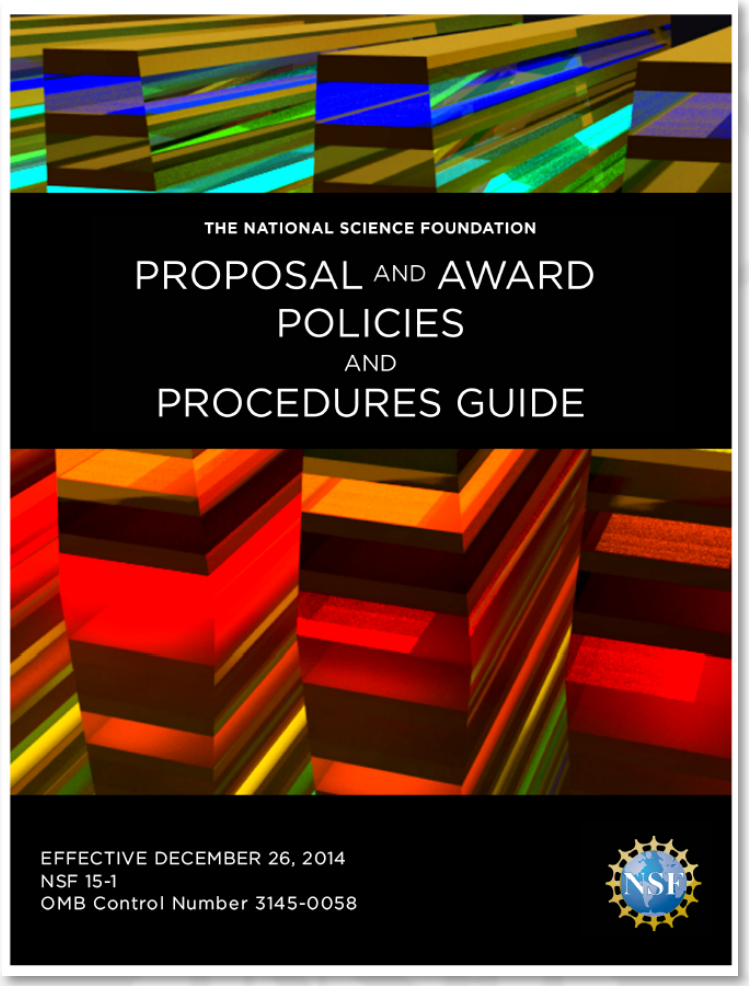
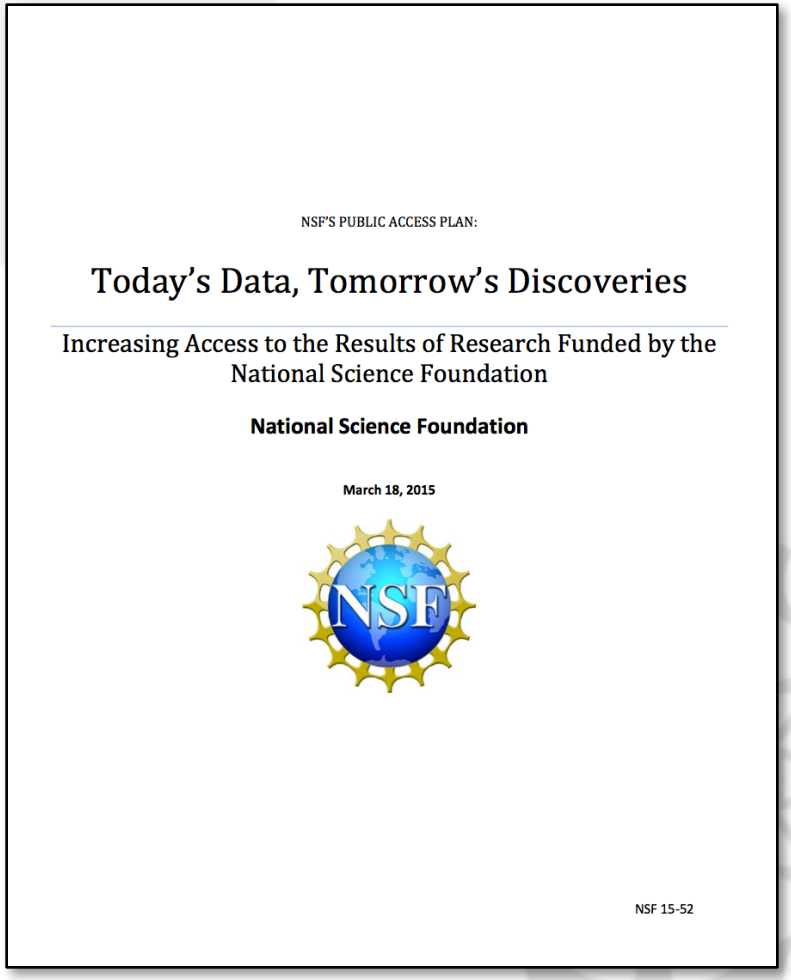
NSF Data Management and Public Access Initiatives

E-Research Network
15 June 2015

Anne Maglia
Division of Biological Infrastructure
National Science Foundation
amaglia@nsf.gov

DMP → Public Access





NSF Data Sharing Policy

"Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing."

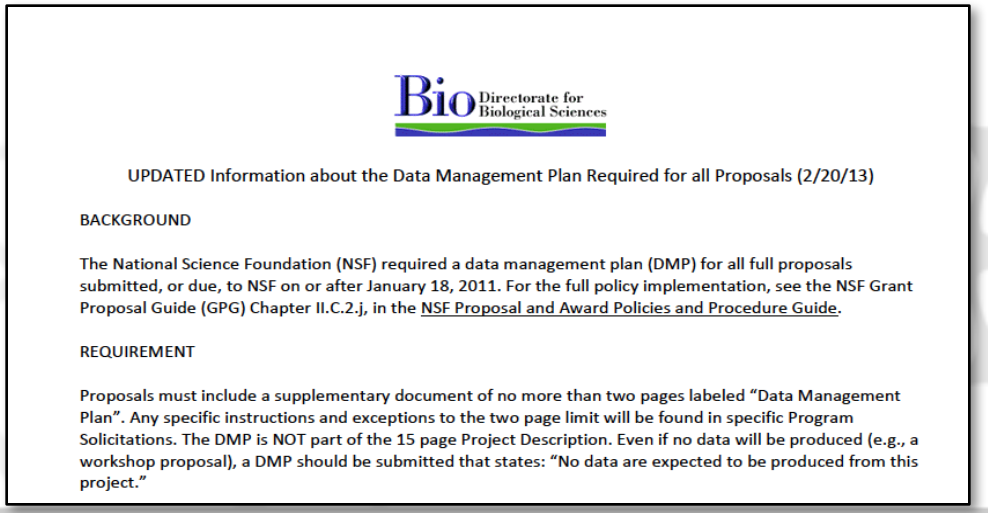
NSF Data Management Plan

- 2 supplemental pages
- FastLane requirement/Return Without Review
- Original data, metadata, and software/code
- Details on how data will be managed and disseminated, past performance
- Sufficient for replication

Directorates each have their own DMP Guidance

- Disciplines have their own standards
- Accepted norms for timely distribution vary
- Follow best practices in proposed sub-discipline
- Address how standards, best practices, and timeliness will be met

Example: http://www.nsf.gov/bio/pubs/BIODMP061511.pdf



Bio Directorate for Biological Sciences

UPDATED Information about the Data Management Plan Required for all Proposals (2/20/13)

BACKGROUND

The National Science Foundation (NSF) required a data management plan (DMP) for all full proposals submitted, or due, to NSF on or after January 18, 2011. For the full policy implementation, see the NSF Grant Proposal Guide (GPG) Chapter II.C.2.j, in the NSF Proposal and Award Policies and Procedure Guide.

REQUIREMENT

Proposals must include a supplementary document of no more than two pages labeled "Data Management Plan". Any specific instructions and exceptions to the two page limit will be found in specific Program Solicitations. The DMP is NOT part of the 15 page Project Description. Even if no data will be produced (e.g., a workshop proposal), a DMP should be submitted that states: "No data are expected to be produced from this project."

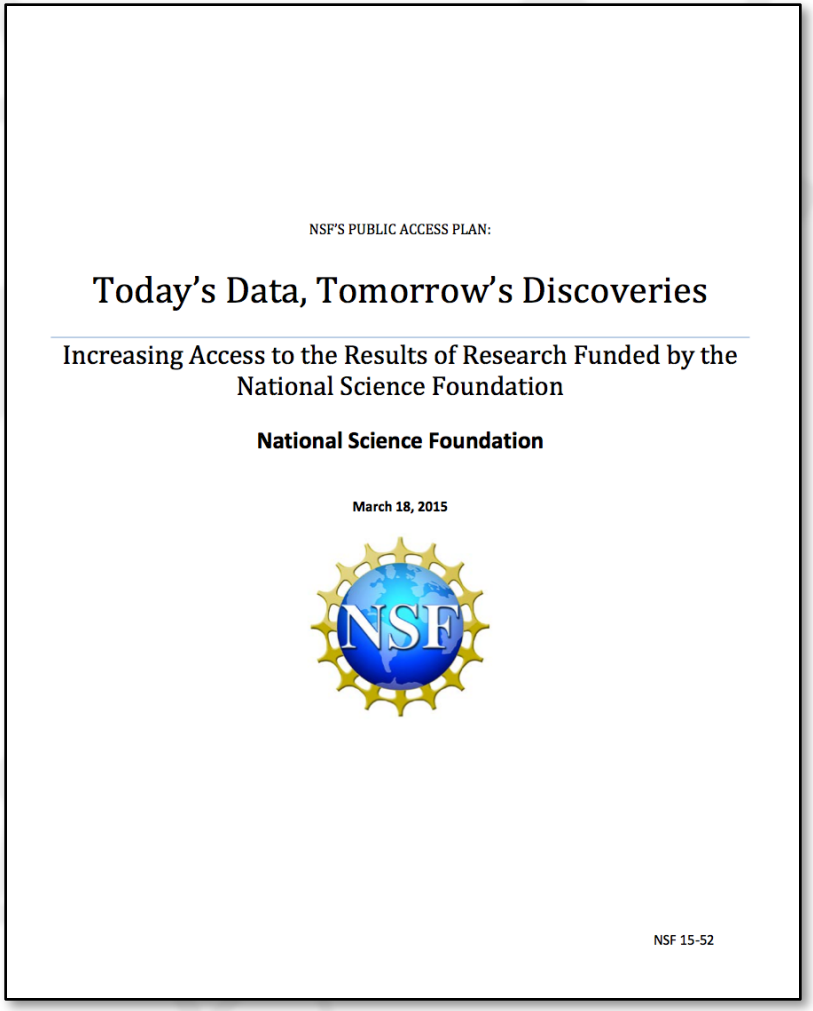
Example: NSF/BIO DMP Guidance

1. Describe data collected and metadata formats and standards
2. Describe data storage and preservation resources and facilities (incl. post award)
3. Describe data/metadata dissemination methods (incl. post award)
4. Describe data sharing and public access policies for (incl. privacy, confidentiality, security, IP, etc.)
5. Describe roles and responsibilities re: data management (incl. contingency and post award)

Example: NSF/BIO Post-Award Reporting Guidance

- Annually: data management/sharing progress
  - Identifiers, accession numbers, citations, etc.
- Final report: implementation of the DMP
  - data produced
  - data retained post-award
  - dissemination and verification of sharing
  - format in which data and metadata are available
  - location of data for long-term public access
- Future proposals > “Results of prior NSF support”

NSF Public Access Plan



NSF'S PUBLIC ACCESS PLAN:

Today's Data, Tomorrow's Discoveries

Increasing Access to the Results of Research Funded by the National Science Foundation

National Science Foundation

March 18, 2015

NSF 15-52

https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf15052

Requirements/Constraints

- Provide public access to results of NSF awards
- Minimize burden on PIs, NSF
- Embed public access into existing workflows
- Leverage existing systems
  - e.g., e-Jacket; research.gov, external services
- Extend to multiple products of NSF-funded research
- Minimize cost

NSF Public Access Plan

- As of Jan 2016, requires publications from awards to be made publicly available within one year
- (Waivers to embargo possible)
- DMP requirements, allowance for costs, data citation stay same
- Calls for community engagement in use of identifiers, metadata, standards

amaglia@nsf.gov
703-292-7380
@ammaglia

Data Management & Sharing under the NIH Public Access Plan for NIH-Funded Research

E-Research Network Webinar with Montana State University

June 15, 2016

Dina Paltoo*, Ph.D., M.P.H. (Dina.Paltoo@nih.gov)
Director, Division of Scientific Data Sharing Policy,
Office of Science Policy,
Office of the Director, National Institutes of Health (NIH), HHS

J.P. Kim*, J.D., M.B.A., M.P.P., M.Sc., M.A. (jpkim@nih.gov)
NIH Extramural Data Sharing Policy Officer,
Office of Extramural Programs (OEP), Office of Extramural Research (OER),
Office of the Director (OD), National Institutes of Health (NIH), HHS

*Co-Chairs of the NIH Digital Scientific Data Policy and Implementation Working Group (under the NIH Scientific Data Council)

Public Access

Access to Publications and Data

Plans, Policies, and Preparing

February 22, 2013

- White House Office of Science and Technology Policy (OSTP), John Holdren, Director
- "Increasing Access to the Results of Federally Funded Scientific Research" (the "Holdren Memo") (https://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf)

White House Open Data Policy

May 9, 2013

- Executive Order of May 9, 2013, Making Open and Machine Readable the New Default for Government Information
  - Requires agencies to collect or create information in a way that supports **downstream** information processing and **dissemination** activities.
  - Using **machine-readable** and **open formats, data standards, and common core and extensible metadata** for all new information creation and collection efforts.
- Office of Management and Budget (OMB), Sylvia Burwell, Director
  - "Open Data Policy – Managing Information as an Asset" (M-13-13)
  - (https://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf)
  - Manage information as an asset throughout its life cycle to promote openness and interoperability, and properly safeguard systems and information
  - Make information resources **accessible, discoverable, & usable** by public

Public Access

OSTP directive under the Holdren Memo:

- Each Federal agency with **over $100 million** in annual conduct of research and development expenditures
- Develop a **plan** to support increased public access to the results of research funded by the Federal Government
- Applies to scientific **publications** and digital scientific **data**
- Applies **intramurally and extramurally** to grants, contracts, and cooperative agreements

Each agency plan for publications and data must contain the following elements:

a) a strategy for **leveraging existing archives**, where appropriate, and **fostering public-private partnerships** with scientific journals relevant to the agency's research;

b) a strategy for improving the public's ability to **locate and access digital data** resulting from federally funded scientific research;

c) an approach for **optimizing search, archival, and dissemination** features that encourages innovation in accessibility and interoperability, while ensuring **long-term stewardship** of the results of federally funded research;

d) a plan for **notifying awardees and other federally funded scientific researchers** of their obligations (e.g., through guidance, conditions of awards, and/or regulatory changes);

e) an agency strategy for **measuring and, as necessary, enforcing compliance** with its plan;

f) identification of **resources within the existing agency budget** to implement the plan;

g) a **timeline** for implementation; and

h) identification of any **special circumstances** that prevent the agency from meeting any of the objectives set out in this memorandum, in whole or in part.

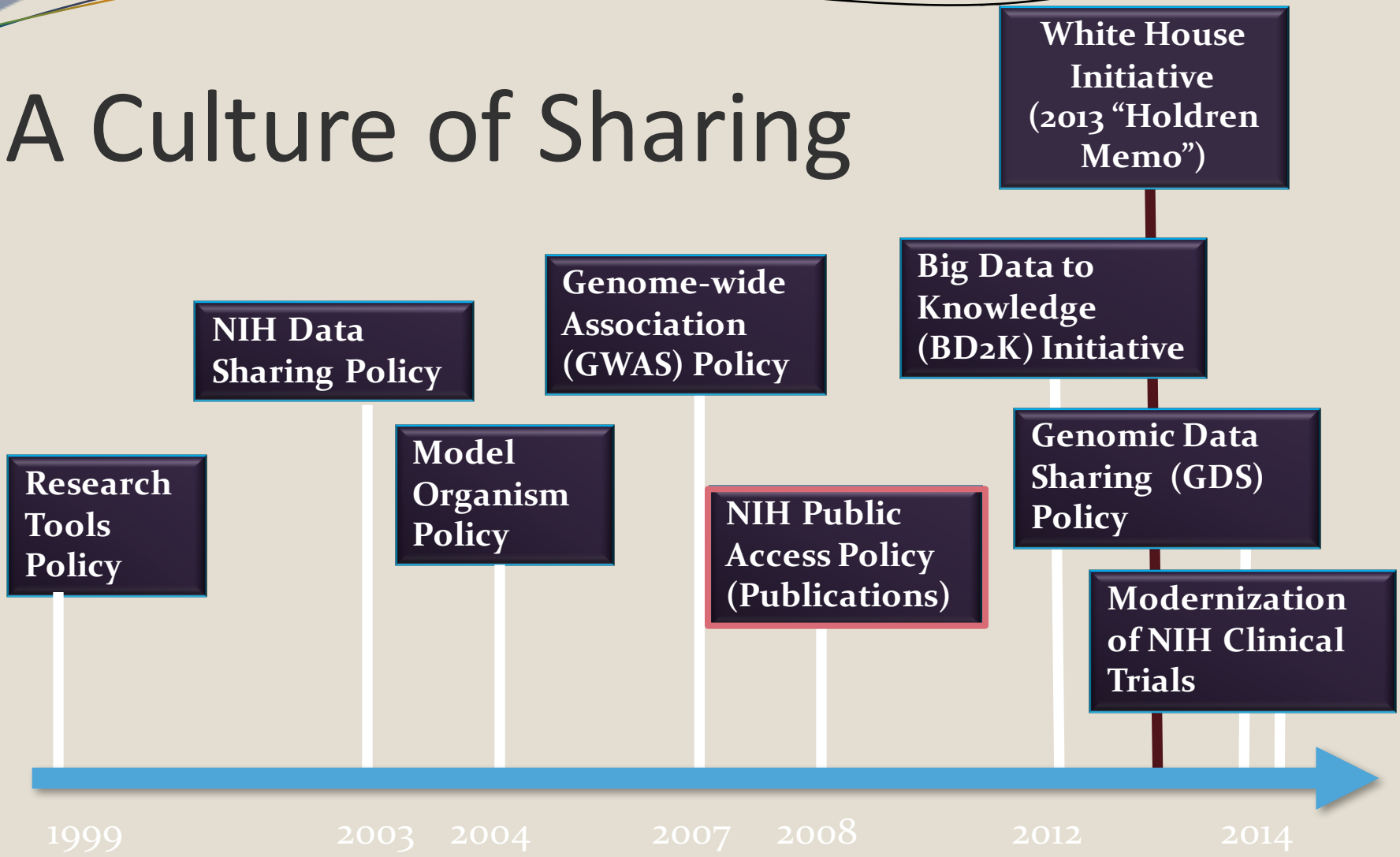
Benefits of Data Sharing

- Inform future research and research funding decisions
  - For example, more funding for new research, advancement of comparable research, etc.
- Enables data generated from one study to be used to explore a wide range of additional research questions
- Increases statistical power and scientific value by enabling data from multiple studies to be combined
- Facilitates reproducibility and validation of research results
- Facilitates innovation of methods and tools for research
- Meet ethical obligation to human subjects (i.e., that results inform science)
- Increase access to data about marketed products

NIH Longstanding Policy

It is NIH policy that the results and accomplishments of the activities that it funds should be made available to the public. PD/PIs and recipient organizations are expected to make the results and accomplishments of their activities available to the research community and to the public at large.

A Culture of Sharing



NIH Public Access Policy for Publications

- Ensures public access to published results of all research funded by NIH since 2005 (by law since 2008)
  - Recipients of NIH funds required to submit final peer-reviewed journal manuscripts to PubMed Central (PMC) upon acceptance for publication
  - Papers must be accessible to the public on PMC no later than 12 months after publication

CONSOLIDATED APPROPRIATIONS ACT, 2008

PUBLIC LAW 110–161—DEC. 26, 2007 121 STAT. 2187

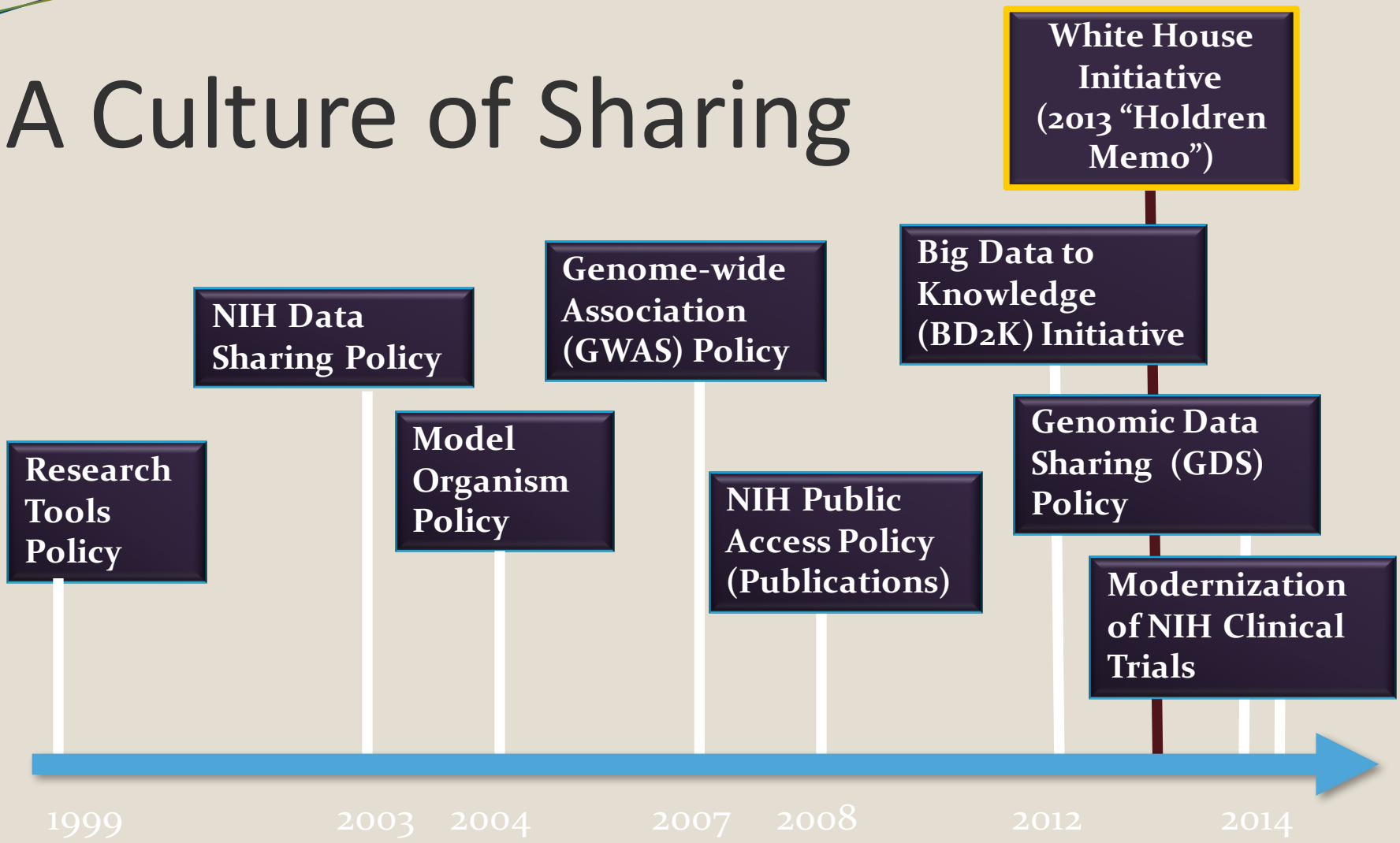
J Biol Chem. 2014 Feb 21;289(8):5074-82. doi: 10.1074/jbc.M113.542787. Epub 2014 Jan 8.

Coupling of human DNA excision repair and the DNA damage checkpoint in a defined in vitro system.

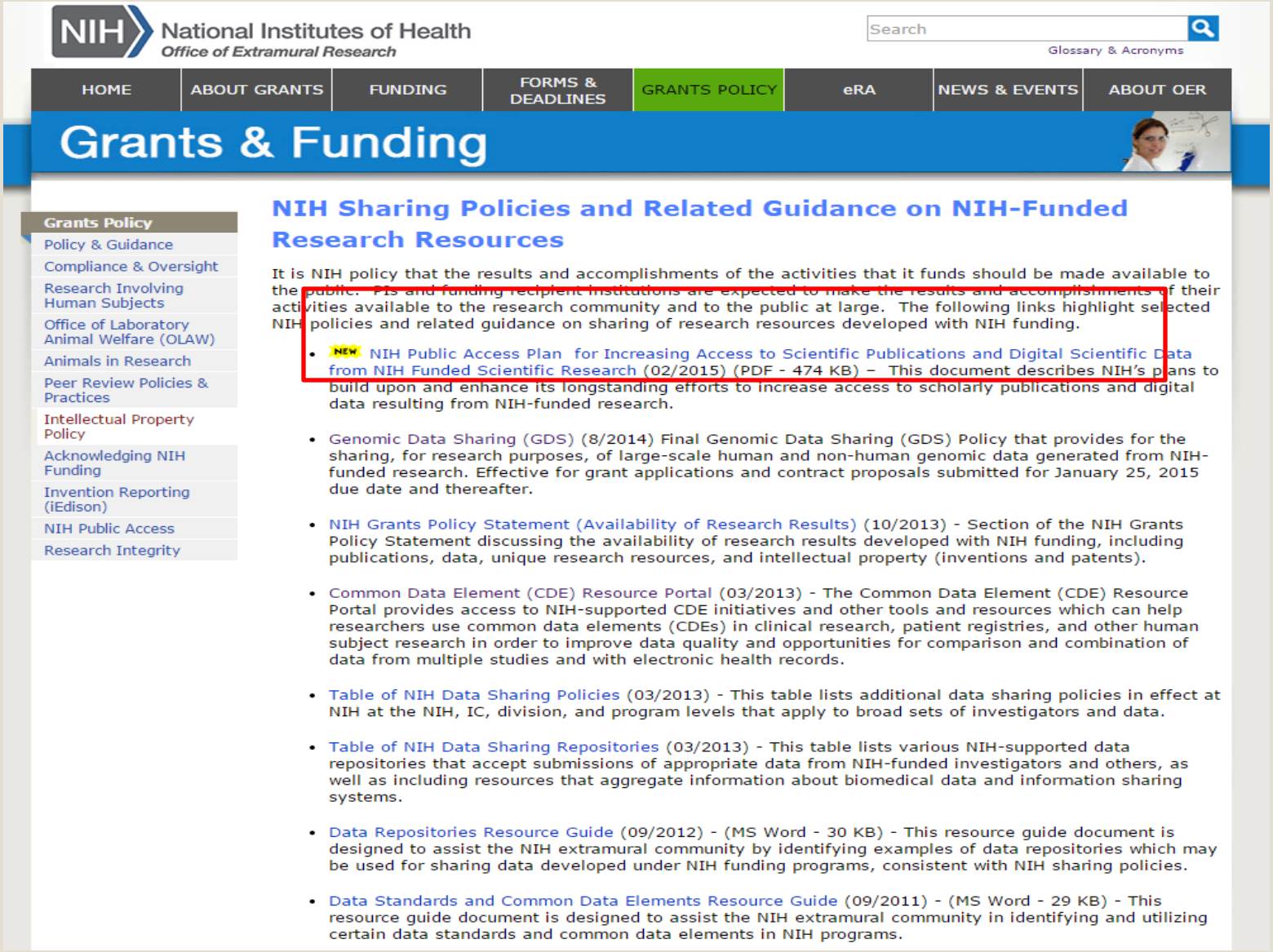
Lindsey-Boltz LA[1], Kemp MG, Reardon JT, DeRocco V, Iyer RR, Modrich P, Sancar A.

policy in a manner consistent with copyright law.

A Culture of Sharing



NIH Response to Administration Directives



NIH National Institutes of Health
Office of Extramural Research

Search
Glossary & Acronyms

HOME | ABOUT GRANTS | FUNDING | FORMS & DEADLINES | GRANTS POLICY | eRA | NEWS & EVENTS | ABOUT OER

Grants & Funding

Grants Policy
- Policy & Guidance
- Compliance & Oversight
- Research Involving Human Subjects
- Office of Laboratory Animal Welfare (OLAW)
- Animals in Research
- Peer Review Policies & Practices
- Intellectual Property Policy
- Acknowledging NIH Funding
- Invention Reporting (iEdison)
- NIH Public Access
- Research Integrity

NIH Sharing Policies and Related Guidance on NIH-Funded Research Resources

It is NIH policy that the results and accomplishments of the activities that it funds should be made available to the public. PIs and funding recipient institutions are expected to make the results and accomplishments of their activities available to the research community and to the public at large. The following links highlight selected NIH policies and related guidance on sharing of research resources developed with NIH funding.

- NEW NIH Public Access Plan for Increasing Access to Scientific Publications and Digital Scientific Data from NIH Funded Scientific Research (02/2015) (PDF - 474 KB) – This document describes NIH's plans to build upon and enhance its longstanding efforts to increase access to scholarly publications and digital data resulting from NIH-funded research.
- Genomic Data Sharing (GDS) (8/2014) Final Genomic Data Sharing (GDS) Policy that provides for the sharing, for research purposes, of large-scale human and non-human genomic data generated from NIH-funded research. Effective for grant applications and contract proposals submitted for January 25, 2015 due date and thereafter.
- NIH Grants Policy Statement (Availability of Research Results) (10/2013) - Section of the NIH Grants Policy Statement discussing the availability of research results developed with NIH funding, including publications, data, unique research resources, and intellectual property (inventions and patents).
- Common Data Element (CDE) Resource Portal (03/2013) - The Common Data Element (CDE) Resource Portal provides access to NIH-supported CDE initiatives and other tools and resources which can help researchers use common data elements (CDEs) in clinical research, patient registries, and other human subject research in order to improve data quality and opportunities for comparison and combination of data from multiple studies and with electronic health records.
- Table of NIH Data Sharing Policies (03/2013) - This table lists additional data sharing policies in effect at NIH at the NIH, IC, division, and program levels that apply to broad sets of investigators and data.
- Table of NIH Data Sharing Repositories (03/2013) - This table lists various NIH-supported data repositories that accept submissions of appropriate data from NIH-funded investigators and others, as well as including resources that aggregate information about biomedical data and information sharing systems.
- Data Repositories Resource Guide (09/2012) - (MS Word - 30 KB) - This resource guide document is designed to assist the NIH extramural community by identifying examples of data repositories which may be used for sharing data developed under NIH funding programs, consistent with NIH sharing policies.
- Data Standards and Common Data Elements Resource Guide (09/2011) - (MS Word - 29 KB) - This resource guide document is designed to assist the NIH extramural community in identifying and utilizing certain data standards and common data elements in NIH programs.

NIH Plan on Digital Scientific Data

- Describes current policies and procedures and future considerations.
- Maximize access by the general public, without charge, to digital scientific data.
- Protect privacy, proprietary interests, and preserve the balance between the benefits of access/preservation and the costs.

NIH Plan on Digital Scientific Data (continued)

- Explore steps to require data sharing
- Ensure that all NIH-funded researchers prepare data management and sharing plans
- Ensure that plans are reviewed during peer review
- Develop additional policies to increase public access to designated data types
- Encourage use of established repositories and community-based standards
- Develop approaches to ensure discoverability of data
- Promote interoperability and openness (M-13-13)
- Explore the development of a data commons

Considerations for Implementation of the Plan Goals for Digital Scientific Data

- Timelines for implementation
- For human data, privacy, confidentiality, informed consent issues
- Costs and benefits, for example, establishing suitable repositories
- Implementation costs within constraints of existing budgets and resources
- Notice and feedback from the community
- Changes to policies, systems, forms, procedures, etc.
- Education, training, and tools for NIH staff, community, and others as appropriate

Next Steps

- Further develop draft policy in conjunction with assessment of priorities and costs and benefits under the auspices of the NIH Scientific Data Council (SDC)
- Seek input from NIH, HHS, and other Federal government staff as appropriate
- Revise and issue draft policy guidance for public comment as appropriate
- Review comments and revise policy guidance as needed
  - Work on implementation for systems, forms, procedures, etc.
  - Identify and address challenges as appropriate
- Issue final policy and implementation guidance, along with education, training, tools, etc.


NIH National Institutes of Health
Turning Discovery Into Health
ENCODE
International HapMap Project
H3Africa
Human Heredity and Health in Africa
4D Nucleome
SINGLE CELL
ANALYSIS PROGRAM
db GaP
GENOTYPES and PHENOTYPES
Data Sharing: An Essential Component
Atlas
METABOLOMICS
THE BRAIN INITIATIVE
HMP
1000 Genomes
A Deep Catalog of Human Genetic Variation
Rethinking Clinical Trials™
A Living Textbook of Pragmatic Clinical Trials
BARD
GTR: GENETIC TESTING REGISTRY

FDAAA and Clinical Trial reporting

- FDAAA (2007) mandates results sharing through ClinicalTrials.gov for most FDA-regulated studies
- NPRM and NIH Policy expanding this scope (2014 – 2016)

Other Data Sharing Policies

NIH U.S. National Library of Medicine

Search

Databases | Find, Read, Learn | Explore NLM | Research at NLM | NLM for You

Contact NLM

NIH Trans-NIH BioMedical Informatics Coordinating Committee (BMIC)

Home

NIH Data Sharing Policies

This table lists data sharing policies in effect at NIH. It includes policies at the NIH, IC, division, announcements (PA) may specify other requirements or expectations for data sharing that apply

Show 50 entries

IC	Data Sharing Policy Name	
NHGRI	ENCODE Consortia Data Release, Data Use, and Publication Policies	Requires resource producers to release primary da databases as soon as the data is verified. Consor or with additional experimentation where appropri Coordination Centers (DCCs) and these pre-public
NHLBI	NHLBI Policy for Data Sharing from Clinical Trials and Epidemiological Studies	Encourages all applicants to include a plan to add criteria, applicants are are required to provide a d applications/proposals requesting $500000 direct parent studies d) applications/proposals submitte appropriate for data sharing by NHLBI program off
NIA	Alzheimer's Disease Genetics Sharing Plan	NIA policy in the area of human Alzheimer's diseas Policy and extends NIA's existing policy on sharing association study. It is the policy of the NIA that deposited at the National Cell Repository for Alzhe NIA funded studies for the genetics of late onset Storage Site (NIAGADS) or another NIA approved analysis data, derived from NIA funded studies fo another NIA approved site or both, wherever poss
NIA	Alzheimer's Disease Neuroimaging Initiative (ADNI) Data Sharing and Publication Policy	The ADNI Executive Committee and the NIA expec short timeframe. ADNI recommends full, open acc to the conditions in the "ADNI Data Use Agreemer
NIAID	NIAID/DMID Data Sharing and Release Guidelines	Establishes general principles and specific guidelin Infectious Diseases (GSCID) and other NIAID-func types collected in NIAID-funded research will be s GenBank, dbGaP, the sequence read archive, the
NIAID	Data Sharing Guiding Principles for the NIAID/DMID Systems Biology Program	The NIAID/DMID Systems Biology Program (SBP) e data available to center investigators, including r content generated by each center, analyses of s contract requirement, research data, protocols ar community through the centers' websites or othe

Federal Register / Vol. 80, No. 173 / Tuesday, September 8, 2015 / Proposed Rules 53933

DEPARTMENT OF HOMELAND SECURITY

6 CFR Part 46

DEPARTMENT OF AGRICULTURE

7 CFR Part 1c

DEPARTMENT OF ENERGY

10 CFR Part 745

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

14 CFR Part 1230

DEPARTMENT OF COMMERCE

15 CFR Part 27

SOCIAL SECURITY ADMINISTRATION

20 CFR Part 431

AGENCY FOR INTERNATIONAL DEVELOPMENT

22 CFR Part 225

DEPARTMENT OF JUSTICE

28 CFR Part 46

DEPARTMENT OF LABOR

29 CFR Part 21

DEPARTMENT OF DEFENSE

32 CFR Part 219

DEPARTMENT OF EDUCATION

34 CFR Part 97

DEPARTMENT OF VETERANS AFFAIRS

38 CFR Part 16

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 26

DEPARTMENT OF HEALTH AND HUMAN SERVICES

45 CFR Part 46

RIN 0937–AA02

NATIONAL SCIENCE FOUNDATION

45 CFR Part 690

DEPARTMENT OF TRANSPORTATION

49 CFR Part 11

Federal Policy for the Protection of Human Subjects

AGENCY: Department of Homeland Security; Department of Agriculture; Department of Energy; National Aeronautics and Space Administration; Department of Commerce; Social Security Administration; Agency for International Development; Department of Justice; Department of Labor; Department of Defense; Department of Education; Department of Veterans Affairs; Environmental Protection Agency; Department of Health and Human Services; National Science Foundation; and Department of Transportation.

ACTION: Notice of proposed rulemaking.

SUMMARY: The departments and agencies listed in this document propose revisions to modernize, strengthen, and make more effective the Federal Policy for the Protection of Human Subjects that was promulgated as a Common Rule in 1991. This NPRM seeks comment on proposals to better protect human subjects involved in research, while facilitating valuable research and reducing burden, delay, and ambiguity for investigators. This proposed rule is an effort to modernize, simplify, and enhance the current system of oversight. The participating departments and agencies propose these revisions to the human subjects regulations because they believe these changes would strengthen protections for research subjects while facilitating important research.

DATES: To be assured consideration, comments must be received at one of the addresses provided below, no later than 5 p.m. on December 7, 2015.

ADDRESSES: You may submit comments, identified by docket ID number HHS–OPHS–2015–0008, by one of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Enter the above docket ID number in the "Enter Keyword or ID" field and click on "Search." On the next Web page, click on "Submit a Comment" action and follow the instructions.
- *Mail/Hand delivery/Courier [For paper, disk, or CD–ROM submissions] to:* Jerry Menikoff, M.D., J.D., OHRP, 1101 Wootton Parkway, Suite 200, Rockville, MD 20852.

Comments received, including any personal information, will be posted without change to *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Jerry Menikoff, M.D., J.D., Office for Human Research Protections (OHRP), Department of Health and Human Services, 1101 Wootton Parkway, Suite 200, Rockville, MD 20852; telephone: 240–453–6900 or 1–866–447–4777; facsimile: 301–402–2071; email: *jerry.menikoff@hhs.gov.*

SUPPLEMENTARY INFORMATION:

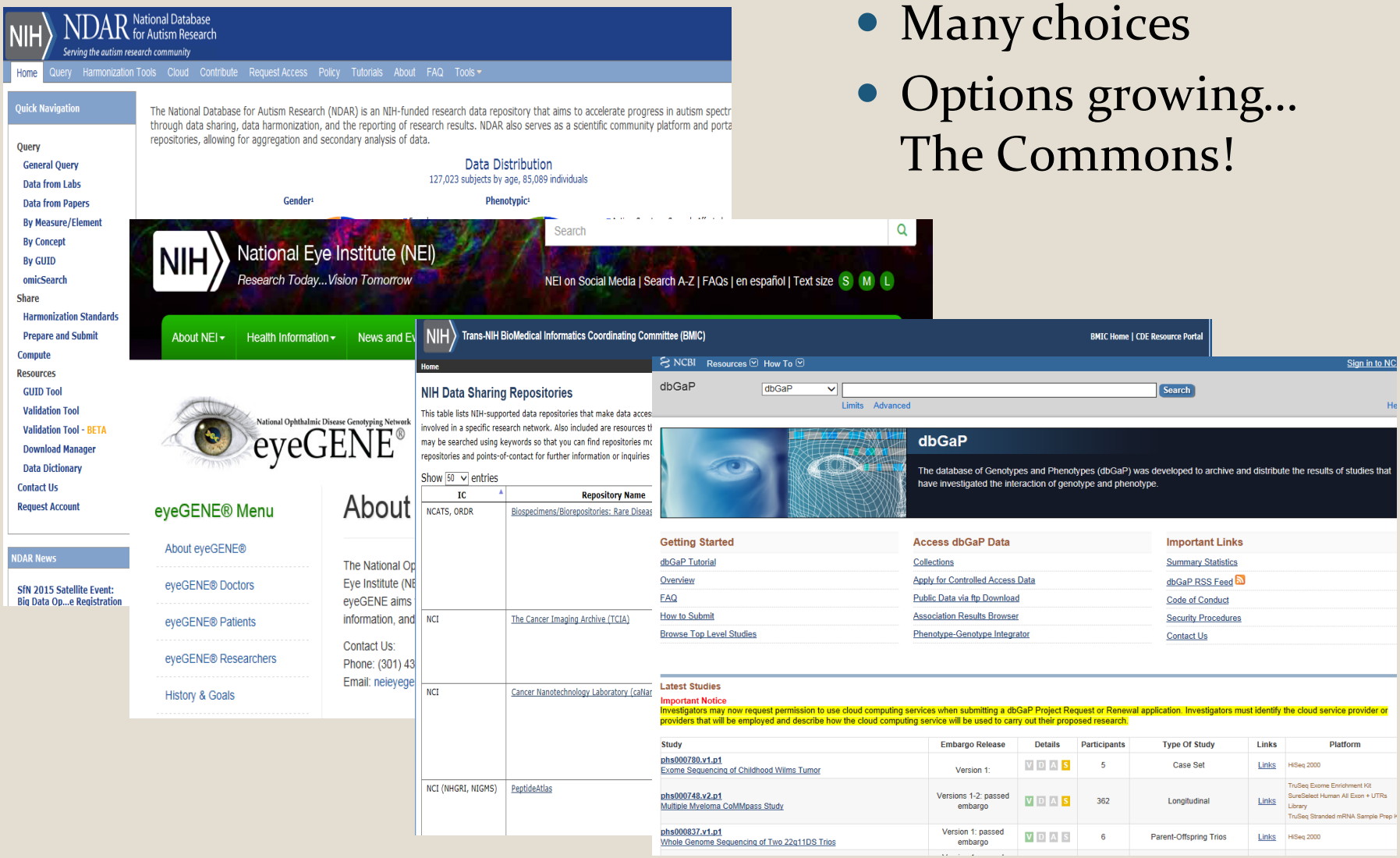
Executive Summary

Purpose of the Regulatory Action
Summary of the Major Provisions of the Proposed Regulatory Actions
Estimated Costs and Benefits
I. The Rationale for Modernizing the Common Rule
A. The Changing Nature of Research
B. Public Comments, Expert Advice, Stakeholder Dialogue
C. Guiding Principles for Proposed Changes
1. Question for Public Comment
D. Organization of the NPRM
II. Major Proposals To Modernize the Common Rule
A. Proposed Changes to the Scope and Applicability of the Regulations
1. Expanding the Definition of Human Subject to Cover Research With Non-identified Biospecimens (NPRM at §§ .102(e) and ___.101(b)(3)(i))
a. NPRM Goals
b. Current Rule
c. ANPRM Discussion
d. NPRM Proposal
i. Alternative Proposals
e. What would change in the definition of "human subject" under the primary proposal?
f. Questions for Public Comment
2. Explicit Exclusion of Activities From the Common Rule
a. Exclusion of Activities That Are Deemed Not Research (NPRM at § ___.101(b)(1))
i. Program Improvement Activities (NPRM at § ___.101(b)(1)(i))
(1) NPRM Proposal
(2) Questions for Public Comment
ii. Oral History, Journalism, Biography, and Historical Scholarship Activities (NPRM at § .101(b)(1)(ii))
(1) ANPRM Discussion
(2) NPRM Proposal
iii. Criminal Justice Activities (NPRM at § .101(b)(1)(iii))
(1) NPRM Proposal
iv. Quality Assurance and Quality Improvement Activities (NPRM at § .101(b)(1)(iv))
(1) NPRM Proposal
v. Public Health Surveillance (NPRM at § .101(b)(1)(v))
(1) NPRM Proposal
(2) Question for Public Comment
vi. Intelligence Surveillance Activities (NPRM at § ___.101(b)(1)(vi))
(1) NPRM Proposal
b. Exclusion of Activities That Are Low-Risk and Already Subject to Independent Controls (NPRM at § ___.101(b)(2))
i. NPRM Goals
ii. ANPRM Discussion
iii. Educational Tests, Survey Procedures, Interview Procedures, or Observation of Public Behaviors (NPRM at § .101(b)(2)(i))
(1) NPRM Proposal
(2) Questions for Public Comment
iv. Research Involving the Collection or Study of Information That Has Been or

- NIH ICs
- Sharing.nih.gov
- Proposed revisions to the Common Rule

Data Sharing: Mechanics

- Many choices
- Options growing…
  The Commons!



- Thank you for your attention -

NIH Office of Science Policy: http://osp.nih.gov

- *Twitter: @CWolinetzNIH*
- *OSP Blog - Under the Poliscope:*
  http://osp.od.nih.gov/under-the-poliscope

NIH Office of Extramural Programs (OEP), OER, OD, NIH

- *Email: jpkim@nih.gov*

NIH National Institutes of Health
Turning Discovery Into Health

Open Data for NOAA and its Grantees

Briefing to CLIR/DLF E-Research Network
2016-06-15

Jeff de La Beaujardière, PhD
NOAA Data Management Architect and
Chair, Environmental Data Management Committee
jeff.deLaBeaujardiere@noaa.gov

NOAA has Big Data

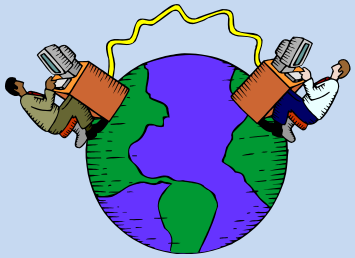
(National Oceanic and Atmospheric Administration)

- 10 satellites
- 150+ weather radars
- 3 buoy networks
- 200+ tide gauges
- human observers
- animal telemetry
- 17 ships
- 10 aircraft
- Many numerical models
- <u>Extramurally funded data</u>

NOAA data are unique, valuable, irreplaceable, and collected at public expense

Vision for NOAA Data Management

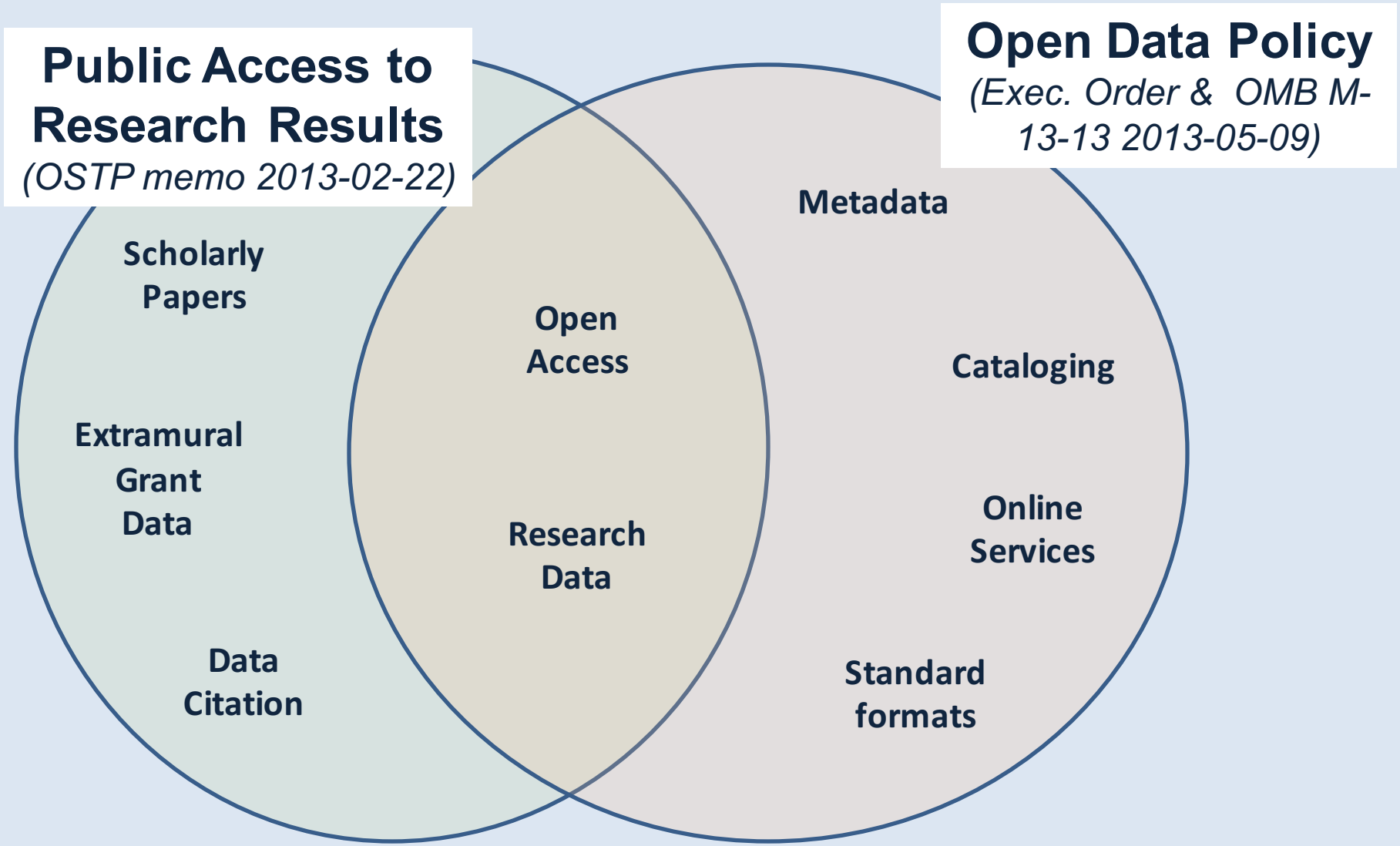
All NOAA-funded environmental data shall be



Discoverable **Accessible** **Usable** **Preserved**

for all types of users and applications.

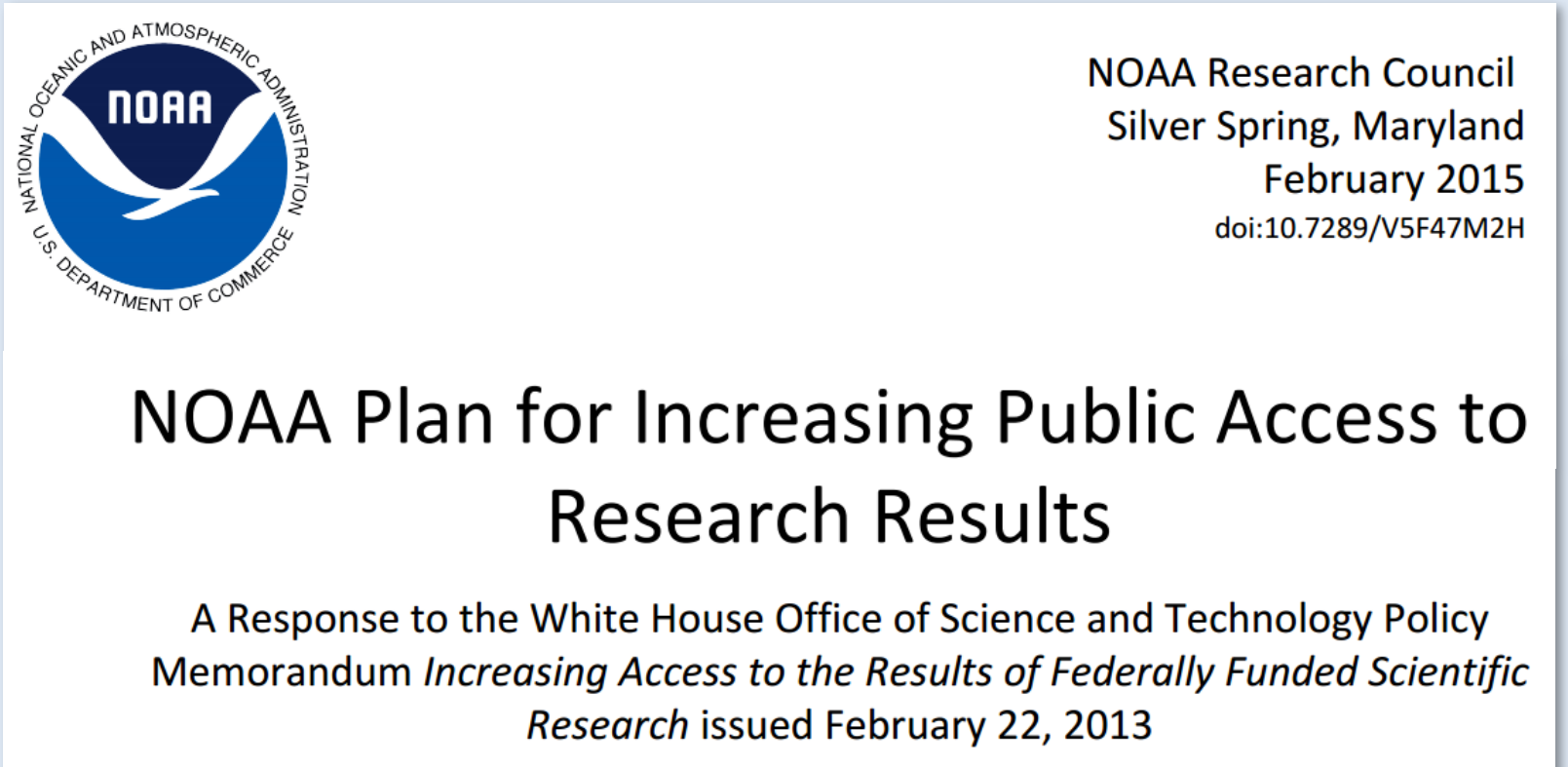
2013 White House Initiatives



Jeff.deLaBeaujardiere@noaa.gov

NOAA PARR Plan

- NOAA Plan for Public Access to Research Results
  - http://doi.org/10.7289/V5F47M2H
  - Response to 2013 OSTP Memo
    - Memo welcomed by NOAA Data Mgmt as high-level mandate to support existing vision and activities



NOAA Research Council
Silver Spring, Maryland
February 2015
doi:10.7289/V5F47M2H

NOAA Plan for Increasing Public Access to Research Results

A Response to the White House Office of Science and Technology Policy Memorandum *Increasing Access to the Results of Federally Funded Scientific Research* issued February 22, 2013

Jeff.deLaBeaujardiere@noaa.gov

NOAA Environmental Data Management Documents

https://nosc.noaa.gov/EDMC/

PARR-related policies completed

NOAA Administrative Order 212-15
(2010)

NOAA Environmental Data Management Framework
(2012-2013)

Data Management Planning Directive
(2011; rev. 2014)

Data Documentation Directive
(2011)

Data Access Directive
(2015)

Archive Approval Process
(2008)

Data Citation Directive
(2015)

Data Sharing Directive for NOAA Grantees
(2012; rev. 2015)

Jeff.deLaBeaujardiere@noaa.gov

Goals of Grant Data & Publication Sharing Directive

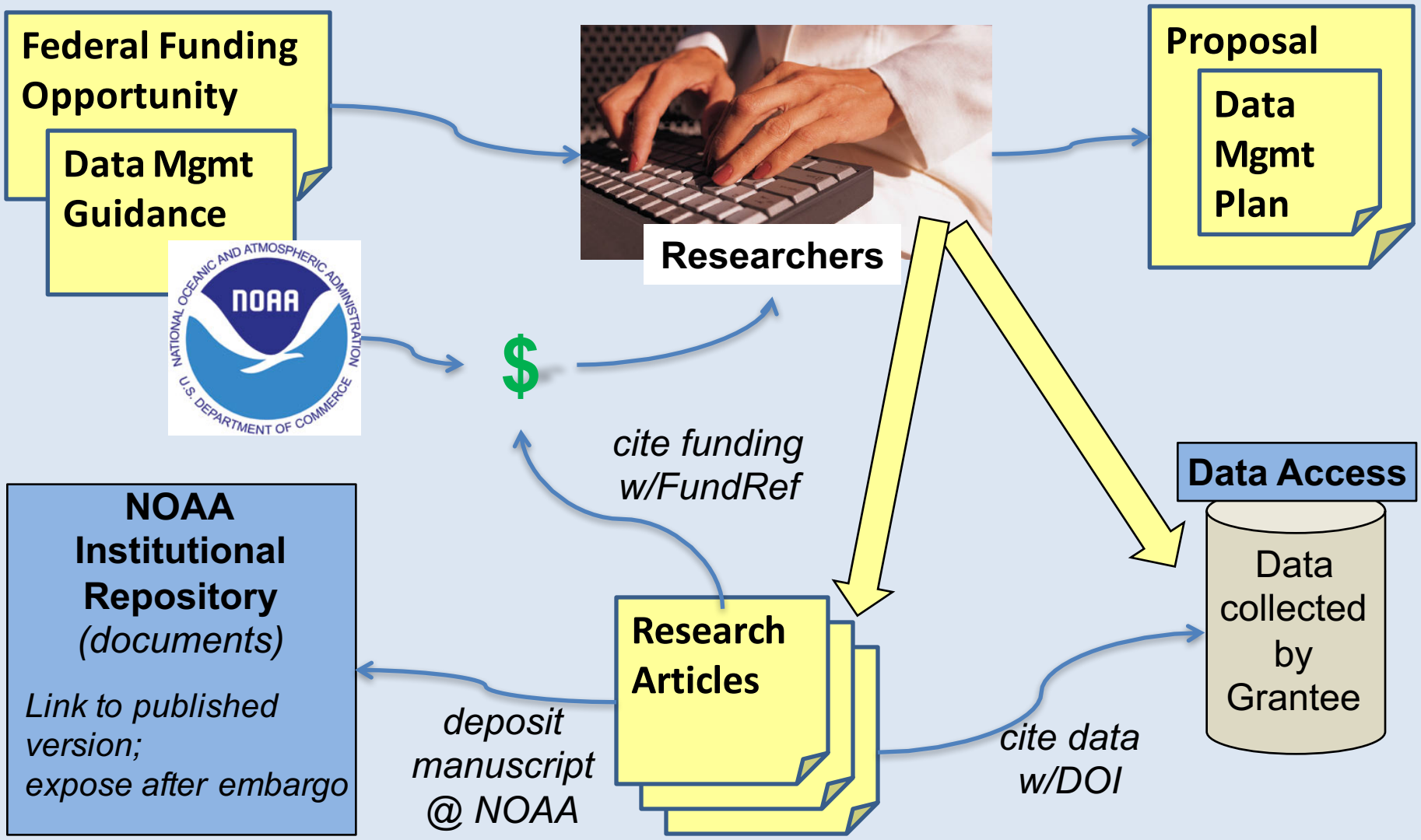
- Environmental data produced using extramural NOAA funding are made publicly accessible in a timely fashion (<2 years)
- Manuscripts of research papers are made publicly accessible (after 1yr embargo)
- Data used to support conclusions of peer-reviewed papers are cited
- Funding sources are acknowledged in a standardized fashion

Jeff.deLaBeaujardiere@noaa.gov

Conceptual Overview of Grant Data Sharing Directive

Data & Publication Sharing Directive for NOAA Grants, Cooperative Agreements, and Contracts *(v.3, 2016)*

https://nosc.noaa.gov/EDMC/PD.DSP.php



Jeff.deLaBeaujardiere@noaa.gov

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Categories in DM Guidance for Grantees

1. **Responsible NOAA Official** for questions regarding this guidance and for verifying accessibility of data
2. **Data Accessibility** The NOAA Program recommends (or requires) that public access to extramural data be enabled as follows *[see next slide]*
3. **Technical recommendations** (optional: formats, access service types, etc.)
4. **Resources** (data sharing costs may/may not be included in proposal budget)

Jeff.deLaBeaujardiere@noaa.gov

Data Accessibility Options for Grantees

- Submit data to **NOAA National Ctrs for Environmental Information (NCEI)**
- Submit data to the following **NOAA facility *(other than NCEI)*:** _____.
- Submit data to the following International Council for Science **(ICSU) World Data System** facility: _____.
  (see list at https://www.icsu-wds.org/community/membership/regular-members)
- Submit data to appropriate **public data repository**
  - *e.g., Dryad (http://datadryad.org/), DataVerse (http://dataverse.org/), Pangaea (http://www.pangaea.de/), Acadis (https://www.aoncadis.org/), Merritt (https://merritt.cdlib.org/), etc.*
- Submit data to existing publicly accessible **data server at your institution**.
- **Establish your own data hosting capability** (describe in proposal).
- Proposal may **request permission not to make data publicly accessible** (proposal to explain rationale for lack of public access).

Jeff.deLaBeaujardiere@noaa.gov

Compliance & Tracking

- Timeline for data sharing is beyond end of grant funding
  - Soonest of: 2 years after end of data collection, or 2 years after end of grant, or upon first publication of paper based on data
- Difficult to enforce provisions
  - Will seek to incentivize self-reporting
  - Will look at past performance before awarding new funding
  - Grant programs to report metrics on verified data availability, inability to verify, and waivers granted

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