

NOAA Institutional Repository Annual Operating Report

Fiscal Year 2022

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Executive Summary

Since 2020, the NOAA Central Library has reported to the NOAA Science Council on the status and progress of the NOAA Institutional Repository (IR). This report has served as a way for NOAA leadership to monitor the agency's response to the 2013 White House Office of Science and Technology Policy's memorandum on public access¹. Since its launch in 2017, the NOAA IR has grown to house over 42,599 unique items across 18 collections, increasing PARR compliance to 39.7% in FY2022. The IR had 836,918 pageviews last year.

Despite a drop in submissions from NOAA authors and grantees of 21% from FY21, the agency's overall FY22 compliance still grew due to activities undertaken by NOAA Central Library staff throughout the year. The most significant of these activities being the transition of the National Sea Grant Library from the University of Rhode Island to the NOAA Central Library general collections and NOAA IR. These program documents and grant funded journal articles were harvested by Library staff and accounted for the large number of IR additions. This transition took over 10 months to complete and included the development of a new submission method for Sea Grant programs which resulted in over 1,000 documents being submitted to the NOAA IR.

Other areas of work for the NOAA IR included

- Working with the NOAA Research and Development Enterprise Committee (RDEC), the NOAA IR worked to revise the 2021 PARR Compliance Recommendations as requested by the NOAA Science Council;
- Market research and identification of a partner to develop a new submission processing and cataloging system; and
- Updates to the existing NOAA IR Submission form and associated metrics.

In August of 2022, the White House Office of Science and Technology Policy issued updated policy guidance on public access to research results of federally funded research and development; requiring NOAA to update the existing NOAA Public Access to Research Results (PARR) Plan². Updates to the policy will deal with persistent identifiers, embargo periods for journal article manuscripts, machine readability for data and publications, etc.; all elements that will directly impact processes, metadata and policies of the NOAA IR. Moving forward, PARR updates and implementation of these requirements will be the primary focus for Library staff.

¹ <https://repository.library.noaa.gov/view/noaa/13809>. Memorandum from OSTP to the heads of executive departments and agencies titled *Increasing Access to the Results of Federally Funded Scientific Research* (2013).

² <https://repository.library.noaa.gov/view/noaa/10169>. *NOAA plan for increasing public access to research results: a response to the White House Office of Science and Technology Policy memorandum* (2015).

Introduction

Since 2020, the NOAA Central Library has been providing an annual operating report to NOAA leadership on NOAA's compliance with the publication aspects of the 2015 NOAA Plan for Increasing Public Access to Research Results (PARR Plan). Included in this report is a discussion of system developments, publication submissions, overall agency compliance, and a breakdown of line office level metrics for fiscal year 2022.

Section I. System Developments and Enhancements

In FY2022 the following features were added to the Stacks system:

Front-end developments

- *Updated Search Results Display*. The results page was condensed to allow more items to appear "above the fold." Additionally the cite option was made more prominent.
- *Advanced Search Redesign*. Search functionality is of the highest importance for both the NOAA IR and Centers for Disease Control & Prevention (CDC) teams. The CDC development team updated the existing advanced search to replicate the look and feel of a Google advanced search. The intent was to create a sense of familiarity, while also allowing users to create precise queries within the IR using specified metadata fields.
- *Addition of Query Builder Option*. In addition to the updated advanced search function, NOAA staff worked with CDC to develop a query builder for highly-skilled researchers. Derived from a similar functionality within NIH's PubMed Central, the custom query builder allows users to create complex search queries within particular metadata fields and the full text and employs the use of proximity searching, boolean terms, and quotes to customize the search.

Backend and metadata developments

- *Separation of Metadata and Full Text Indexing*. In an effort to speed up ingest processing, the CDC worked on the backend of Fedora to separate indexing functions. By separating the metadata indexing and the full text indexing, the system is able to increase the number of items it can handle within each ingest. Full-text indexing is done in the background and primarily overnight to ensure optimal performance.
- *Addition of Advanced Search Option*. An advanced search function was added to the backend of the system so the NOAA Library IR staff would be able to create custom queries, making it easier to identify and edit metadata on existing NOAA IR objects.
- *Purged Item Tracking*. NOAA IR staff have the ability to purge records within the system. Typically these are duplicate records. The previous manual process for identifying and tracking these record removals was managed locally via spreadsheets. Staff worked with CDC to develop a method for tracking items, and key associated metadata, to alleviate and automate some of the purging workflow.

Section II. RDEC Recommendations on PARR Compliance

After the FY 2020 IR Briefing, the NOAA Science Council tasked the Research & Development Enterprise Committee (RDEC) with identifying ways to improve NOAA's compliance with its PARR Plan. Late in FY21, RDEC and the NOAA Central Library presented a set of 7 recommendations to the Science Council. At that point in the year little action was taken on the recommendations, and while NOAA's compliance did increase in FY21, it was not to a level that the Science Council found acceptable. RDEC was again asked to revisit the existing compliance recommendations and revise as needed.

A revised list was created (See [Appendix A](#)) from the original recommendations including: deliverables, timelines for new action implementation and identified parties responsible for each activity. These were presented to the Science Council in August of 2022.

New Recommendations

In addition to revising the existing recommendations on improving PARR compliance, RDEC also identified two new recommendations for the Science Council.

- *Set an agency PARR compliance goal.* RDEC and the NOAA Library worked to develop an overall agency-wide compliance rate for NOAA to maintain. It was recommended that a range be set, with a sliding scale of compliance gains benchmarks over time to reach the final goal range. It was emphasized that an aggressive push in the short-term would lead to improved long-term habits and set expectations for continued compliance.
 - The suggested goal was for NOAA to hover between 70-75% with a sliding scale of a 15% increase in FY23; a 10% increase in FY24 ; 7% increase in FY25; and 6% increase in FY26. This would result in an overall compliance rate of 73%.
 - It should be noted that these figures were established assuming that FY22 compliance figures increase at normal rates, or at the very least remain flat. Please see Section IV from more on NOAA's FY2022 compliance rate.
- *Establish laboratory, program, and office level PARR points of contact.* It was suggested that RDEC and the Science Council should identify lab, program, and office level PARR points of contact who would work closely with the library to ensure compliance, set up trainings, route questions, etc. and could also serve as a way to disseminate new trainings and information on PARR compliance.

Action on these recommendations through combined efforts from leadership, the library, program/line offices, and grantees is vital to the success of NOAA's efforts to comply with public access mandates. As a result of inaction, the Library projects that compliance will remain below 50%, even with increased Library efforts to harvest open access publications. Currently, NOAA publishes open access approximately 40% of the time; meaning that manuscript versions of articles are required 60% of the time because the article is behind a paywall (i.e. require a subscription) and we are not permitted to use that publisher's version. Implementation of the RDEC recommendations will be critical in ensuring authors and grantees are complying with submission requirements of these much-needed manuscripts.

Section III. National Sea Grant Library Transition

The National Sea Grant Library (NSGL) originated as a collaboration between the National Sea Grant Program and the University of Rhode Island (URI) and has served as the steward of Sea Grant's publications and records for over 50 years. After a two-year review of Sea Grant's library and information services and needs, and in consultation with URI leadership, and NOAA Librarians, the National Sea Grant Advisory Board proposed a set of recommendations to consolidate the NSGL with the NOAA Libraries holdings. Additionally, the decision was also guided by PARR requirements for depositing NOAA-funded publications in the NOAA Institutional Repository as a way to streamline submission processes and reduce duplication of efforts for state program staff while also making materials more widely accessible and discoverable via the open web. Consolidating the NSGL collection and the ongoing submission process also represented a savings of \$200,000.00 per year for the National Sea Grant program.

Legacy Collection Transfer

The NOAA Central Library (NCL) worked closely with URI staff and Sea Grant leadership to transition the existing National Sea Grant Library from URI to the NOAA Central Library and Institutional Repository holdings. A thorough evaluation of the existing NSGL, which contained 55,535 records, was conducted to determine what was within scope for NCL and the NOAA IR. Due to space constraints and shifts in the NCL's own collection development policy, only digital items were to be accepted from NSGL. Any physical items would either be retained by URI Libraries or shipped to the Internet Archive.

Of the existing NSGL records, it was determined that only 24,610 of them had digital items. Of these, approximately 8,250 were listed as out of scope for the NOAA Libraries. These materials included:

- Ephemera such as calendars, bookmarks, business cards, one-pagers, etc.
- Videos
- Audio recordings
- Fact sheets
- Abstracts
- Posters

Out of the remaining items, staff added over 10,970 records to the NOAA IR Sea Grant Collection and nearly 1,900 documents to the NOAA Library Catalog. Library staff was also able to identify 280 physical Sea Grant titles in the NOAA Central Library that did not have digital surrogates in the NSGL, that will be slotted for a future digitization project. Finally, the NSGL also housed a large number of theses and dissertations: approximately 3,650. Typically these types of publications do not fall into the NCL collection development policy, but staff is currently evaluating if these are held in other repositories or via scholarly databases. For those that are not accessible via other means, the digital copy will be added to the NOAA Library Catalog.

New Sea Grant Submissions

Each year the Sea Grant College Programs publish nearly 1,500 materials, all of which are to be submitted to the National Sea Grant Program. These publications include journal articles, technical reports, white papers, newsletters, fact sheets, advisory reports, educational materials, and more. Many of these publications would fall under the existing NOAA PARR Plan, while others fall outside the scope of the NOAA Libraries. Using the National Sea Grant Program's Inside Sea Grant Page, programs are able to submit 3 categories of documents to the National Office and the NOAA IR via Google Forms:

1. Journal article submissions

2. Sea Grant publications including technical reports, advisory reports, working/white papers, educational materials, theses/dissertations, etc.
3. Ephemera and internal documentation including newsletters, promotional materials, yard signs, etc.

The new forms were based on the current IR Submission forms and were launched January 1, 2022. Over the course of FY2022, Sea Grant programs submitted 1,038 publications for inclusion in the NOAA IR and the general library collections.

Section IV. Metrics

Agency-Wide

Publication Availability

The NOAA Institutional Repository includes both NOAA-produced publications dating back to 1970 (as laid out in the [NOAA IR Document Policy](#)) as well as peer-reviewed journal articles published after October 1, 2015, as dictated by the NOAA PARR Plan. At the end of FY2022, the NOAA IR contained a total of 42,599 unique items across 18 collections. The breakdown of these publications is as follows:

NOAA Series Publications (Tech memos, reports, Atlases, etc.)	NOAA Non-Series Publications (Program & policy documents, handbooks, reports to congress, instructional material, etc.)	Journal Articles (open access and manuscript versions)
19,839	11,965	10,795

Ingests

Ingest is the process by which publications are added to the NOAA IR, but the term is also often used to refer to the number of items that have been added to the repository within a given time period.

Ingesting publications is a multi-step process that includes:

1. Assigning metadata including author, office, and keyword elements;
2. Uploading the metadata and corresponding document to the CDC's Stacks system;
3. A quality check of each item to ensure metadata has been transferred correctly and that all documents (including any supporting documents or links to datasets) are accessible via the staging environment;
4. A full system index or data migration as the system refers to it, is performed to update all instances of the repository (there are 3 sets of servers on a bi-coastal system that maintain backups of the NOAA IR and its contents).

In FY2022, a total of 13,443 items were ingested into the NOAA IR. Of these items, the Library identified and harvested 10,802; primarily from the National Sea Grant Library Transition. The number of items added to the NOAA IR from submissions was 3,361. It should also be noted that these numbers only indicate the number of records that were created in the NOAA IR; some of these records do include a main document and multiple supporting files (i.e., additional volumes, appendices, etc.).

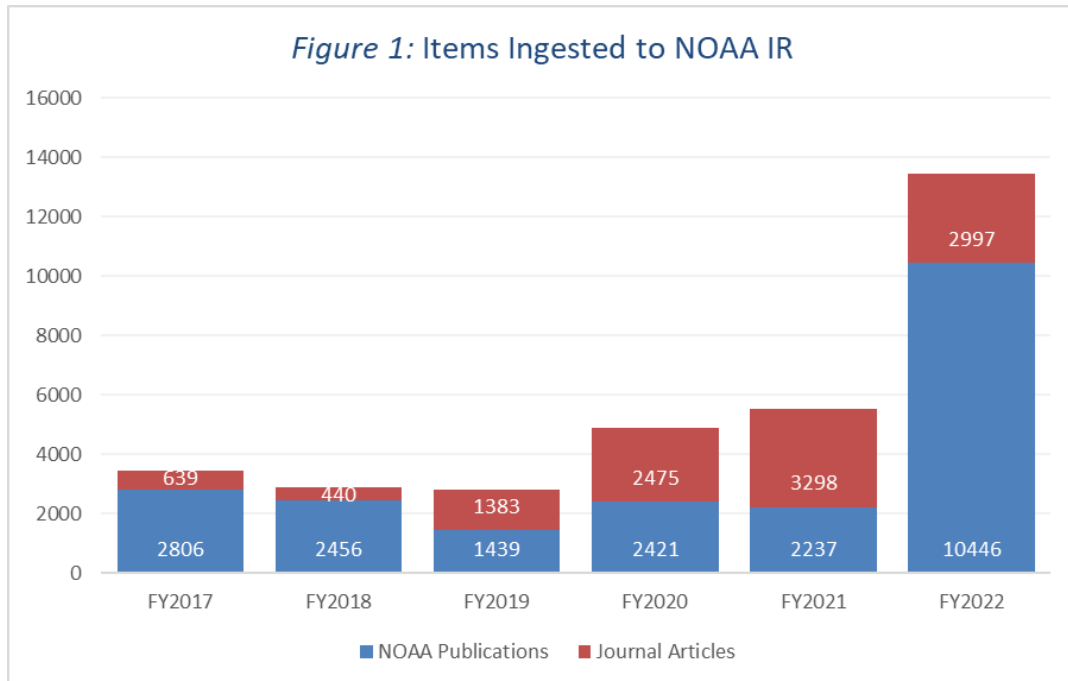


Figure 1. A non-cumulative comparison of NOAA Publications and journal articles ingested annually to the NOAA IR from FY2017 through FY2022.

Submissions

Per the NOAA PARR Plan, all intramural and extramural researchers are required to submit their publications to the NOAA Institutional Repository, and NOAA Central Library staff is tasked with working with offices to facilitate collection of these materials. Submissions refers to both NOAA publications and journal articles that are either NOAA-authored or NOAA-funded research and are used to estimate compliance rates (see Compliance section below). A submission is defined as a publication that has been sent to the NOAA IR via one of the following methods:

1. Revised NOAA IR Submission and DOI Request Form
2. Email sent to noaa.repository@noaa.gov
3. Through the Research Publication Tracking System (RPTS) (implemented in NMFS and some offices with NESDIS, NOS and OAR offices)
4. Via NMFS's ECO tracking system for Biological Opinions

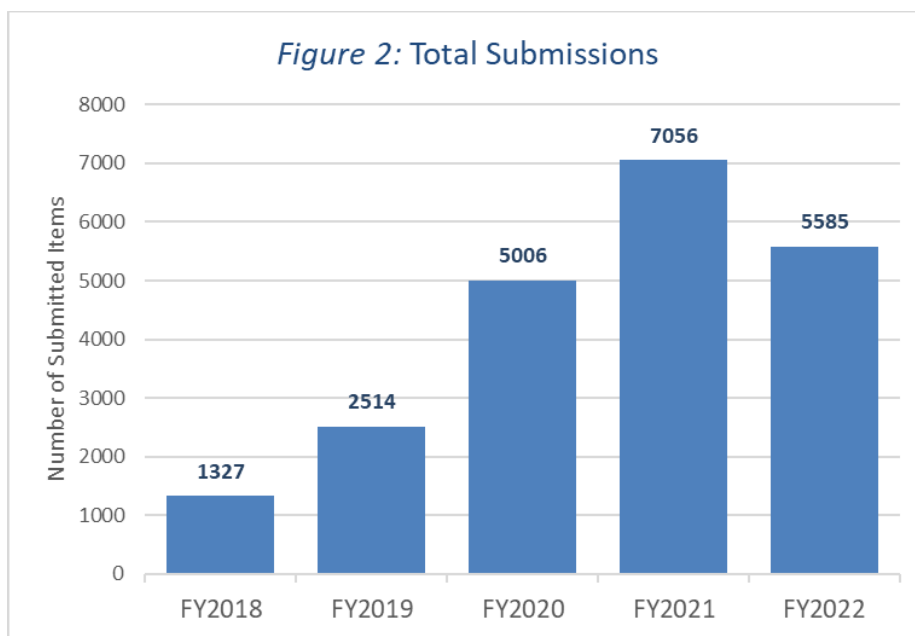


Figure 2. Number of total submissions to the NOAA IR through all submission methods...

Overall submissions for FY2022 show a 21% decrease in submissions from FY2021. Despite having large batches of backlogs submitted from the Sea Grant program, NESDISSTAR and NCEI, submissions were down substantially from the previous year (7,056 in 2021). Building on last year's success, submissions made using the Research Publication Tracking System (RPTS) increased by 11%. In addition to managing submissions, we also received 139 edit requests from users for changes to metadata or files already ingested into the NOAA IR in FY2022.

Last year additional submission statistics were added to give the NOAA IR team a better understanding of pain points throughout the submission process. These statistics track why a submission may not be incorporated in the Institutional Repository and include:

1. Duplicate Submissions: These are items that already appear in the NOAA IR or have been submitted by another office/author
2. 508 Compliance Revision Requests: Used for NOAA publications only, as journal manuscript remediation is done by Library staff.
3. Manuscript requests: A publisher version of the article was sent instead of the author accepted manuscript.
4. Out of Scope: These are items that fall outside the scope of the NOAA IR as indicated in the NOAA IR Document policy.

By tracking these occurrences, we hope to better understand why certain submissions are not ingested into the IR and work to address these issues through outreach. Because of our current manual submission system's limitations, these statistics were only applied to single submissions, and are unable to be accounted for in batch submissions.

We received over 141 submissions that already exist in the NOAA IR. Each submission takes time to process, even just verifying submissions are duplicative is very time-consuming. This level of redundancy highlights the need for a submission system that can automatically check for submissions for existing NOAA IR records as well as duplicate pending submissions from authors prior to processing.

NOAA publications must be Section 508 compliant upon submission in order for them to be accepted and ingested into the NOAA IR. During the course of the year, 28 submissions (0.4% of all submissions) were left incomplete due to a lack of response to our requests for revisions of 508 compliance issues. Considering the volume of submissions, this number is low and can be attributed to the multitude of webinars and online guides that the NOAA IR team has compiled since its inception. For journal article manuscripts, the Library staff provides the 508 remediation, as financed by the Library's annual Direct Bill funding. Staff remediated 225 manuscripts in 2022, a 57% increase from the previous year.

There are a number of factors that must be considered when determining which version of the article can be housed in the NOAA IR. If a journal has a favorable author's rights policy or if the article is open access, the IR may use a publisher's version of the article (sometimes referred to as the version of record). Sometimes a short embargo period may be imposed on these documents depending on publisher policies. In most other cases, an accepted, post-refereed, pre-publication version of the article must be used. This version, which is peer reviewed but does not feature publisher added content such as pagination and logos is referred to as the accepted manuscript,, can be archived by the author's home or funding institution. If an author submits a publisher version of an article, but a manuscript is required, Library staff will send a request to the submitter. In FY2022, 51 requests went unanswered and did not provide the appropriate version for inclusion in the NOAA IR.

Although the NOAA IR accepts a wide variety of NOAA publications and journal articles, there are some document types that fall outside of the NOAA IR's scope. Out of the 5,585 submissions in FY2022, only 62 items submitted were found to be out of scope.

Compliance Calculation

Compliance with the NOAA PARR plan is defined as the ratio of: (1) the number of peer-reviewed scholarly articles subject to NOAA's public access policy that have been submitted and accepted to the NOAA IR (including those still under embargo) divided by (2) the total number of peer-reviewed scholarly articles that are subject to NOAA's public access policy, and is expressed as a percentage. This method of calculation is consistent with the Office of Science and Technology Policy (OSTP)'s reporting method and has been adopted by other federal agencies for their compliance reporting.

The NOAA Central Library estimates the number of published articles subject to the NOAA PARR plan by searching Web of Science (WoS) for NOAA-produced and NOAA-funded journal articles. This count underestimates the number of publications due to two factors. First, WoS contains most but not all of the journal titles in which NOAA publishes, so it will always lack an unknown but assumed small number of publications. Second, there may be a lag of several months between publication and the appearance of a citation in WoS. The number of peer-reviewed publications given represents an actual count of WoS articles identified by the NOAA Central Library as NOAA-produced or NOAA-funded, published October 2015 to present.

Another reason for limiting the scope of publications included in compliance rate estimations to journal articles is the fact that the total number of NOAA publications that are produced in a given year is unknown. Furthermore, the category of NOAA publications includes a wide range of publication types, adding to the variability of this metric. Until a process for tracking all NOAA publications is devised, either through the establishment of a central publishing unit within the agency or office level reporting on these publications, we will not be able to include them in our compliance figures.

For the purpose of calculating the agency’s overall PARR compliance to OSTP, the numerator of our ratio includes the following:

1. Articles submitted to the NOAA IR and have been accepted for inclusion regardless of submission method (i.e., email, form, RPTS, batch, etc.)
2. Any articles harvested from PubMed Central (PMC). Per a letter of understanding between NOAA and NIH, we treat these articles the same as a NOAA submission
3. Articles identified and harvested by Library staff via CHORUS (Clearinghouse for the Open Research of the United States).
4. Open access articles identified through the bibliometrics program that were not included in any of the above counts.

Articles added via PMC, CHORUS, or through the bibliometrics program are not included in NOAA IR submission numbers since their identification and inclusion were the work of Library staff. It should also be noted that not all submitted articles are included in the compliance calculations. For example, NOAA publications are included in submission calculations, but are excluded from compliance calculations since the Library is unable to determine the total number of these publications; only those that are sent to the NOAA IR. Similarly, we do not include submissions where the wrong version of a publication (i.e. author submitted a publisher’s version but due to copyright an author accepted manuscript is required) was received.

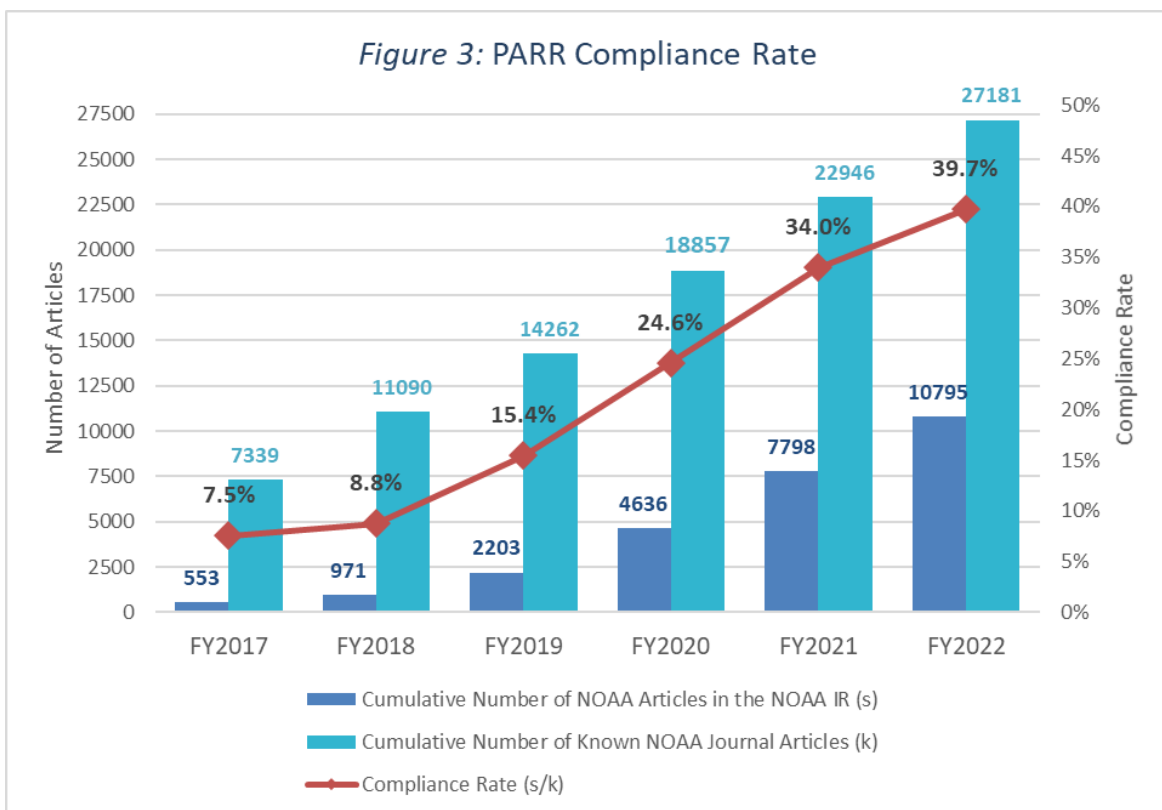


Figure 3. Cumulative number of journal articles submitted for inclusion in the NOAA IR compared to the cumulative number of known journal articles published since FY2016 (October 2015). Also shown is the rate of compliance as reported to the OSTP for each fiscal year.

As shown in Figure 3, NOAA exhibited modest gains in regards to the overall compliance rate despite a significant decrease in the number of submissions. One reason for this is the Library's work with the National Sea Grant Program to transition the Sea Grant Library which did include a large number of journal publications subject to the NOAA PARR plan. In compiling this report, the Library retroactively adjusted compliance figures to adjust for duplicate records that existed within the NOAA IR in addition to adding in Library harvested articles into the overall agency compliance figures; an addition that had previously not been done. These adjustments did slightly lower overall compliance on average by less than one percent each year. Moving forward the Library will conduct deduping of journal articles prior to calculating compliance to ensure the most accurate figure for reporting to the NOAA Science Council and OSTP.

Line Office and CI Compliance

Prior to FY2021, we were unable to calculate compliance at the line office level due to a number of factors. However, in October 2020 NCL staff began adding additional metadata to articles identified as having been authored by NOAA grantees in order to identify the funding source within NOAA, enabling us to calculate PARR compliance at the line office level as well as for the Cooperative Institutes as a whole. For the purposes of this report, line office compliance is defined as the ratio of: (1) the number of peer-reviewed scholarly articles subject to the agency's public access policy that have been submitted and accepted to the NOAA IR (including those still under embargo) and identified as having been authored by an employee, contractor or grantee of an office divided by (2) the total number of peer-reviewed scholarly articles that are subject to the agency's public access policy and identified as having been authored by an employee, contractor or grantee of an office.

Journal articles must contain an author affiliation or source of funding statement associated with a line office, program or cooperative institute to be included in these calculations. If a journal article contains affiliations from multiple NOAA line offices or programs, all receive credit in their PARR compliance count.

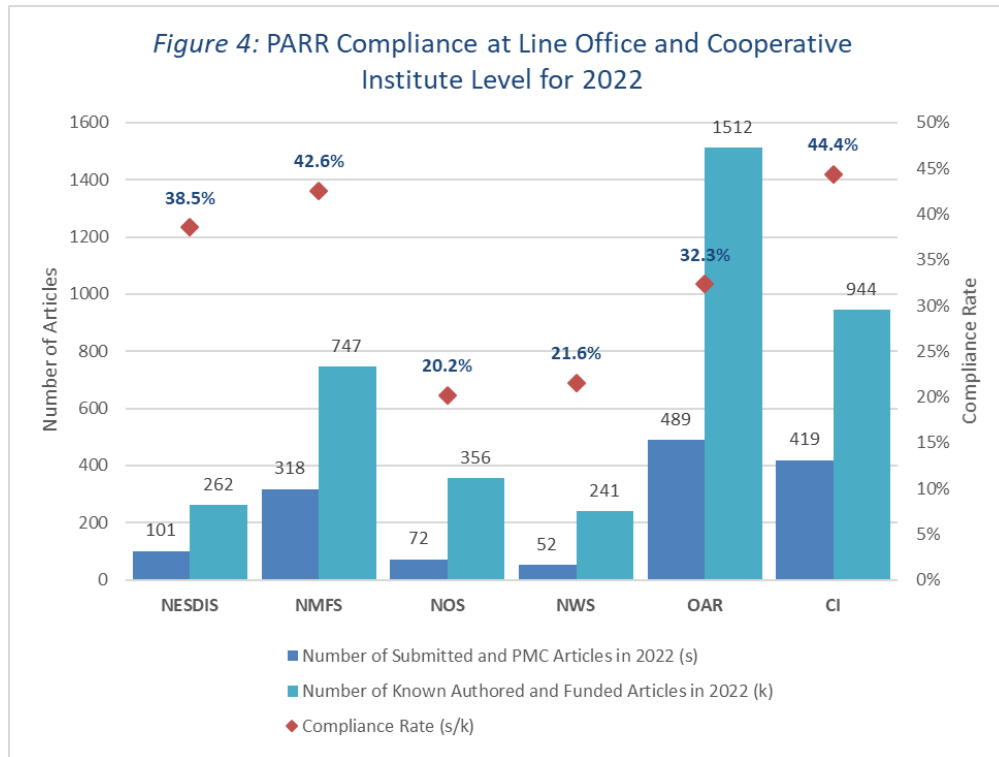


Figure 4. Number of articles authored or funded by each line office submitted to the NOAA IR compared to the number of articles known to have been authored or funded by each line office which were published in calendar year 2022

It should be noted that Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year. Year over year comparisons are provided in the individual line office metrics sections of this report.

Pageviews and Downloads

Currently, the NOAA Central Library reports IR usage metrics obtained through Google Analytics. The numbers provided reflect annual pageviews for the NOAA IR since FY2018. At the end of FY2021, CDC implemented event tracking through Google Tag Manager, which will allow for the capture of more accurate download data as well as more granular information on how and what people are searching for in the NOAA IR. While the IR team and CDC are still working to refine these new capabilities, it was determined that the NOAA IR had over 836,000 pageviews in FY2022, resulting in:

- 63,495 main document downloads
- 17,833 citations exports generated

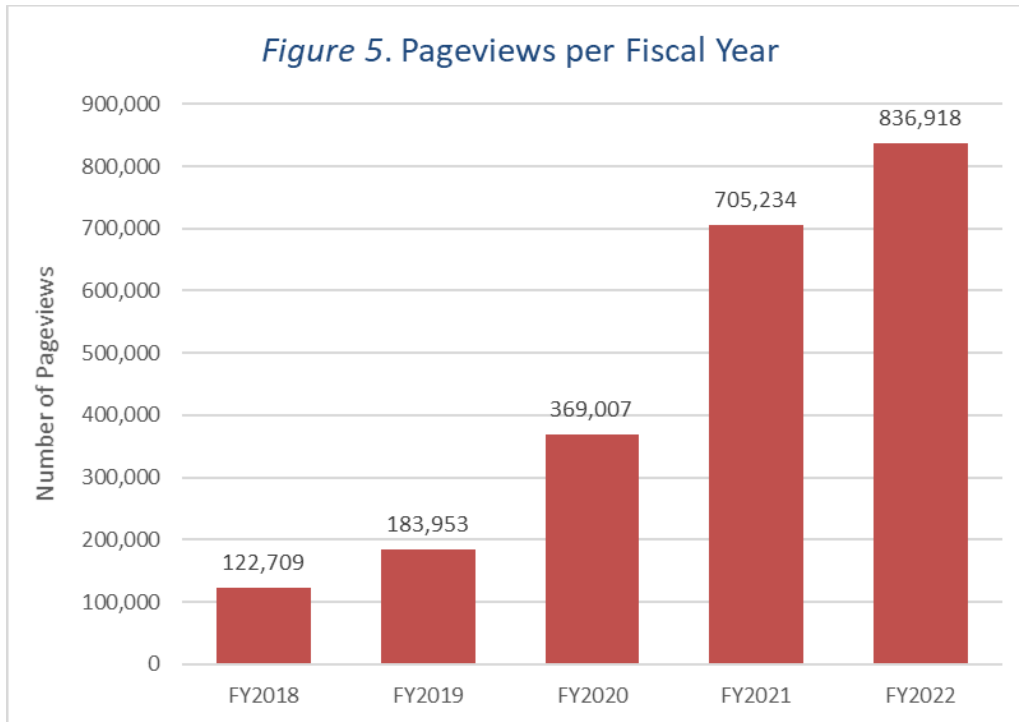


Figure 5. Total pageviews for NOAA IR from FY2018 through...

As seen in the chart above, the NOAA IR has seen increased traffic year over year:

Fiscal Year	Annual Increase in pageviews	% Increase over previous year
FY2018	--	--
FY2019	61,244	50%
FY2020	185,054	100%
FY2021	336,227	91%
FY2022	131,684	19%

Line Offices

Included in this section are metrics for each line office and the cooperative institutes as a whole and include:

1. LO PARR Compliance comparison (non-cumulative)
2. Breakdown of items added to the LO's collection in the NOAA IR each fiscal year
3. Cumulative collection counts for NOAA publications, journal articles, and the number of NOAA assigned DOIs within the collection.

In some instances we have included additional context for these metrics or anecdotes related to LO submissions, ingest, etc. when appropriate or deemed pertinent to understanding the metrics.

NESDIS

In FY2022, the NOAA IR team worked with staff in NESDIS's Center for Satellite Applications and Research (STAR) to obtain a list of over 1,100 STAR authored and funded articles. Additionally, a backlog of submissions from the National Centers for Environmental Information (NCEI) totaling more than 400 publications, were received. These two large submissions did account for a large increase in the number of NESDIS items added to the NOAA IR, as well as the higher 2022 compliance figure.

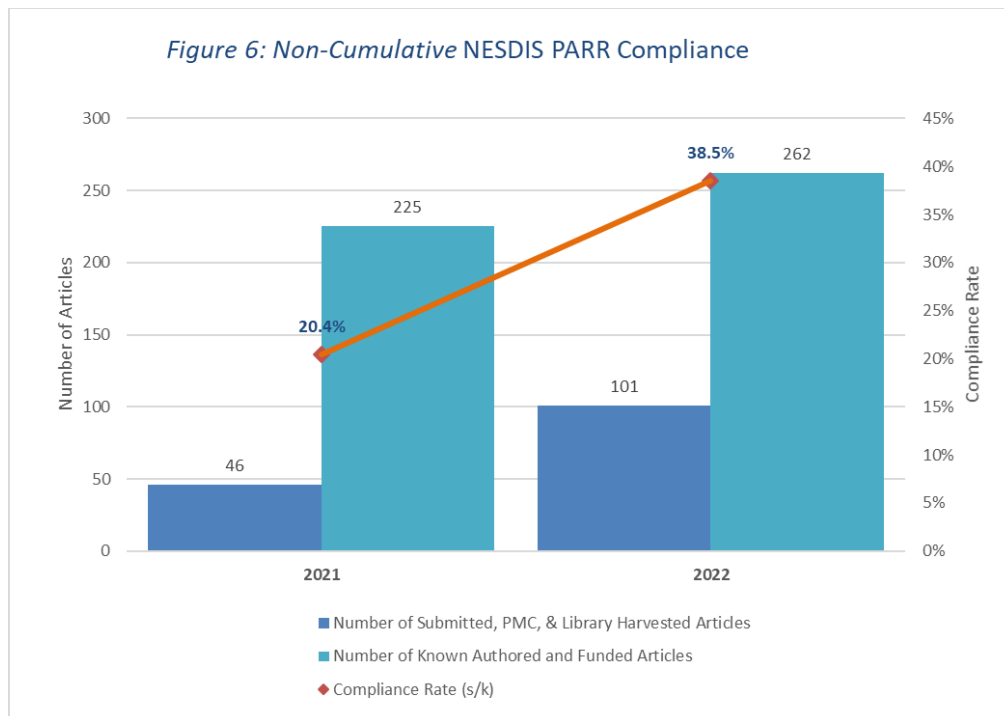


Figure 6. Comparison of NESDIS annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

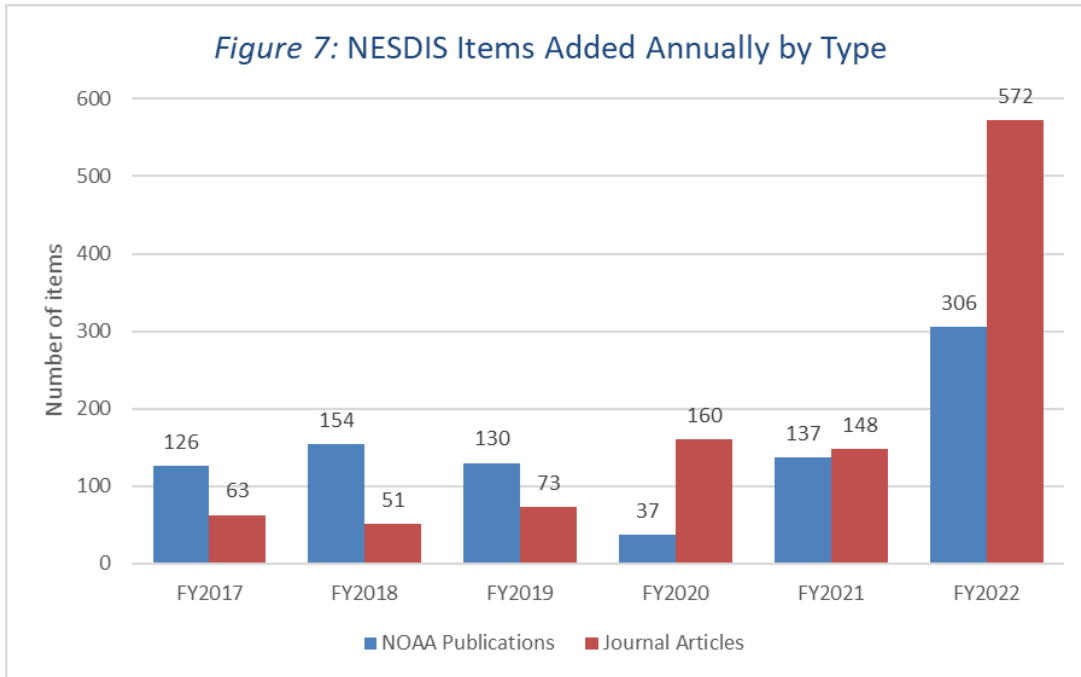


Figure 7. Non-cumulative comparison of NOAA publications and journal articles produced by NESDIS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 189 items added in FY2017; 205 in FY2018; 203 in FY2019; 197 in FY2020; 285 in FY2021; and 878 in FY2022.

NESDIS Collection	Count
NOAA Publications	1,349
NOAA Assigned Digital Object Identifiers (DOIs)	417
Journal Articles	1,062

Table 1. Breakdown of the number of Technical NOAA publications within the NESDIS collection as well as the number of digital object identifiers assigned to NESDIS publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

NMFS

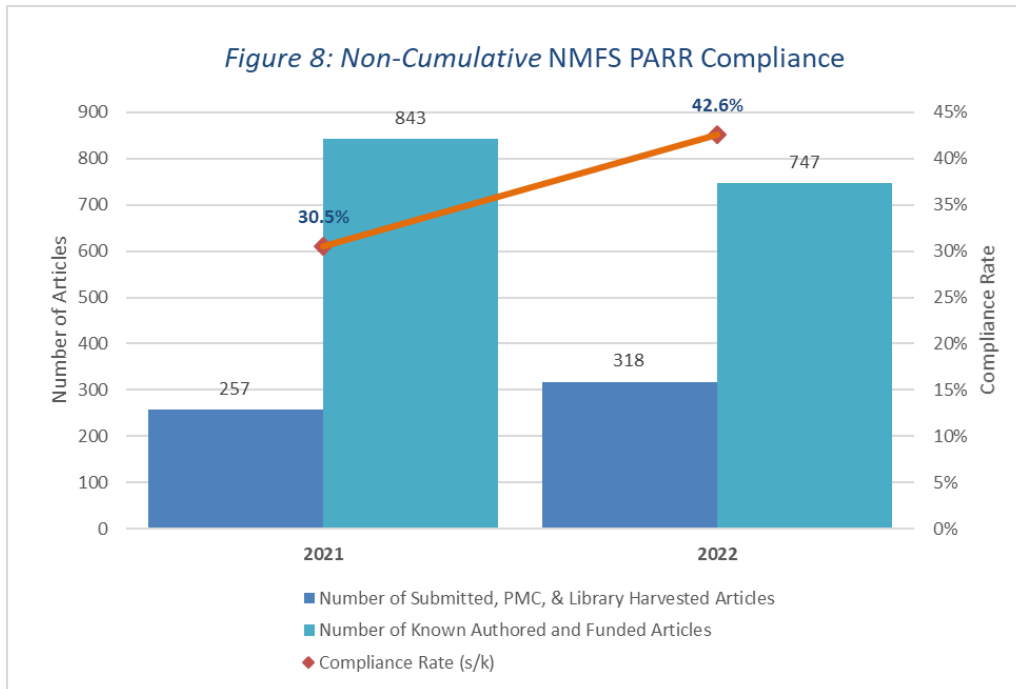


Figure 8. Comparison of NMFS annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

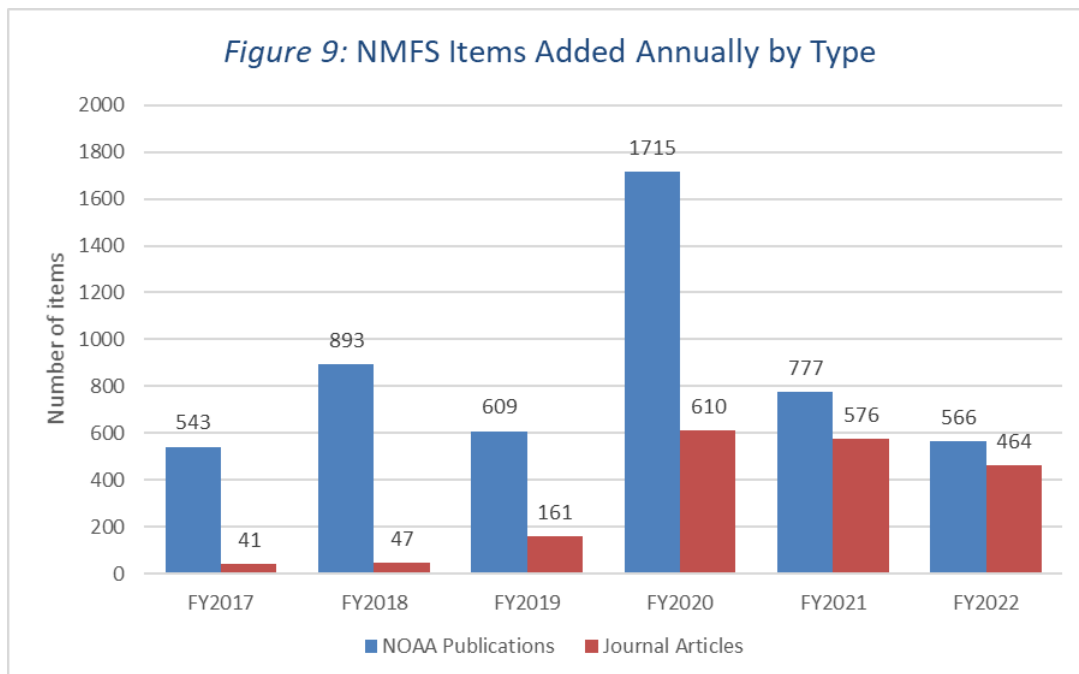


Figure 9. Non-cumulative comparison of NOAA publications and journal articles produced by NMFS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 584 items added in FY2017; 940 in FY2018; 770 in FY2019; 2,325 in FY2020; 1,353 in FY2021; and 1,030 in FY2022.

NMFS Collection	Count
NOAA Publications	8,559
NOAA Assigned Digital Object Identifiers (DOIs)	2,432
Journal Articles	1,912

Table 2. Breakdown of the total number of Technical NOAA publications within the NMFS collection as well as the number of digital object identifiers assigned to NMFS publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

NOS

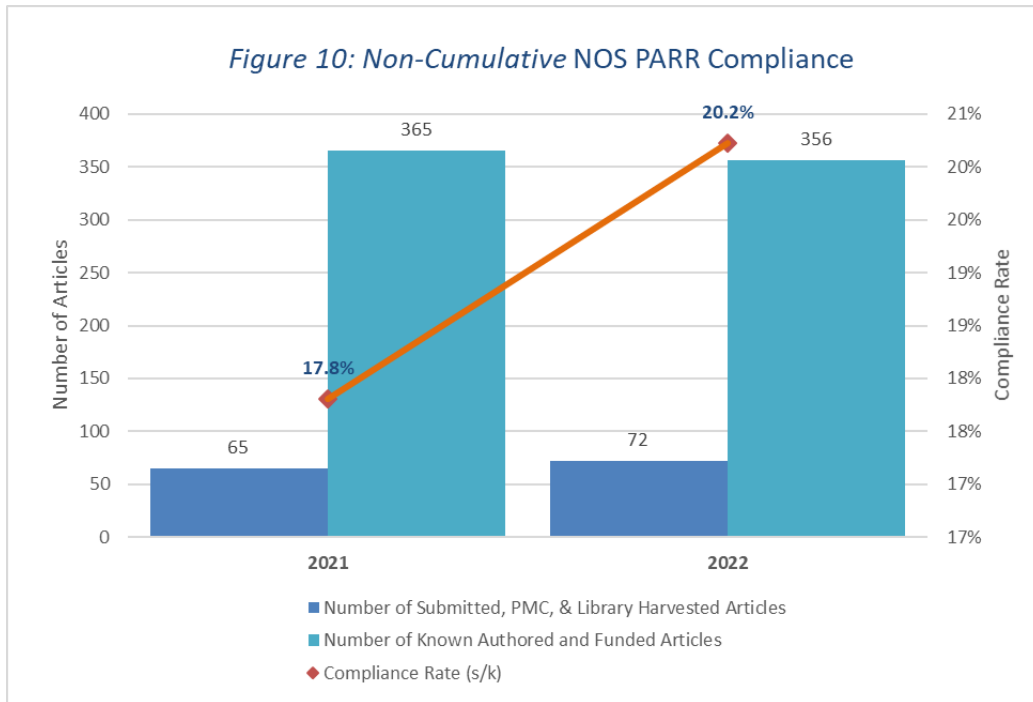


Figure 10. Comparison of NOS annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

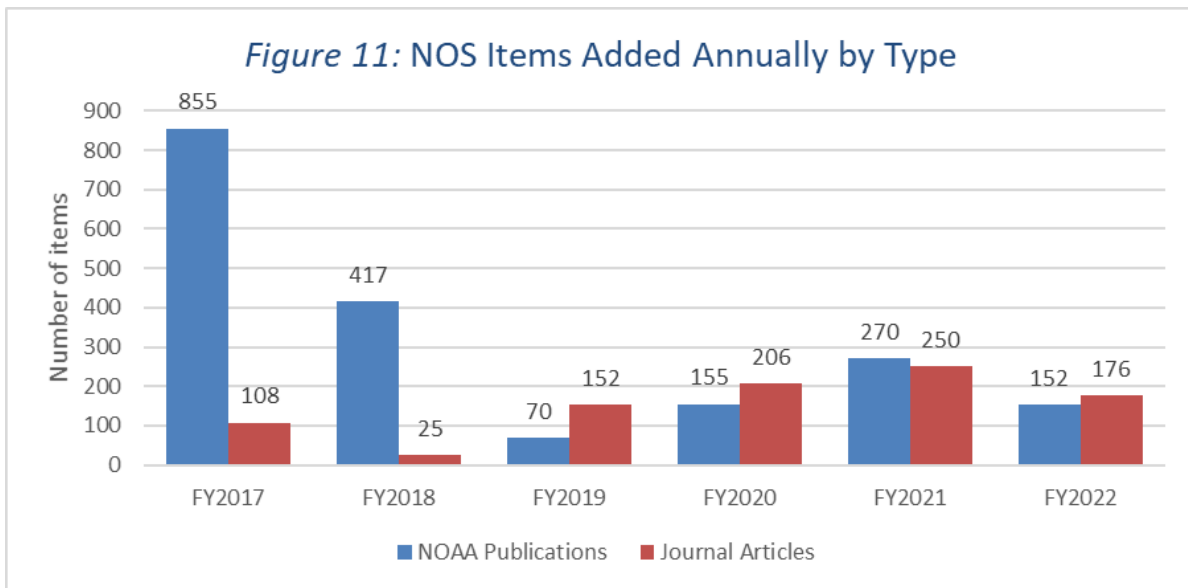


Figure 11. Non-cumulative comparison of NOAA publications and journal articles produced by NOS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 961 items added in FY2017; 443 in FY2018; 222 in FY2019; 361 in FY2020; 520 in FY2021; and 328 in FY2022.

NOS Collection	Count
NOAA Publications	4,345
NOAA Assigned Digital Object Identifiers (DOIs)	193
Journal Articles	793

Table 3. Breakdown of the number of Technical NOAA publications within the NOS collection as well as the number of digital object identifiers assigned to NOS publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

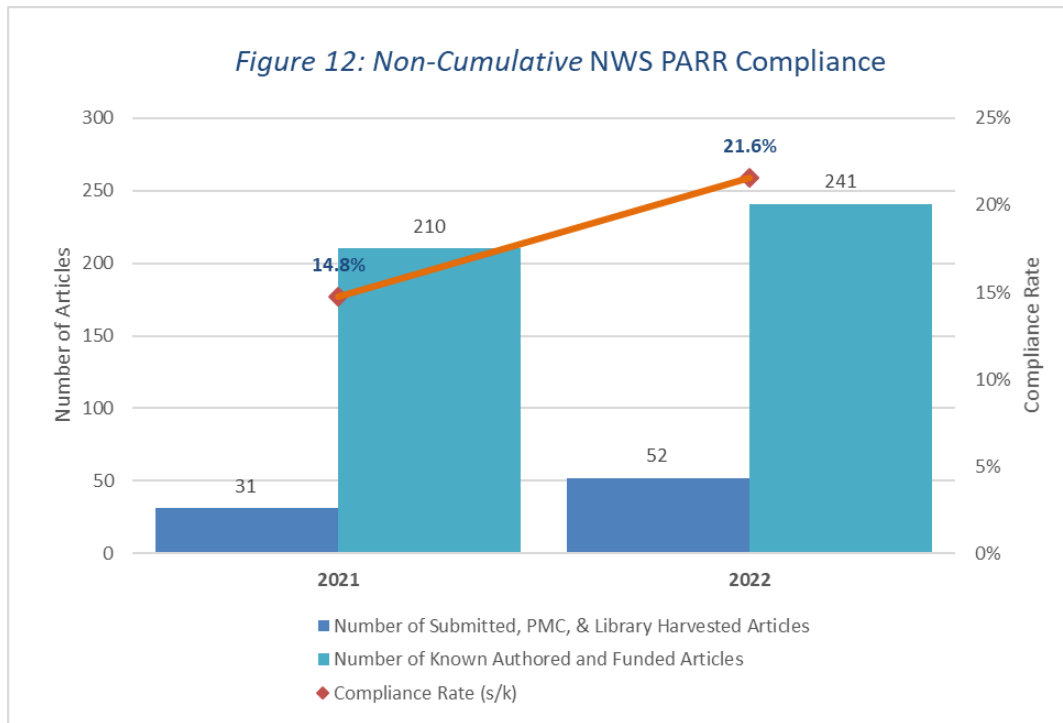


Figure 12. Comparison of NWS annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

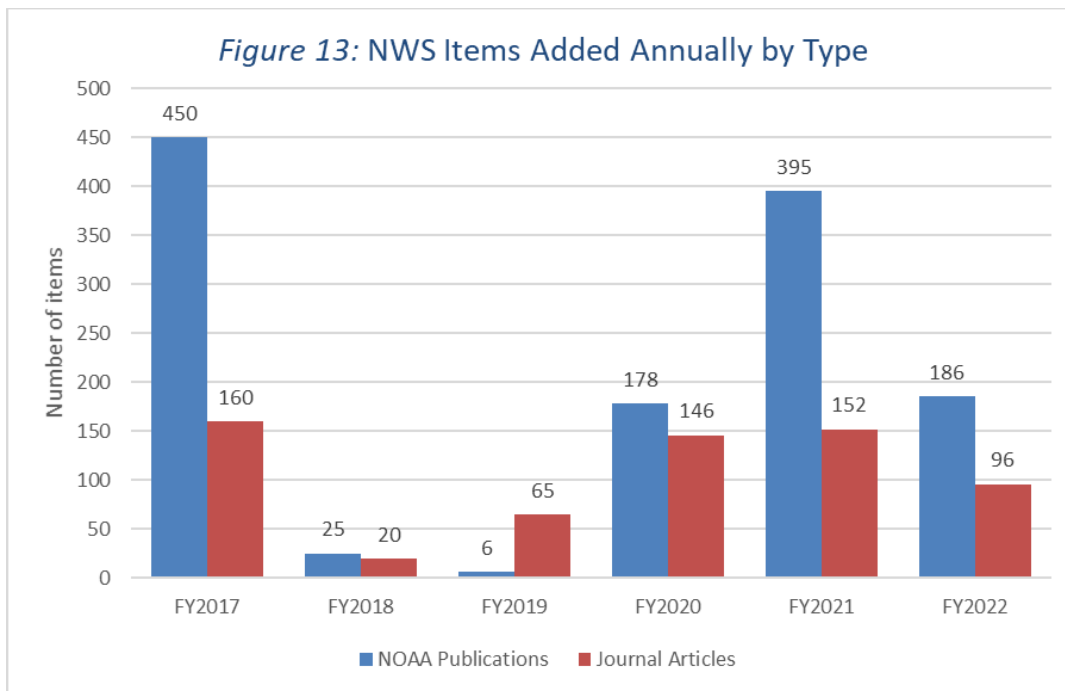


Figure 13. Non-cumulative comparison of NOAA publications and journal articles produced by NWS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 610 items added in FY2017; 45 in FY2018; 71 in FY2019; 324 in FY2020; 547 in FY2021; and 282 in FY2022.

NWS Collection	Count
NOAA Publications	2,395
NOAA Assigned Digital Object Identifiers (DOIs)	79
Journal Articles	680

Table 4. Breakdown of the number of Technical NOAA publications within the NWS collection as well as the number of digital object identifiers assigned to NWS publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

OAR

A majority of OAR additions to the NOAA IR were due to the large influx of publications as a result of the National Sea Grant Library transition. These additions were a combination of reports, white papers, educational materials, and journal article publications. It should be noted that a large number of Sea Grant items were added to the IR, but were not included in the OAR collection originally. Over the course of FY2023, the NOAA IR team plans to make these edits.

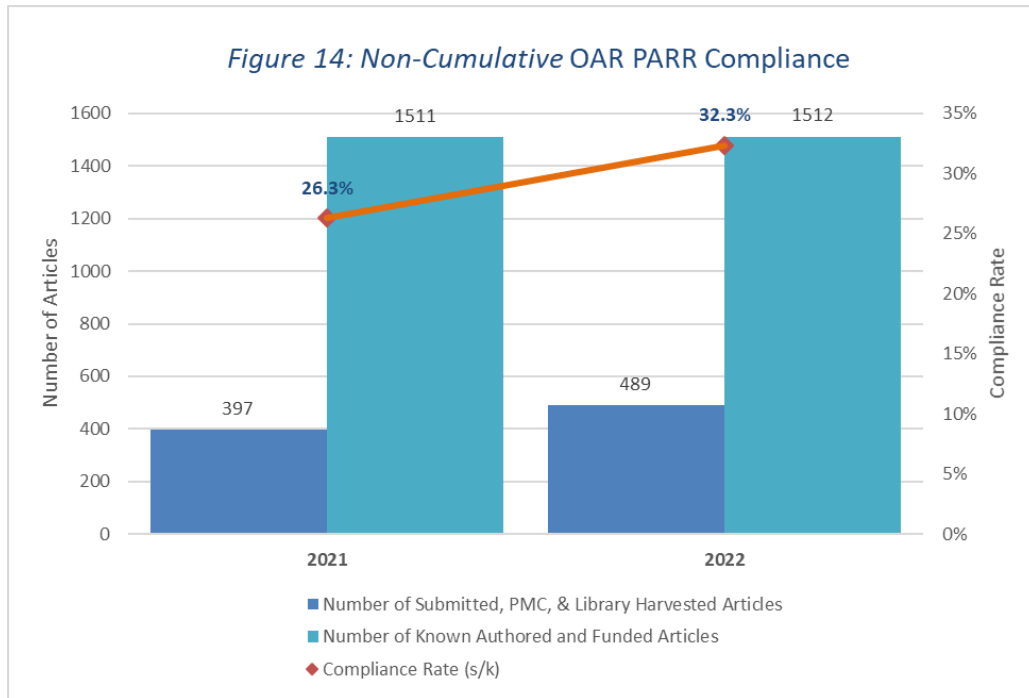


Figure 14. Comparison of OAR annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

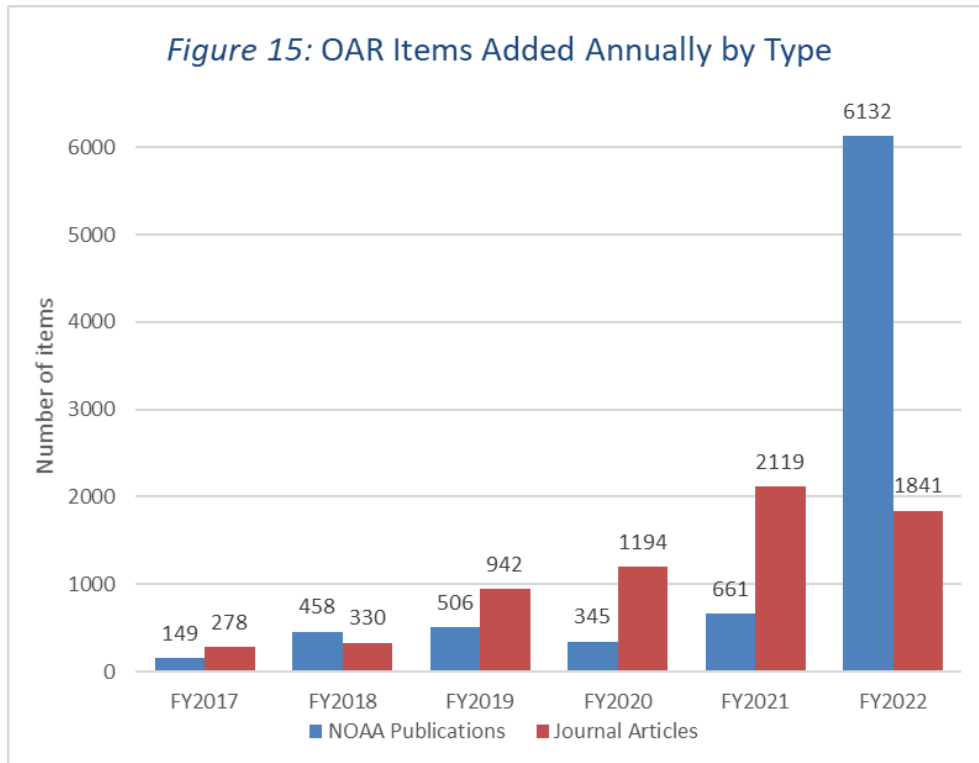


Figure 15. Non-cumulative comparison of NOAA publications and journal articles produced by OAR employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 427 items added in FY2017; 788 in FY2018; 1,448 in FY219; 1,539 in FY2020; 2,780 in FY2021; and 7974 in FY2022

OAR Collection	Count
NOAA Publications	9,022
NOAA Assigned Digital Object Identifiers (DOIs)	557
Journal Articles	6,560

Table 5. Breakdown of the number of Technical NOAA publications within the OAR collection as well as the number of digital object identifiers assigned to OAR publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

Cooperative Institutes

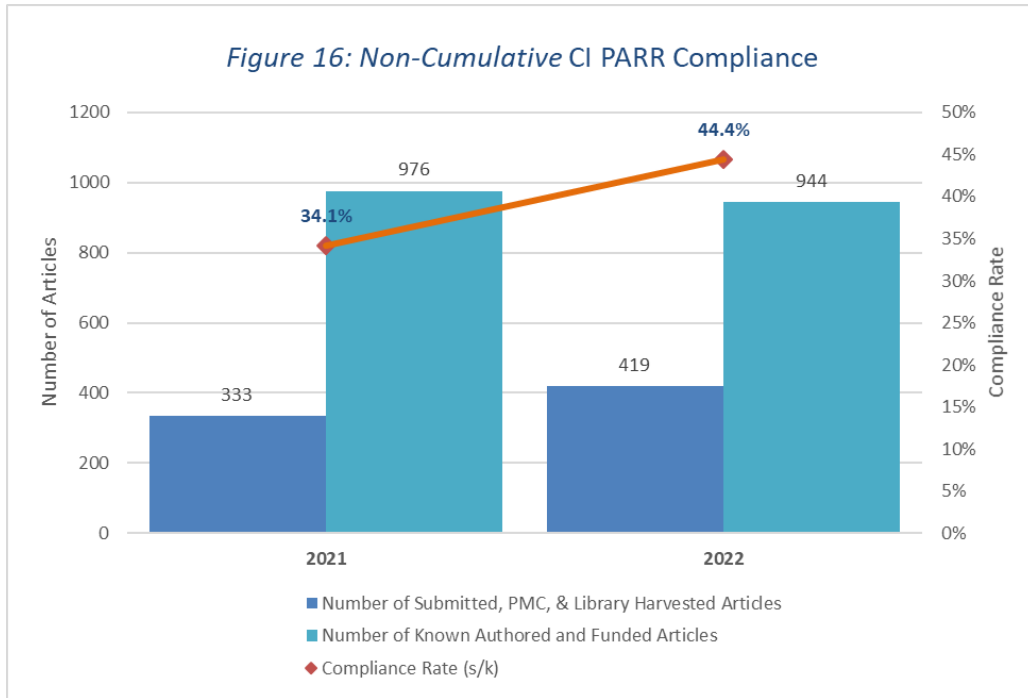


Figure 16. Comparison of CI annual compliance rate. Line Office compliance is a snapshot of a single calendar year and is not cumulative. This figure should be used to gauge line office submissions for publications published within the same year.

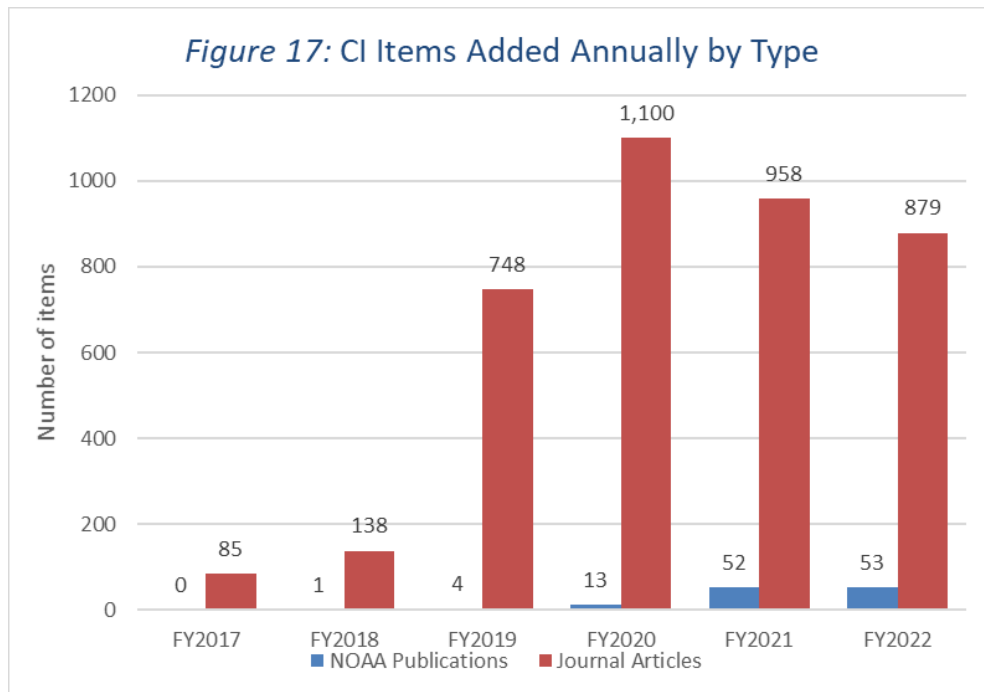


Figure 17. Non-cumulative comparison of NOAA publications and journal articles produced by CI employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 85 items added in FY2017; 139 in FY2018; 752 in FY219; 1,113 in FY2020; 1,010 in FY2021; and 932 in FY2022

Cooperative Institute Collection	Count
NOAA Publications	127
NOAA Assigned Digital Object Identifiers (DOIs)	112
Journal Articles	4,194

Table 6. Breakdown of the number of Technical NOAA publications within the Cooperative Institute collection as well as the number of digital object identifiers assigned to CI publications by the NOAA Central Library. It should be noted that DOIs are not assigned to publications produced prior to 2015.

Section V. Next Steps

Submission System Development

As the NOAA IR has grown and the number of publications being submitted to the NOAA IR have increased, there has been an issue of scale. Current processing and metadata assignment are managed through a complex system of spreadsheets and scripts and require a great deal of manual work and moving records from sheet to sheet--introducing multiple failure points. Over the course of FY22, the NOAA IR team documented existing procedures, created idealized workflows, and evaluated a number of systems as possible submission and cataloging management solutions. Library staff met with OAR IT staff to review possible commercial, off the shelf solutions for the needed IR submission system. After careful consideration, the Library determined that partnering with the NMFS Office of Science and Technology's RPTS development team would provide the best solution for NOAA IR needs. Included in the decision process was the realization that building the IR's submission system on top of existing RPTS infrastructure would result in system efficiencies and financial savings.

Throughout FY23, the NOAA IR team will continue working with NMFS partners on the development and establishment of the NOAA IR Submission System. Once completed, the system will help to streamline backend workflows while presenting a unified place for all NOAA authors and grantees to submit their publications. This will be a multi-year development project, with an iterative release schedule. Long-term planned integrations with the system include:

- ORCID authentication
- DOI minting and management via Datacite
- Controlled vocabularies and data validation with Library of Congress Subject Headings (LCSH) and Global Change Master Directory (GCMD) Keywords
- A public facing user dashboard to monitor publication status
- Seamless submissions via RPTS

Addressing 2022 OSTP Memo

In August 2022, the White House Office of Science and Technology Policy issued updated policy guidance on public access to research results of federally funded research and development. Titled: *Ensuring Free, Immediate, and Equitable Access to Federally Funded Research*³, the memorandum expands on the previous 2013 OSTP guidance; developed in response to the changing publishing landscape and evolving researcher needs. Specifically, OSTP cited how the COVID-19 pandemic demonstrated value in adopting immediate public access to research outputs and the need to provide equitable delivery of federally funded research to all and more transparency for government funded research.

Key changes and additions to the new guidance include:

- Removes 12-month embargo on publications and that these must be made freely available "by default in agency-designated repositories" (i.e. the NOAA IR)
- Data associated with a scholarly publication must be made available at the time of publication
- Federal agencies should develop approaches and timelines for sharing other federally funded scientific data not associated with publications
- Requirement that agencies ensure that PIDs (persistent identifiers) track all stages of research lifecycle: from awards, to researchers, to outputs

³ <https://www.whitehouse.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf>. Memo issued by OSTP in August 2022. Provides updated guidance to agencies related to public access, building on the 2013 memo.

- Requirement that agencies provide machine readable formats for publications and metadata

Persistent Identifiers (PIDs)

Section 4 of the OSTP memo focuses on Scientific Integrity with an emphasis on “transparently communicating to the public critical information” requires agencies to:

- Collect and make publicly available appropriate metadata associated with scholarly publications and data
 - Including a unique digital persistent identifier for the research output (i.e. a DOI)
- All federally funded researchers must obtain a PID that meets the requirement of NSPM-33 Implementation Guidance (i.e., ORCID)
- Assign PIDs to all awards

The Library began preliminary work on incorporating Open Researcher and Contributor ID (ORCID) into NOAA IR metadata and workflows after finalizing our U.S. Government ORCID Consortia Membership in May 2022. We began an outreach program for NOAA authors on the advantages of using ORCIDs and how to establish/update theirs which included the development of an [ORCID for Researchers subject guide](#). Using the public API and member dashboards, the Library also began the process of consolidating and re-structuring NOAA affiliations in existing ORCID records. It was determined that this work would require updates to the underlying Research Organization Registry (ROR) IDs that inform ORCID affiliations to employers and funders. To address this, a list of existing NOAA RORs and their associated ORCID affiliation labels was created.

Additional work will be needed to organize NOAA RORs, including working directly with ROR to establish the correct office hierarchy, create new identifiers for those NOAA offices that do not have one, and to work on creating predecessor agency and office linkages. Once these elements have been updated, the Library will then be able to make full use of ORCID member tools to manage affiliations on behalf of NOAA authors (intramural only). Furthermore, these member API tools should provide us with the ability to identify publications based on author affiliations. During testing, we are already seeing early returns on these efforts, and we project this could reduce staff time spent on identifying articles for the NOAA IR.

Appendix A.

RDEC PARR Compliance Recommendations, Revised 2022

Below is a list of the August 2022 proposed recommendations listing proposed deliverables, the responsible parties, and any associated timelines and frequency. New recommendations for 2022 are highlighted. ** next to the recommendation indicates no action taken to date.

Recommendation	New/Revised Deliverables	Party Responsible	Timeline(s)/Frequency
Set PARR Compliance Goal(s)**			
	Identify a realistic compliance goal for NOAA - recommendation for the Science Council.	Science Council Recommendation by RDEC	One-time
Email communications from leadership highlighting PARR requirements/priority level**			
	Regular correspondences from LO representatives. - Emails should call attention to PARR requirements and point employees to NOAA Central Library resources.	Line Office Leadership (AA/DAA)	Bi-annually
	Regular correspondences from lab/program supervisors and/or local PARR POCs. - Emails should address how PARR requirements and NOAA IR submissions relate to researchers work and local work flows (i.e. highlight benefits)	Lab/Program Leadership	Quarterly
Establish Laboratory, Program, Office level PARR Points of Contact**			
	Recommendation with support from the Science Council and the RDEC. List of Line Office POCs.	Science Council and/or RDEC	Implement: Q1 FY2023
Support continued Library outreach			
	Library provided targeted, local outreach and engagement in cooperation with local PARR POCs	NOAA Central Library Local PARR POCs	Ad Hoc/Ongoing

	Previous recommendation being rolled into outreach: Messaging NOAA IR cost-savings within the publishing process (i.e., Green vs. Gold open access)	NOAA Central Library	Ad Hoc/Ongoing
Incorporate IR/PARR compliance into training			
	Creation of NOAA-wide publications training(s) that would cover all aspects of publishing within NOAA including: NOAA publications (formatting, establishing series, etc.); manuscript versioning; open access models and options; benefits of the NOAA IR; managing research outputs; digital persistent identifiers (DPI, such as ORCID); open science; etc.	NOAA Central Library	Held Quarterly for all of NOAA with recorded sessions available via NCL YouTube Channel Establish new series by Dec. 2022
Update language within policies to explicitly state responsibilities of authors, program managers, etc. in relation to PARR requirements**			
	Updates should be made to the following policies:		Start date: FY2023 Q1
	<i>NOAA PARR Plan</i>	Science Council RDEC DGC	
	<i>FRC Policy(ies) (NOAA-wide & LO level)</i>	Line Offices SAB (? - Scientific Integrity) RDEC Science Council	
	<i>NAO 205-17A: Information Access & Dissemination</i>	NOAA Central Library NLAC Science Council	
	<i>Grants/Coop Agreements Terms & Conditions</i>	AGO/GMD CIAO Science Council	
	<i>Data Sharing Procedural Directive</i>	DGC AGO/GMD	
Add additional performance plan language**			

	Include PARR compliance language in performance plans (as per PARR requirements for Program Managers and Office Leadership)	Line Office Leadership (AA/DAA) Lab/Program Leadership Supervisors	Start date: FY2023 Q1
	Develop sample/boilerplate language for these requirements for easier inclusion in PMAPS.	NOAA Science Council (via RDEC)	Start date: FY2023 Q1
Establish regular reminders from the Research Publication Tracking System (RPTS) to submit manuscript to the IR			
	Since RPTS will not be adopted by NWS, the NOAA Central Library would like to work with NWS representatives to facilitate easier submissions using their current systems or using existing IR submission methods (i.e., the IR Submission Form or email).	NWS OMAO NOAA Central Library	FY2022 Q4
	For grantee and cooperative institute authors, who are not subject to RPTS reviews, the NOAA Central Library would like to continue to coordinate with CIAO and the Grants Management Division to ensure awardees are aware of the PARR requirement. This may include updating terms and conditions language or establishing another tracking mechanism.	CIAO GMD Program managers (per the NOAA PARR Plan) NOAA Central Library	Ongoing
	Global view of the RPTS system for NOAA Central Library to help track publications	RPTS and NOAA Central Library	Long-term development goal
Maintain a quarterly list of publications that have not been submitted by offices/programs			
	Provide a quarterly list of all journal articles in the NOAA IR for all collections, as well as reports for each individual LO and CI collections.	NOAA Central Library	FY2022 Q3-- COMPLETED
	Provide an annual list of known NOAA publications that have not been submitted to the NOAA IR	NOAA Central Library	FY2023 Q1-- COMPLETED

Glossary of Terms

Compliance

For the purposes of this report compliance is defined as the ratio of: (1) the number of peer-reviewed scholarly articles subject to the agency's public access policy that have been submitted to the agency's designated repository/system (including those still under embargo) divided by (2) the number of total number of peer-reviewed scholarly articles that are subject to the agency's public access policy, and will be expressed as a percentage. This method of calculation stems from the reporting requirements that have come from the Office of Science and Technology Policy (OSTP) and we have opted to carry over that method to this report.

Items added

This refers to the publications and their associated metadata that have been ingested into the NOAA Institutional Repository. This number does not necessarily mirror the submissions numbers for a given year due to previous fiscal year carry over and work done by the NOAA Central Library to identify and add publications that have not been submitted by offices/authors. An example of these efforts would be the digitization projects NOAA Central Library staff have conducted scanning and ingesting older NOAA technical memorandum and report series from all line offices.

Submission

A submission is a publication that has been sent to the NOAA IR via one of the following methods:

- 1) NOAA IR Submission Form via Google Drive
- 2) Email sent to noaa.repository@noaa.gov
- 3) Through the RPTS system
- 4) Via NMFS's ECO tracking system for Biological Opinions

Ingest

Ingest is the process by which publications are added to the NOAA IR and include a series of steps including:

- 1) Metadata creation
- 2) Metadata and file upload to the cloud
- 3) Quality checks and item approvals by data manager(s)
- 4) System indexing or data migration to push all metadata and associated files "live" making them available via the NOAA Institutional Repository page.

NOAA publications

NOAA publications are publications as defined in [NAO 201-32G](#) and can include the following areas:

- 1) *NOAA Authored Publications* refer to those publications that have been written by NOAA employees or NOAA contractors, and were written as part of their official duties.
- 2) *NOAA peer-reviewed scholarly publications* are defined as research results that are published in peer-reviewed or refereed journals; meaning the process includes a review of the research by independent scholars, experts, etc. in the field who agree that the article in question represents properly conducted research and/or writing. Within this report these will also be labeled as journal articles. For the purposes of this report and our calculations, journal articles figures will exclude those still under embargo, but include those that are not subject to the NOAA PARR Plan.
- 3) *NOAA Funded Publications* can refer to two different kinds of publications: those produced through grant funding, most often, but not exclusively by universities via the NOAA Cooperative Institute Program; and those publications produced by companies contracted by NOAA.