

UPDATE TO EPA'S PLAN TO INCREASE ACCESS TO RESULTS OF EPA-FUNDED SCIENTIFIC RESEARCH

U.S. ENVIRONMENTAL PROTECTION AGENCY

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MESSAGE FROM THE EPA CHIEF SCIENTIST



EPA has an important and impactful mission to protect human health and the environment. [EPA's Strategic Plan for FY2022-2026](#) communicates the Agency's priorities aligned with this mission and provides a roadmap for achieving them. The Strategic Plan also identifies four principles for EPA's work: follow the science; follow the law; be transparent; and advance justice and equity. Each of these principles is incredibly important and embedded in all we do.

Public access to peer-reviewed, scientific research publications and research data is a major component of realizing EPA's mission and embodying the principle of transparency. EPA has a longstanding commitment to make the results of EPA-funded research available to the public. EPA issued its first [Plan to Increase Access to Results of EPA-Funded Scientific Research](#) in November 2016. Since that time, EPA has delivered on this plan by working to ensure the public has access to the results of federally funded peer-reviewed, scientific research publications and research data. This is connected to EPA's broader [open government goals and initiatives](#).

In 2022, OSTP released a new memorandum, "[Ensuring Free, Immediate, and Equitable Access to Federally Funded Research](#)." The memo builds upon current Federal public access initiatives to further strengthen them by removing the 12-month publication embargo, strengthening guidance on data and other scholarly material sharing, and setting the stage for implementation through interagency coordination. As noted in this memo, public access to federally funded science is a major component of the returns on American investment in research and science through tax dollars. Additionally, it helps accelerate discovery, foster collaboration, advance equity, and maximize America's returns on investments in basic research.

I am pleased to share EPA's Public Access Plan Update. This document outlines the steps EPA will take to implement the new provisions in the 2022 OSTP memorandum. The document does not replace EPA's 2016 Public Access Plan. Rather, it builds on the existing plan to further strengthen the Agency's public access efforts while recognizing and acknowledging the successes already achieved by EPA in this area. This Public Access Plan Update was developed by a workgroup under EPA's Public Access Forum, which is charged with implementing EPA's Public Access Plan and supporting the Agency's commitment to public access to EPA-funded scientific research. I would like to thank the efforts of this workgroup, listed on page 3.

In delivering this plan, I would like to acknowledge the tireless and long-standing efforts of Dr. Jerry Blancato to champion and advance EPA's public access efforts over the years. Jerry played a critical role in EPA's approach to implementing public access across the Agency's research enterprise. Sadly, Jerry passed away in 2022. While he was not able to see the delivery of this Public Access Plan Update, his strategic thinking played a major role in how the Public Access Forum shaped this update. Jerry once noted that "as far as the environment is concerned, we are one world and one community" and that EPA would succeed through leading "by cooperation, example, and sharing of knowledge and resources." Strengthening the Agency's public access efforts is one important way to do this. This Public Access Plan Update is dedicated to Jerry in recognition of his significant and lasting efforts to advance public access at EPA.

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BACKGROUND

In 2013, the White House Office of Science and Technology Policy (OSTP) issued a memorandum, “[Increasing Access to the Results of Federally Funded Scientific Research](#)” (2013 memorandum), directing federal agencies that spend more than \$100 million per year in research and development (R&D) to develop a plan to increase public access to peer-reviewed scientific research publications and research data. The U.S. Environmental Protection Agency (EPA) finalized its [Plan to Increase Access to Results of EPA-Funded Scientific Research](#) (Public Access Plan) in November 2016. Over the following several years, EPA implemented its public access plan in phases, and as of October 2019, has achieved full implementation.

In 2022, OSTP released a new memorandum, “[Ensuring Free, Immediate, and Equitable Access to Federally Funded Research](#)” (2022 memorandum). The 2022 memorandum builds upon the 2013 memorandum by updating provisions that will further strengthen public access. These provisions will enhance public access by removing the 12-month publication embargo, strengthening guidance on data and other scholarly material sharing, and setting the stage for implementation through interagency coordination.

As noted in the 2022 memorandum, “public access policies that deliver transparent, open, secure, and free communication of federally funded research ... are an important tool to uphold scientific and research integrity” (see 2022 Memorandum, page 5). Public access to federally funded science is a major component of the returns on American investment in research and science through tax dollars. Additionally, it helps accelerate discovery, foster collaboration, advance equity, and maximize America’s returns on investments in basic research.

PURPOSE

The purpose of this document (Public Access Plan Update) is to modify specific provisions in EPA’s Public Access Plan, consistent with OSTP’s recommendations in the 2022 memorandum.¹ This document outlines the overarching direction, and specific steps where possible, for EPA to address the provisions of the 2022 memorandum. These directions will be operationalized and implemented over time. Any implementation activities related to the Public Access Plan Update will be prospective and will not apply to research publications or research data generated from scientific research conducted prior to the implementation of the Public Access Plan Update. EPA’s Forum on Increasing Public Access to EPA Research (Public Access Forum) will provide cross-Agency coordination to identify and recommend to the Administrator policies, procedures, infrastructure, and training needed to implement the new provisions identified in this document.

The Public Access Plan is the Agency’s comprehensive plan for increasing access to peer-reviewed scientific research publications that result from federally funded research. Consistent with EPA’s Public Access Plan, this Public Access Plan Update covers peer-reviewed scientific research publications in scholarly journals and digital research data that result from EPA-funded research. Unless explicitly modified by the Public Access Plan Update, the 2016 Public Access Plan’s provisions still apply.

EPA’s scientific research falls under three lines of work: (1) EPA’s intramural research conducted in the Office of Research and Development (ORD); (2) intramural research conducted by non-ORD program offices and regions;

¹ To maintain consistency, EPA will apply the definitions in Appendix A of the 2016 Public Access Plan for any terms included in both plans.

and (3) EPA-funded extramural research. As such, addressing the new provisions may, in some cases, require unique approaches for these three lines of research.

This Public Access Plan Update also recognizes and acknowledges the successes achieved by EPA since the release of the 2016 Public Access Plan. This information is provided in the Supplemental Information section in Table 1, which updates a table included in the 2016 Public Access Plan outlining implementation steps needed.

PUBLIC ACCESS PLAN MODIFICATIONS

EMBARGO PERIOD FOR PEER-REVIEWED SCHOLARLY PUBLICATIONS AND THEIR UNDERLYING SCIENTIFIC RESEARCH DATA

The 2022 memorandum instructs federal agencies to update their public access plans to make peer-reviewed scholarly publications and their supporting data resulting from federally funded research publicly accessible without an embargo on their free and public release.

Section V(B) of the 2016 Public Access Plan had provided for a maximum 12-month post-publication embargo period. In Section VI of the 2016 Public Access Plan, EPA had required that research data underlying a publication be posted to publicly accessible data repositories within 30 days of posting the paper in [PubMed Central](#), which is a free, full-text, online archive of scientific journal literature operated by the U.S. National Institutes of Health's National Library of Medicine. Section VI also described how EPA will provide access to digitally formatted data resulting from EPA-funded research, while protecting confidentiality and personal privacy, recognizing proprietary interests, business confidential information and intellectual property rights, and preserving the balance between the relative benefits and costs of long-term preservation and access. EPA currently uses [ScienceHub](#) to post digital datasets underlying publications.

As appropriate and consistent with applicable law and through the Public Access Plan Update, EPA will take steps to make peer-reviewed scholarly publications resulting from federally funded research freely available and publicly accessible by default in Agency-designated repositories without any embargo or delay after publication. Additionally, EPA will take steps to make scientific research data² underlying peer-reviewed scholarly publications resulting from federally funded research freely available and publicly accessible at the time of publication, to the extent practicable and consistent with relevant policies and laws. The [Enterprise Data Management Policy](#) outlines EPA's policy to develop and manage data assets OPEN (Open, Public, Electronic, and Necessary) by default. ORD researcher responsibilities on how to manage and share data are outlined in the ORD Scientific Data Management Policy and corresponding internal guidance (templates, webpages, and training materials) for ORD researchers requiring the development of scientific data management plans (SDMPs). For non-ORD researchers, responsibilities include developing a SDMP as outlined in internal guidance, such as training materials, templates, and checklists. EPA will continue to require intramural researchers to use ScienceHub to post underlying scientific research data.

Between the date of publication of this Public Access Plan Update and the date of full implementation, EPA will work toward releasing underlying scientific research data upon publication of the associated journal article (without delay or embargo), to the extent practicable and allowable by law. EPA will review and update its infrastructure and internal procedures as needed. EPA will also develop language and/or criteria regarding prerequisites needed to make publications available by default, including any use and re-use rights, and which restrictions, including attribution, may apply. To do this, EPA will first form a workgroup to evaluate issues related to 1) prerequisites needed to make publications available by default; and 2) use and re-use rights. This workgroup will leverage and learn from other federal agency efforts related to these issues. Based on the findings from the workgroup, EPA will develop language as needed that can be incorporated into Agency documents, as appropriate, as part of implementation. EPA will also evaluate whether Agency policies or

² Refer to the Public Access Plan's definition of scientific research data. Scientific research data are the digital recorded factual material commonly accepted in the scientific community as necessary to validate research findings (OSTP Memo, 2 C.F.R 200.315).

procedures need to be updated to incorporate this language, and if so, develop a plan to update relevant policies and procedures.

Prospectively, EPA will review and update its extramural research policies and communicate with its extramural researchers regarding the change in embargo period. EPA will also encourage extramural researchers to select data repositories meeting the [Desirable Characteristics of Data Repositories for Federally Funded Research](#).

EPA's 2016 Public Access Plan contains language noting that inclusion of costs for data management and public access may be included in intramural and extramural research proposals. EPA will continue to allow the inclusion of these costs for intramural and extramural research.

EQUITABLE ACCESS

Part 3(a) of the 2022 memorandum asks agencies to describe how they will maximize the equitable reach of public access to peer-reviewed scholarly publications. As described in the beginning of this section, EPA currently uses [PubMed Central](#) to permanently preserve and provide easy public access to the peer-reviewed scholarly publications resulting from EPA-funded research. PubMed Central converts final manuscripts into machine readable and 508-compliant web content, extending accessibility to the broadest community of consumers. Additional information about the accessibility of PubMed Central and its articles can be found on the [PMC accessibility website](#). EPA intends to continue to use PubMed Central to release final, peer-reviewed scholarly publications to the public for free as it operationalizes the 2022 memorandum.

SCIENTIFIC DATA NOT ASSOCIATED WITH PUBLICATIONS³

Under Part 3(b) of the 2022 memorandum, OSTP asks agencies to develop approaches and timelines for sharing other federally funded scientific data that are not associated with peer-reviewed scholarly publications. To that end, after the implementation of the removal of the embargo period for research data associated with peer reviewed publications, EPA's Public Access Forum will form a workgroup to address this section of the 2022 memorandum. The workgroup will first consider efforts being taken by EPA under [open data policies and guidance](#) and this Public Access Plan Update and evaluate whether additional steps are needed to share federally funded scientific data that are not associated with peer-reviewed publications. This workgroup may also develop criteria for determining which scientific datasets to share; propose procedures to release these datasets; determine if additional infrastructure is needed; evaluate whether Agency policies should be developed or updated; and determine what types of descriptive summaries or narratives should be included with the release of scientific data. The workgroup will also evaluate the need for caveats and/or information on how data will be reviewed before release (for example, QA/QC, peer review, etc.). EPA will strive to make scientific data not associated with peer-reviewed scholarly publications available to the public consistent with applicable policies and laws.

ADDITIONAL PROVISIONS

The 2022 memorandum identifies several additional provisions that agencies must address in a second update to their public access plans no later than December 31, 2024, as appropriate and consistent with their missions.

³ OSTP defines "federally funded scientific data that are not associated with peer-reviewed scholarly publications" recorded factual material commonly accepted in the scientific community as of sufficient quality to validate and replicate research findings. EPA interchangeably uses "scientific data" with "research data," which is defined by 2 CFR 200.315(e) and 45 CFR 75.322(e).

These provisions deal with metadata, digital persistent identifiers for federally funded researchers, and digital persistent identifiers for all scientific research and development awards and intramural research protocols.

EPA's [Open Data Policy Implementation Plan](#) (Data Plan, February 2015) addresses the management of metadata as well as persistent digital identifiers. It notes that dataset metadata records will be made accessible to the public through EPA's [Environmental Dataset Gateway](#) (EDG), a web-based metadata portal that supports the discovery and access to EPA's environmental research data resources. It refers to EPA's Metadata Technical Specification and notes that metadata submitted to the Environmental Dataset Gateway should follow the guidelines in this document. EPA's Data Plan also notes that a key aspect of data management associated with metadata will be the use of identifiers that ensure unambiguous identification of authors and digital objects. EPA's Data Plan strongly recommends the use of digital object identifiers for all datasets and models under the purview of the plan. To address disambiguation of researcher names and comply with persistent identifier requirements in the [National Security Presidential Memorandum 33](#) (NSPM-33) Implementation Guidance, EPA has adopted the use of open research and contributor IDs (ORCID). An interagency agreement has been put in place with U.S. Department of Energy for EPA to gain membership to the ORCID Consortium, which will allow EPA to reserve and mint ORCIDs for EPA researchers. Between the date of publication of this Public Access Plan Update and 2024, EPA's Public Access Forum will review EPA's Data Plan and currently established procedures to see whether additional changes are required to meet the provisions of the 2022 memorandum.

Effective Dates/Timeline

- December 31, 2024: Develop final policies needed to implement provisions related to the elimination of the embargo period
- December 31, 2025: Implement elimination of embargo period

NOTE: A more detailed implementation action timeline is provided in Table 2.

Supplemental Information

Table 1. Implementation Actions from 2016 Public Access Plan and Status Update

Action	Status
Convene Agency Scientific Publication Access Data and Management Working Group	Complete
Select ORD intramural scientific article and manuscript repository submission system	Complete
Identify and test repository compatibility with EPA's Environmental Dataset Gateway	Complete
Activate prospective publication submission system in PubMed Central for ORD intramural research efforts covered by the Public Access Plan	Complete
Begin depositing prospective ORD intramural peer-reviewed research publications in PubMed Central	Complete
Begin submission and review of scientific data management plans as part of ORD intramural research efforts	Complete
Begin depositing prospective ORD intramural research data into the designated EPA data repository	Complete
Complete EPA's Plan to Increase Access to Results of EPA-Funded Scientific Research (Public Access Plan)	Complete
Establish the Forum on Increasing Public Access to EPA Research (EPA Public Access Forum)	Complete
Begin depositing prospective EPA (non-ORD) intramural peer-reviewed research manuscripts in PubMed Central	Complete
Identify and work towards developing processes, infrastructure, language, and training needed to implement future EPA-funded extramural research	Complete
Begin depositing prospective non-ORD intramural research data into designated EPA data repository	Complete
Being implementing Phase 3 by including relevant language in EPA-funded extramural solicitations	Complete
Evaluate progress of access to peer-reviewed publications and research data	Ongoing
Continue ongoing efforts to identify data management needs and strategies for leveraging data management resources	Ongoing
Participate in interagency data and publication access plan implementation working groups	Ongoing

Table 2. Implementation Actions Timeline

Target Date	Action
CY ⁴ 2023	<ul style="list-style-type: none"> • Convene workgroup under EPA’s Public Access Forum to evaluate approaches for the release of scientific research data underlying peer-reviewed scholarly publications with no embargo. • Convene workgroup under the Public Access Forum to evaluate issues related to 1) prerequisites needed to make publications available by default; and 2) use and re-use rights, and develop language, as appropriate, that can be incorporated into Agency documents developed for implementation. • Convene workgroup under the Public Access Forum to develop a strategy to communicate/engage with intramural and extramural researchers (for example, through listening sessions or outreach materials) and other relevant parties as appropriate. • Estimate budget needed for implementation.
CY 2024 through CY 2025	<ul style="list-style-type: none"> • Review EPA policies related to making publications available in PubMed Central, and update if needed (internal, grants, contracts, etc.). • Evaluate current storage and metadata platforms and quality assurance/quality control procedures to determine if changes are needed to accommodate embargo removal. • Communicate change in embargo period to EPA’s intramural and extramural researchers. • Engage with other stakeholders, per the communication and engagement strategy. • By 12/31/24, develop implementation plans for eliminating the embargo period. • By 12/31/25, implement elimination of embargo period for publications and associated scientific research data.
CY 2026 and Beyond	<ul style="list-style-type: none"> • Convene a workgroup under EPA’s Public Access Forum to evaluate approaches to share federally funded scientific data not associated with peer-reviewed publications. • Develop criteria for determining which scientific datasets to share. • Develop procedures to release scientific datasets not associated with peer-reviewed publications, including required review steps and exceptions to be put into place. • Review relevant EPA policies and procedures and, if needed, update them. • Determine best practices for developing descriptive summaries or narratives to be released with scientific datasets not associated with peer-reviewed publications.
Ongoing	Continue use of PubMed Central to release final, peer-reviewed scholarly publications.
Ongoing	Evaluate progress of access to peer-reviewed publications and underlying scientific research data.
Ongoing	Continue ongoing efforts to identify data management needs and strategies for leveraging data management resources.
Ongoing	Participate in interagency data and publication access plan implementation working groups.

⁴ CY refers to Calendar Year