP

Project Details | Plan overview | Write Plan | Share | Download

expand all | collapse all 0/6 answered

- Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I*

Save

Guidance | **Comments**

NSF | **DMPTool**

Guidance

- NSF-BIO Guidance on DMPs
- NSF Proposal & Award Policies & Procedures Guide (PAPPG)
- NSF plans for data management and sharing of the products of research (PAPPG)
- NSF Frequently Asked Questions (FAQs) for Public Access

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

Demonstration DMP

- Project Details
- Plan overview
- Write Plan
- Share
- Download

expand all | collapse all

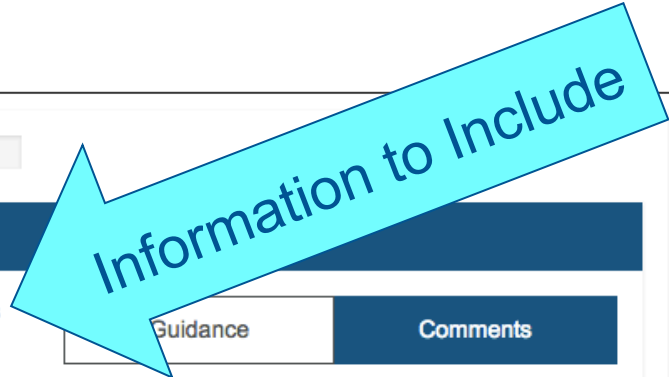
0/6 answered

- Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I*

Save



Guidance

Comments

NSF

DMPTool

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+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

Demonstration DMP

- Project Details
- Plan overview
- Write Plan
- Share
- Download

expand all | collapse all

0/6 answered

- Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I* [List Icon] [List Icon] [Link Icon] [Table Icon]

Save

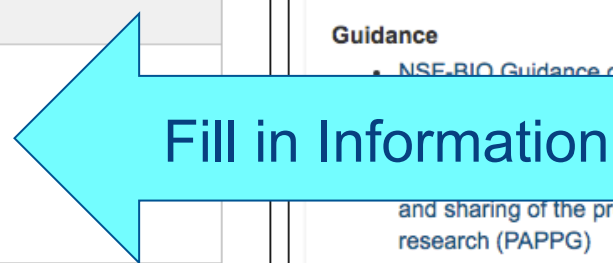
Guidance

Comments

NSF DMPTool

Guidance

- NSF-BIO Guidance on DMPs
- NSF Frequently Asked Questions (FAQs) for Public Access



+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

+ Plans for the Future (0 / 1)

Demonstration DMP

- Project Details
- Plan overview
- Write Plan
- Share
- Download

expand all | collapse all

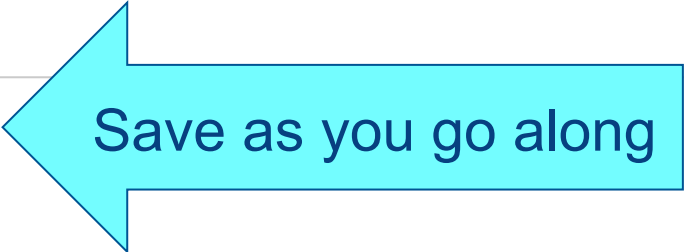
0/6 answered

– Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I*

Save



- Guidance
- Comments

- NSF
- DMPTool

Guidance

- [NSF-BIO Guidance on DMPs](#)
- [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#)
- [NSF plans for data management and sharing of the products of research \(PAPPG\)](#)
- [NSF Frequently Asked Questions \(FAQs\) for Public Access](#)

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

+ Plans for the Future (0 / 1)

Demonstration DMP

- Project Details
- Plan overview
- Write Plan
- Share
- Download

expand all | collapse all

0/6 answered

- Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I* [List Icon] [List Icon] [Link Icon] [Table Icon]

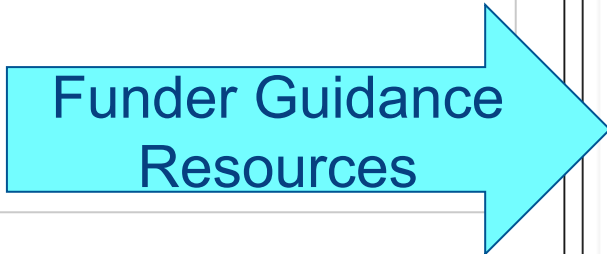
Save

Guidance | **Comments**

NSF | **DMPTool**

Guidance

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- NSF Frequently Asked Questions (FAQs) for Public Access



- + Standards, Formats and Metadata (0 / 1)
- + Roles and Responsibilities (0 / 1)
- + Plans for Data Management (0 / 1)

Demonstration DMP

Project Details

Plan overview

Write Plan

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0/6 answered

– Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I*    

Save

DMPTool
Guidance

Guidance

Comments

NSF

DMPTool

expand all | collapse all

– Data collection

- Outline how the data will be collected and processed. This should cover relevant standards or methods, quality assurance, and data organisation.
- Indicate how the data will be organized during the project, mentioning, e.g., naming conventions, version control, and folder structures. Consistent, well-ordered research data will be easier to find, understand, and reuse.
- Explain how the consistency and quality of data collection will be controlled and documented. This may include processes such as calibration, repeat samples, or measurements, standardized data capture.

Demonstration DMP

Project Details

Plan overview

Write Plan

Share

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0/6 answered

– Data and Materials Produced (0 / 1)

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

B *I*

Save

Exchange Comments
with Collaborators

Guidance

Comments

Add comments to share with collaborators

B *I*

Save

Demonstration DMP

Project Details

Plan overview

Write Plan

Share

Download

expand all | collapse all

0/6 answered

+ Data and Materials Produced (0 / 1)

- Standards, Formats and Metadata (0 / 1)

Describe the standards to be used for all the data types anticipated, including data or file format and metadata.

B *I*

Save

Guidance

Comments

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Guidance

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Demonstration DMP

Project Details

Plan overview

Write Plan

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expand all | collapse all

0/6 answered

+ Data and Materials Produced (0 / 1)

+ Standards, Formats and Metadata (0 / 1)

- Roles and Responsibilities (0 / 1)

Describe the roles and responsibilities of all parties with respect to the management of the data (including contingency plans for the departure of key personnel from the project).

B *I*    

Save

Guidance

Comments

NSF

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Guidance

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Demonstration DMP

Project Details

Plan overview

Write Plan

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expand all | collapse all

0/6 answered

+ Data and Materials Produced (0 / 1)

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

- Dissemination Methods (0 / 1)

Describe the dissemination methods that will be used to make data and metadata available to others during the period of the award, and any modifications or additional technical information regarding data access after the grant ends.

B *I*    

Save

Guidance

Comments

NSF

DMPTool

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Demonstration DMP

Project Details

Plan overview

Write Plan

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expand all | collapse all

0/6 answered

+ Data and Materials Produced (0 / 1)

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

+ Dissemination Methods (0 / 1)

- Policies for Data Sharing and Public Access (0 / 1)

Describe the PI's policies for data sharing, public access and re-use, including re-distribution by others and the production of derivatives. Where appropriate, include provisions for protection of privacy, confidentiality, security, intellectual property rights and other rights.

B *I*    

Save

Guidance

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NSF

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Demonstration DMP

Project Details

Plan overview

Write Plan

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expand all | collapse all

0/6 answered

+ Data and Materials Produced (0 / 1)

+ Standards, Formats and Metadata (0 / 1)

+ Roles and Responsibilities (0 / 1)

+ Dissemination Methods (0 / 1)

+ Policies for Data Sharing and Public Access (0 / 1)

- Archiving, Storage and Preservation (0 / 1)

Where relevant, describe plans for archiving data, samples, software, and other research products, and for on-going access to these products through their lifecycle of usefulness to research and education. Consider which data (or research products) will be deposited for long-term access and where. (What physical and/or cyber resources and facilities (including third party resources) will be used to store and preserve the data after the grant ends?)

B *I*    

Save

Guidance

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NSF

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- NSF plans for data management and sharing of the products of research (PAPPG)
- NSF Frequently Asked Questions (FAQs) for Public Access

Demonstration DMP

Project Details

Plan overview

Write Plan

Share

Download

Set plan visibility

Public or organizational visibility is intended for finished plans. You must answer at least 50% of the questions to enable these options. Note: test plans are set to private visibility by default.

- Private: visible to me, specified collaborators and administrators at my organization
- Organization: anyone at my organization can view
- Public: anyone can view

Choose Plan
Visibility

Manage collaborators

Invite specific people to read, edit, or administer your plan. Invitees will receive an email notification that they have access to this plan.

Email address	Permissions
meyer@nceas.ucsb.edu	Owner

Invite collaborators

* Email

* Permissions

- Co-owner: can edit project details, change visibility, and add collaborators
- Editor: can comment and make changes
- Read only: can view and comment, but not make changes

Send invitation


Welcome


Create data management plans that meet institutional and funder requirements.

[Get started](#)



DMPTool by the Numbers


30,852
Users


27,394
Plans [More](#)

236
Participating Institutions [More](#)

Public plans will be visible here

Top 5 Templates

- Digital Curation Centre
- NSF-BIO: Biological Sciences
- NSF-SBE: Social, Behavioral, Economic Sciences
- USDA-NIFA: National Institute of Food and Agriculture
- NIH-GEN: Generic

Demonstration DMP

Project Details

Plan overview

Write Plan

Share

Download

Set plan visibility

Public or organizational visibility is intended for finished plans. You must answer at least 50% of the questions to enable these options. Note: test plans are set to private visibility by default.

- Private: visible to me, specified collaborators and administrators at my organization
- Organization: anyone at my organization can view
- Public: anyone can view

Manage collaborators

Invite specific people to read, edit, or administer your plan. Invitees will receive an email notification that they have access to this plan.

Email address	Permissions
meyer@nceas.ucsb.edu	Owner

Invite collaborators

* Email

* Permissions

- Co-owner: can edit project details, change visibility, and add collaborators
- Editor: can comment and make changes
- Read only: can view and comment, but not make changes

Send invitation



Add Collaborators and
Specify Permissions

Demonstration DMP

[Project Details](#) [Plan overview](#) [Write Plan](#) [Share](#) [Download](#)

Download settings

Optional Plan Components

- project details coversheet
- question text and section headings
- unanswered questions

Format

pdf

Specify DMP
Format Settings

PDF formatting

Font

Face

Arial, Helvetica, Sans-Serif

Size (pt)

10

Margin (mm)

Top

25

Bottom

20

Left

12

Right

12

[Download Plan](#)

Demonstration DMP

[Project Details](#) [Plan overview](#) [Write Plan](#) [Share](#) [Download](#)

Download settings

Optional Plan Components

- project details coversheet
- question text and section headings
- unanswered questions

Format

pdf

PDF formatting

Font

Face

Arial, Helvetica, Sans-Serif

Size (pt)

Margin (mm)

Top

25

Bottom

20

Left

12

Right

12

[Download Plan](#)

 **Download DMP**

DMP added to your Dashboard for continued editing, sharing, downloading or copying

My Dashboard



[Create plan](#)

The table below lists the plans that you have created, and that have been shared with you by others. You can edit, share, download, make a copy, or remove these plans at any time.

Project Title ↕	Template ↕	Edited ▼	Role	Test	Visibility	Shared	
Demonstration DMP	NSF-BIO: Biological Sciences	07-26-2018	Owner	<input type="checkbox"/>	Private	No	Actions▼
Demo DMP	NSF-BIO: Biological Sciences	07-26-2018	Owner	<input type="checkbox"/>	Private	No	Actions▼

Public Plans

Public plans are plans created using the DMPTool service and shared publicly by their owners. They are not vetted for quality, completeness, or adherence to funder guidelines.

Project Title 	Template 	Organization	Owner	Download
Enhancing Stress Tolerance in Cereal Crops using Transgenerational Epigenetic Memory	USDA-NIFA: National Institute of Food and Agriculture	Pennsylvania State University (PSU)	Christopher Benson	PDF
Science and Management of Magpie Goose NT	Digital Curation Centre	Non Partner Institution	Timothy Clancy	PDF
Interrogating Anti-Tumor T-Cells To Develop Adoptive Cell Transfer Immunotherapy for Pediatric High-Grade Glioma	Digital Curation Centre	University of Pittsburgh	Kohanbash, Gary	PDF
Brazilian aquatic plant data managemen	Digital Curation Centre	Non Partner Institution	Pablo Hendrigo Alves de Melo	PDF
Data management plan for: Structural, Geochemical, and Permeability Measurements of the Basement Interface Contact and Associated Fault Zones Using Outcrop and Core Analog Studies: Implications for Injection Induced Seismicity in the Midcontinent Region	U.S. Geological Survey DMP Guidance	Utah State University (USU)	James Evans	PDF
ITB university level RDMP	Digital Curation Centre	Non Partner Institution	Dasapta Erwin Irawan	PDF
DMPRoadmap: Making Data Management Plans Actionable	NSF-GEN: Generic	University of California, Office of the President (UCOP)	Stephanie Simms	PDF
DMP 5024 Final Project	NSF-GEN: Generic	Virginia Tech (VT)	Alina Rojas	PDF
Characterization and Shaping of the IPF Secondary-Neutron Spectrum	Department of Energy (DOE): Office of Science	Los Alamos National Laboratory (LANL)	Adam Davis	PDF
Complete Information on Nuclear Reaction Mechanism for Nuclear Applications	Department of Energy (DOE): Office of Science	Los Alamos National Laboratory (LANL)	Hye Young Lee	PDF
Traffic Sign Detection and Recognition	Digital Curation Centre	Non Partner Institution	Deepak Reddy Danda	PDF
Micro-biosensor devices for Biochemical Analysis Applications	NSF-ENG: Engineering	Utah State University (USU)	Han Zhang	PDF
Development and Intercomparison of Methodologies to Measure Ferrous Iron in Seawater	BCO-DMO NSF OCE: Biological and Chemical Oceanography	Non Partner Institution	James Moffett	PDF

Late Season Productivity, Carbon, and Nutrient Dynamics in a Changing Arctic

Types of data

Our project will yield extensive data sets of water chemistry as well as a large number of water/filter samples. Underway and hydrographic cast data include salinity, temperature, location, water depth, optical properties collected by sensors (e.g. chlorophyll fluorescence, CDOM, beam-attenuation). Analyses of waters samples will yield data on dissolved gases (O₂, Ar, CO₂), dissolved nutrients, dissolved inorganic carbon, total alkalinity, particulate and dissolved organic carbon, stable carbon isotopes and pigments. All water/filter samples will be given an ISGN number for tracking. All compositional data will be new and will be collected in spreadsheets.

Data and metadata standards

Metadata will include date/time of collection, location (latitude, longitude, water depth) and description (e.g., type sample). The metadata will allow users to identify the location and collection history of each sample and provide the tools to map them.

Policies for access and sharing

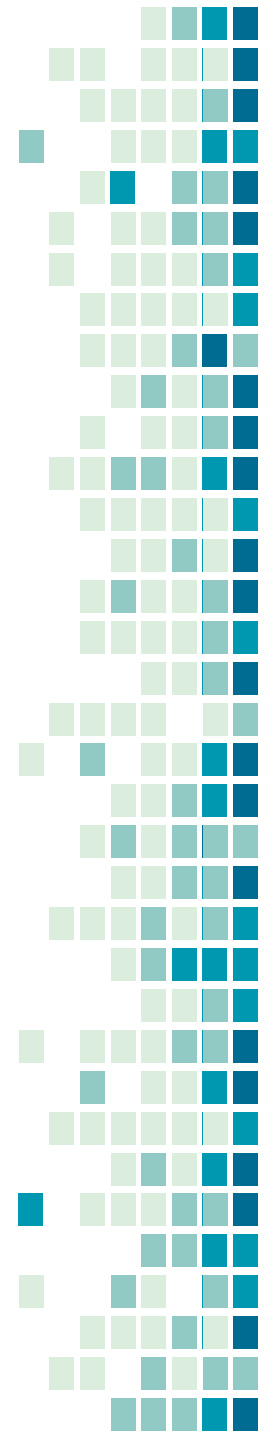
Data collected will be archived using the archival services provided by the Oregon State University Libraries. The OSU Libraries Research Data Services group is housed within the Center for Digital Scholarship and Services and provides guidance and support for all aspects of the data lifecycle, from planning data management strategy through preserving data at the conclusion of the project. Services are free of charge, and if funded we will partner with OSU Research Data services to archive our data and make it publically accessible before the end of the award or two years after collection, whichever comes first.

We plan to use OSU's digital repository (or "institutional repository") ScholarsArchive@OSU (SA@OSU) as a suitable archive and sharing mechanism for data. All items deposited into SA@OSU receive a persistent identifier (DOI or ARK), are freely available to anyone, and are full-text searchable, making them discoverable through Google, Google Scholar and other large search engines. We will work closely with OSU Research Data services to insure this process includes appropriate documentation and requirements for data integrity.

Regarding the latter, we will follow the recommendations of the OSU Research Data services group and archive the final version of the datasets using open, non-proprietary formats such as text-based formats (e.g., ASCII), HDF and NetCDF) and multimedia formats such as JPEG 2000, MNG and PNG.

In addition, final data products from this project will be published in peer-reviewed scientific papers by the PIs, associated researchers, and the students involved with this project. Preliminary results will be presented at relevant national and international meetings as posters and/or talks. Data will be distributed to a variety of national databases including, the Advance Cooperative Arctic Data and Information Service (ACADIS) gateway (<http://www.aoncadis.org/home.htm>) to archive and preserve hydrographic and water sample data.

DataONE Resources



Data Management Skillbuilding Hub



The Data Management Skillbuilding Hub contains resources for better data management and is open to community input and update. These resources are adaptable across a range of contexts and intended for use by researchers, teachers, librarians, or anyone who wants to learn better data management practices. Each tile below links to community contributed education materials, such as best practices and lesson plans

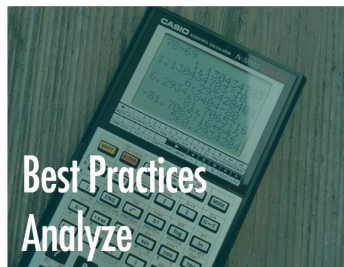
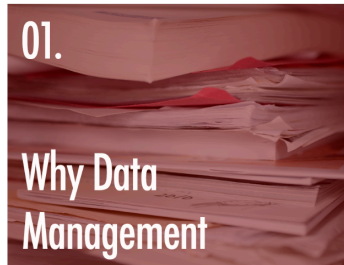
The resources presented on the Data Management Skillbuilding Hub can be updated by users to promote a current, well-maintained, and sustainable educational tool. Learn more about how you can [contribute](#).

Using This Resource

Click individual tiles to learn more and use each resource. You can limit resources by content type and [Data Life Cycle](#) stage. Comprehensive information is available in the [FAQ](#).

» Filter by content type:

» Filter by stage of the Data Life Cycle



02. Data Sharing

Data Management Skillbuilding Hub

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TEACHING MODULE

Presentation View


Quick tips: Press p for presentation; f for full screen

Supporting downloads:

- PDF Download
- PPT Download
- Handout
- Hands-on Exercise

When first sharing research data, researchers often raise questions about the value, benefits, and mechanisms for sharing. Many stakeholders and interested parties, such as funding agencies, communities, other researchers, or members of the public may be interested in research, results and related data. This lesson addresses data sharing in the context of the data life cycle, the value of sharing data, concerns about sharing data, and methods and best practices for sharing data.

Cite this lesson:
DataONE Community Engagement & Outreach Working Group (2017) "Data Sharing". Accessed through the Data Management Skillbuilding Hub at https://dataoneorg.github.io/Education/lessons/02_datasharing/index on May 24, 2019



< Home >

Version date: Apr 06, 2017

Hosted by DataONE

In collaboration with the community, DataONE has developed high quality resources for helping educators and librarians with training in data management, including teaching materials, webinars and a database of best-practices to improve methods for data sharing and management.

<https://dataoneorg.github.io/Education/>

Data Life Cycle: describe x +
 https://dataoneorg.github.io/Education/bp_step/describe/

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BEST PRACTICE


Best Practice: Describe

Select a Best Practice below to learn more about the "Describe" stage in the *Data Life Cycle*.

What is the "Describe" stage?

Document data by describing the why, who, what, when, where, and how of the data. Metadata, or data about data, are key to data sharing and reuse, and many tools such as standards and software are available to help describe data.

More information can be found in the [Best Practices Primer](#).



Best Practices by Data Life Cycle

- All
- Plan
- Collect
- Assure
- Describe
- Preserve
- Discover
- Integrate
- Analyze

Learn more:
[BP Primer](#)

Assign descriptive file names

File names should reflect the contents of the file and include enough information to uniquely identify the data file. File names may contain information such as project acronym, study title, location, investigator, year(s) of study, data type, version n... [\(click for more\)](#)

Tags: [access](#) [describe](#) [discover](#) [format](#)

Choose and use standard terminology to enable discovery

Terms and phrases that are used to represent categorical data values or for creating content in metadata records should reflect appropriate and accepted vocabularies in your community or institution. Methods used to identify and select the proper termin... [\(click for more\)](#)

Tags: [controlled vocabulary](#) [describe](#) [documentation](#) [metadata](#) [ontologies](#) [preserve](#) [standards](#)

Confirm a match between data and their description in metadata

To assure that metadata correctly describes what is actually in a data file, visual inspection or analysis should be done by someone not otherwise familiar with the data and its format. This will assure that the metadata is sufficient to describe the da... [\(click for more\)](#)

Tags: [assure](#) [data consistency](#) [describe](#) [documentation](#) [metadata](#) [quality](#)

Create a data dictionary

A data dictionary provides a detailed description for each element or variable in your dataset and data model. Data dictionaries are used to document important and useful information such as a descriptive name, the data type, allowed values, units, and ... [\(click for more\)](#)

Tags: [controlled vocabulary](#) [describe](#) [documentation](#) [metadata](#) [terminology](#) [units](#)

<https://dataoneorg.github.io/Education/>

Data Management Skillbuilding Hub



www.dataone.org

Primer on Data Management: What you always wanted to know*

* but were afraid to ask

Carly Strasser, Robert Cook, William Michener, Amber Budden

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1. Objective of This Primer

The goal of data management is to produce self-describing data sets. If you give your data to a scientist or colleague who has not been involved with your project, will they be able to make sense of it? Will they be able to use it effectively and properly? This primer describes a few fundamental data management practices that will enable you to develop a data management plan, as well as how to effectively create, organize, manage, describe, preserve and share data.



Best Practices by Data Life Cycle

- All
- Plan
- Collect
- Assure
- Describe
- Preserve
- Discover
- Integrate
- Analyze

Learn more:

[BP Primer](#)

Best Practice: How to write a ... x +

https://dataoneorg.github.io/Education/bestpractices/how-to-write

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BEST PRACTICE

How to write a Best Practice file

Data Life Cycle stage(s): [Life cycle stage here](#)

Filename

Each file is named as the first three words of the title, separated by dashes. This page's title is "How to write a best practice", therefore the filename is `how-to-write.md`.

Header

The header (aka: front matter) for best practices has the following fields:

- `title` : the title of the webpage, as it will appear in the lists
- `layout` : is always `bestpractice` (NB this will likely be done automatically using the collections features from jekyll)
- `tags` : a list of (short) keywords describing the content of the best practice text
- `step` : a list of one or more steps of the data lifecycle to which this best practice applies
- `related` : a list of related best practices identifiers – an identifier is the first three words of the title, separated by dashes (optional)
- `update` : the date this best practice was created
- `author` : a list of authors that created the best practice
- `organization` : name of organization that oversaw the creation of the best practice
- `org_url` : website of the organization, organization logo will open this webpage when selected
- `org_logo` : name of the organization's logo file, this must be a png
- `categories` : this must be listed as ["Best Practice"], used for sorting and accessing education materials

in 'Raw' view, these are the headers you should have

content

Best Practices by Data Life Cycle

- All
- Plan
- Collect
- Assure
- Describe
- Preserve
- Discover
- Integrate
- Analyze

Learn more:

[BP Primer](#)

<https://dataoneorg.github.io/Education/>

Resources

DataONE Education Materials

<https://dataoneorg.github.io/Education/>

DataONE Best Practices

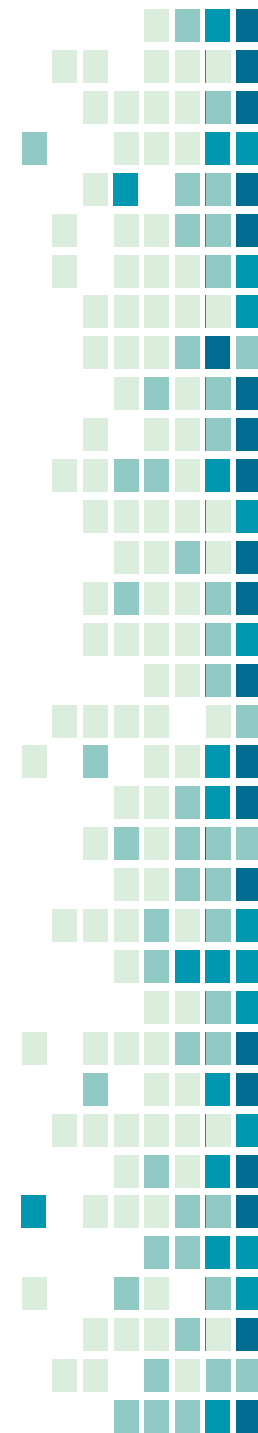
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Data Help Desk

Get Answers to Your Data Management Questions:
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