# NOAA Institutional Repository Annual Operating Report

## *Fiscal Year 2019*

**Jennifer Fagan-Fry, Sarah Davis, Jeff Rey**
NOAA Central & Regional Libraries

October 2019


U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
NOAA Central Library – Silver Spring, Maryland

# Table of Contents

## Executive Summary

Since the issuance of the NOAA Plan for Public Access to Research Results (PARR) in February 2015 by the NOAA Research Council, the NOAA Central Library has worked diligently to establish the NOAA Institutional Repository as the largest and most comprehensive collection of NOAA publications and journal articles in full text. Officially launching in January of 2017, the NOAA IR has continually adapted to better meet user needs adding features such as: line and program office search facets; citation export functionality; dataset and series linking; digital object identifier assignments for NOAA publications; and establishing a connection between the repository and Science.gov. These upgrades and more have made the NOAA IR an invaluable tool for researchers, both internal and external, for locating NOAA science since it provides long-term preservation and access for NOAA authored and/or funded research.

Per the NOAA PARR Plan, publications are to be submitted to the NOAA Central Library for inclusion in the NOAA IR, and through a variety of outreach efforts, the Library has seen a steady increase in submissions year over year with submissions for FY2019 doubling from FY2018. This increase in submissions has allowed the NOAA IR staff to increase new additions to the NOAA IR, culminating in FY2019 of over 2,800 new publications added to the system, with the greatest increase being in journal articles. Furthermore, the Library has worked to identify additional materials to add to the NOAA IR, and through the use of funds set aside for digitization, have begun added historical (pre-2015, post-1970) NOAA series publications such as technical memorandum and reports.

NOAA's FY2019 compliance rate (the number of peer-reviewed journal articles subject to the NOAA PARR Plan that have been submitted divided by the number of total number of peer-reviewed journal articles produces that are subject to the PARR Plan) remains at 14.9% despite these gains in submissions and doubling the FY2018 compliance rate of roughly 7%. This indicates that offices, authors, and grantees are not complying with the NOAA PARR Plan, often times citing a lack of resources and/or repercussions for non-compliance.

Further breaking down the submissions and compliance rates at the line office level shows that NMFS and OAR are the primary submitters: with NMFS submitting mostly NOAA series publications and OAR providing a bulk of the journal article submissions. NOS has recently begun submitting journal articles after focusing on NOAA publications backlogs for the past two years. Both NWS and NESDIS by comparison have smaller numbers overall, partially due to lower publishing rates, but also fewer submissions; with the exceptions being the two offices NWS-NCEP and NESDIS-NCEI that have librarians who are involved in the process for NOAA publications, thus providing a direct link to NOAA IR submissions.

Despite numerous outreach programs and efforts, and gains over the past two years in submissions of both articles and NOAA publications, the Library has still received a considerable amount of pushback in regards to PARR requirements for authors and offices. The NOAA PARR Plan does not explicitly state who is to submit publications (author, grantee, office, etc.), nor are there any repercussions laid out in the plan, making enforcement difficult for the NOAA IR staff. In addition to lacking enforcement mechanisms, the NOAA PARR Plan also fails to list any reporting requirements, such as this annual report. It is the recommendation of the Library that the NOAA Research Council review and update the NOAA PARR Plan to include these elements related to publications management and open access.

## Introduction & Background

The NOAA Research Council issued the NOAA Plan for Public Access to Research Results (PARR) in February 2015. The publication-specific tasks under the NOAA PARR Plan required NOAA to establish a NOAA Institutional Repository and create a Publications Policy. The NOAA Research Council developed the NOAA Public Access Policy for Scholarly Publications, effective September 25, 2015, to define the publications subject to PARR requirements and detailed the responsibilities of NOAA entities involved in making these publications available. The policy applies to all publications produced on or after October 1, 2015 with exceptions for those produced under contracts, grants, or cooperative agreements, which are subject to language in agreements issued on or after January 1, 2016.

Within the NOAA PARR Plan the NOAA Central Library (NCL) was tasked with establishing, populating, and maintaining the NOAA Institutional Repository. As stated in PARR Section 7.2.1, NOAA contracted with the Centers for Disease Control and Prevention (CDC) to implement an instance of their Stacks Repository System. Development began in early 2015 with a soft launch of the new NOAA IR in mid-2016, where the NOAA IR was live and available but the Library did not actively promote the platform or solicit submissions, and an official launch in January 2017.

The NOAA Institutional Repository (NOAA IR) represents the largest and most comprehensive collection of NOAA publications and journal articles in full text, eliminating the need for publications to be housed on office specific servers. As a trusted, object-based repository, the NOAA IR is Google/Google Scholar indexed, with IR results often showing up in the top five results; allowing for easier access which in turn leads to more downloads and citations. Furthermore, due to the NOAA IR's linking capabilities, specifically being able to link to NOAA and non-NOAA datasets as well as NOAA R&D Projects, the NOAA Institutional Repository is supporting Open Science by providing users (both internal and external) access to all stages of NOAA's research process. Additionally, the NOAA IR serves as a long-term preservation platform for NOAA research since it offers a bi-coastal, triplicate back-up for archiving.

All data in this report was accurate as of October 25, 2019.

## Section I. System Developments and Enhancements

Over the course of our partnership, NCL has worked closely with CDC to further expand the system's capabilities in a variety of areas to enhance the user's search experience and to streamline backend processes to reduce upload and maintenance timelines. In FY2019 the following features were added to the Stacks system:

### *Front-end user experience developments*

- *Citation Export.* Users are now able to export citations from the NOAA IR for single documents as well as search results. While currently the only export format is RIS, which requires a citation management tool such as Endnote, we are actively working with the CDC to create additional format options for future releases.
- *Office, program, and laboratory facets.* Stacks offers a set of facets to narrow search results. Initially, we were only able to provide Line Office information here, but over the course of the year we have added in facets for all program offices and labs, as well as for each of the Cooperative Institutes.
- *Submission form updates.* After conducting a user focus group with frequent NOAA IR submitters, adjustments were made to the IR Submission Form. We have made clear links to the

FAQs and our new publication DOI (digital object identifier) Request Form, while removing some extraneous questions, creating a simpler document.

- *Science.gov connection.* Working with our Department of Energy counterparts, NOAA IR established a connection with the federal public access portal (Science.gov) through the use of our IR API, allowing their system to pull metadata information from the NOAA IR. By providing this information, users of Science.gov are able to search for and retrieve NOAA journal articles that are housed in the NOAA IR, further expanding the reach of NOAA research.

### *Policy development and updates*

- *IR Document Policy.* The NOAA Public Access Policy for Scholarly Publications lists the 4 main NOAA publication series that are to be collected by the NCL for the NOAA IR, but also includes a clause that states: "any other NOAA document that a NOAA publisher and the NOAA Central Library agree to include" in the NOAA IR. In an effort to streamline submissions, the NCL created an IR Document Policy laying out criteria for document inclusion in the NOAA IR along with examples of materials that have been added that were not specified in the publications policy or within PARR. Additionally, a section on NOAA IR exclusions, with examples, was included as well as a list of submission requirements for all documents sent to the NOAA IR. This document was finalized early in FY2019 and made available to all NOAA staff, contractors and cooperative institutes during the second quarter.

## Section II. Outreach Efforts

Outreach has been divided into two distinct areas based on whether the user group is based within NOAA (this would also include grantees, cooperative science centers, and cooperative institutes) or those external to NOAA, such as the general public and the greater academic/research community.

### *Internal Outreach*

- *Office visits & one-on-one meetings.* As part of a library effort to reach out to individual program offices, IR staff participated in informational meetings about library services, providing details about PARR and submissions requirements as well as how to use the IR for research. Additionally, the Library was contacted by individuals for one-on-one consultations regarding office and author requirements for PARR compliance.
- *Brown Bag Seminars.* Over the course of FY2019, the IR Manager presented two Brown Bag Seminars in the Library and virtually, discussing new IR developments and soliciting submissions.
- *Cooperative Institute Directors Meeting.* NCL was asked to participate in the yearly Cooperative Institute directors meeting to discuss how PARR applies to their work and publications. Submission methods and requirements were discussed and IR staff offered to simplify the process for the CIs by only requiring them to submit their list of publications via Excel; with the implication that IR staff would reach out with a list of publications where an author's final manuscript was required. The response to this was overwhelmingly positive and resulted in the IR receiving submissions from six cooperative institutes: JIMAR, JISAO, CIRES, CIMMS, CIGLR, and CICS-P. Not only did they submit publications for the current reporting period, they all provided lists of the previous two years publications (going back to FY17).

### *External and General Public Outreach*

- *Conference Presentations and Exhibits.*
    - American Geophysical Union Annual Conference participation. The NOAA IR manager provided a brief presentation at the NOAA Booth in the exhibit hall, as well as worked a

shift at the booth. The presentation, intended for NOAA staff and grantees, focused on how to submit materials to the IR and the benefits of doing so.

- Computers in Libraries Conference presentation. In an effort to promote the NOAA IR as a resource to outside institutions, specifically the academic community, the IR Manager presented at the annual Computers in Libraries (CIL) Conference. CIL is forum for library professionals to discuss and share the variety of ways technology impacts how information and research is disseminated throughout user communities. Attendees represent all types of libraries from public, to academic and special libraries. The presentation discussed how these libraries can access and use the NOAA IR as a research tool for their students and patrons.
- Special Library Association presentation. NCL was asked to participate in a panel discussion at the annual Special Library Association conference on Federal Agency Implementation of Public Access Plans Using New Repository Technologies, where the IR Manager discussed NOAA's collaboration with the CDC and the National Transportation Library (NTL) on the Stacks repository system. Librarians from a variety of special academic and federal libraries attended the session and a lively discussion about best practices for submissions and policy implementation ensued.
- American Library Association Exhibitor Booth. This year the NOAA Central Library exhibited at the annual American Library Association Conference that was held in DC. This was our first attempt at this and we received a tremendous response from attendees and fellow exhibitors. This year's conference had over 23,000 attendees and included academic librarians from a wide range of universities, other federal librarians and employees, public library staff, teachers, school librarians, and the general public. The Library offered information on NOAA programs, educational resources, and how people are able to access NOAA research via the NOAA IR.

- *Maury Project.* Each year the NCL participates in the Maury Project, providing the attending teachers with information about resources the NOAA Central Library offers to the public. This year, we highlighted the NOAA IR and how teachers and students can access NOAA research without the need for a subscription to costly journals and databases, resulting in an enthusiastic response to being able to provide students with current science.

## Section III. Metrics

### *Agency-Wide*

*Publication Availability*

As of October 1, 2019, the NOAA Institutional Repository contains 19,683 full text items. The NOAA IR contains a number of pre-PARR NOAA documents that the Library has either collected from NOAA offices or produced through in-house scanning. These documents were identified using the NOAA IR Document Policy, as referenced in Section 1 of this report. Per these guidelines, the NOAA IR contains 17,221 NOAA internal series documents (professional papers, atlases, technical reports, and technical memorandums). The NOAA IR also contains 2,462 peer-reviewed journal manuscripts or publisher articles that were published after October 1, 2015 as required by the NOAA PARR Plan.

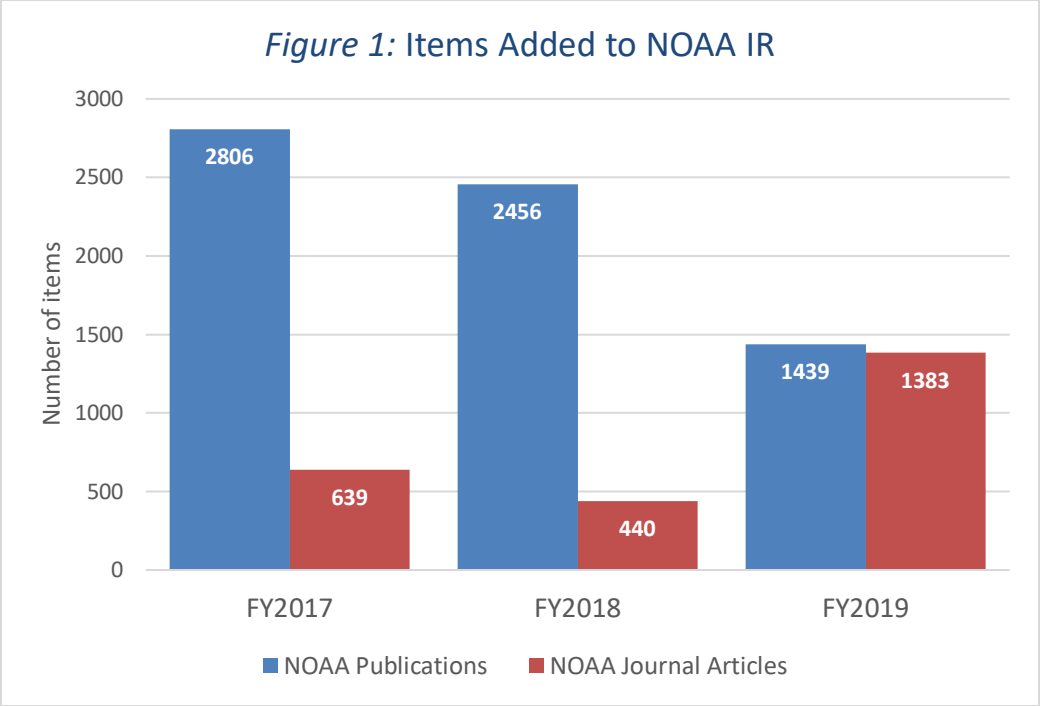


*Figure 1. A non-cumulative comparison of NOAA Publications and journal articles added annually to the NOAA IR from FY2017 through FY2019.*

## Submissions

Per the NOAA PARR Plan, all intramural and extramural researchers are required to submit their publications to the NOAA Institutional Repository, and 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 is used to estimate compliance rates (see Compliance section below). Here, we are defining a submission as 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 Research Publication Tracking System (RPTS--see NMFS Publication Availability for more information)
4. Via NMFS's ECO tracking system for Biological Opinions (see NMFS Publication Availability for more information)

The Library accepts submissions of single documents and metadata or in batch format through either the Submission Form or via email to the NOAA IR account. Late in FY2019, the Library began accepting citation lists from offices and cooperative institutes of journal articles as opposed to traditional submission packages that included metadata and the digital objects. The new process takes some of the work off of authors and offices, with the Library staff evaluating which articles require manuscript versions and which publishers allow us to host their versions of the document within the NOAA IR; specifically, the Library identifies what articles are open access, and which are not. Staff then pulls those articles and processes them for ingesting into the NOAA IR. A list of citations that require a manuscript is then returned to the original submitter, leaving the author/office to focus on only those publications, effectively lessening their workload.

In FY2019, the IR team conducted a focus group with frequent submitters to solicit feedback and comments on submission processes. The comments received were positive overall, and affirmed that the methods the Library has established are effective and easy to use. One barrier to higher submission numbers from participating offices discussed was Section 508 accessibility requirements for submissions. While Library staff has worked diligently to provide staff, contractors, and grantees training and information on Section 508 requirements since the reissuance in 2018, many offices and programs are still having trouble complying with the requirements, negatively impacting their submission rates. In an effort to help offices with this, the Library has secured additional funding via the NOAA Direct Bill to add part time staff to assist offices with Section 508 beginning in FY2020.

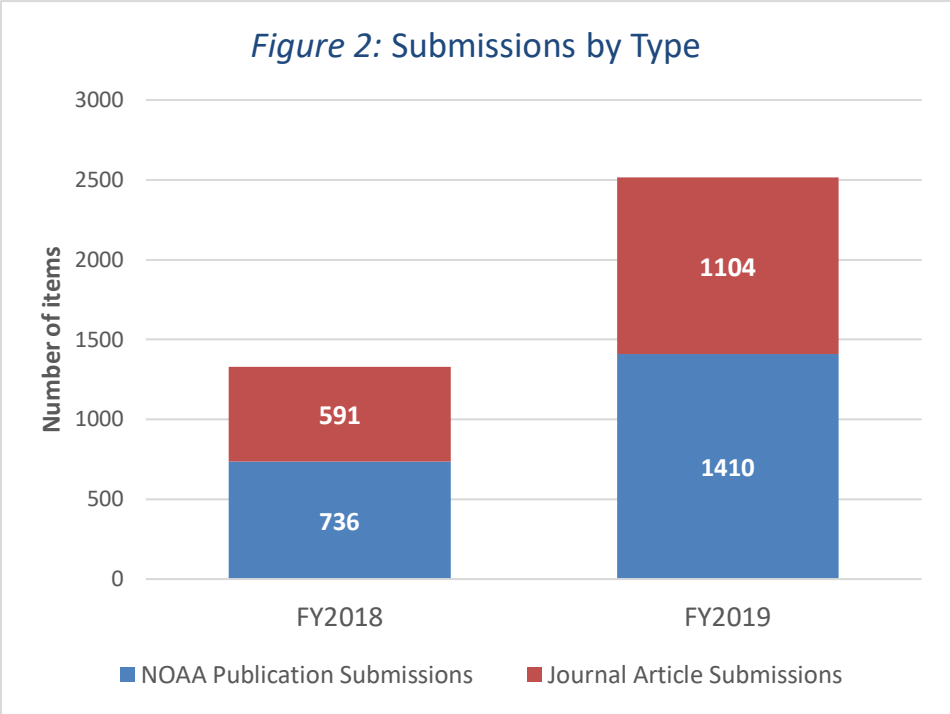


*Figure 2. A non-cumulative comparison of NOAA Publications and journal article submissions to the NOAA IR in FY2018 and FY2019. There were a total of 1,327 submissions in FY2018 and 2,514 in FY2019; an increase of 90%.*

## *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 NOAA IR (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.

The NOAA Central Library estimates the number of published articles 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 is sometimes 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 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 Library's limited capabilities for tracking and gathering NOAA publications. Since there is no centralized NOAA publishing entity or authority, the total number of NOAA publications that are produced in a given year remains an 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 publishing clearinghouse within the agency or office level reporting on these publications, we will not be able to include them in our compliance figures. Due to the nature of the submission process we are unable to calculate the compliance rate at the line office level at this time.

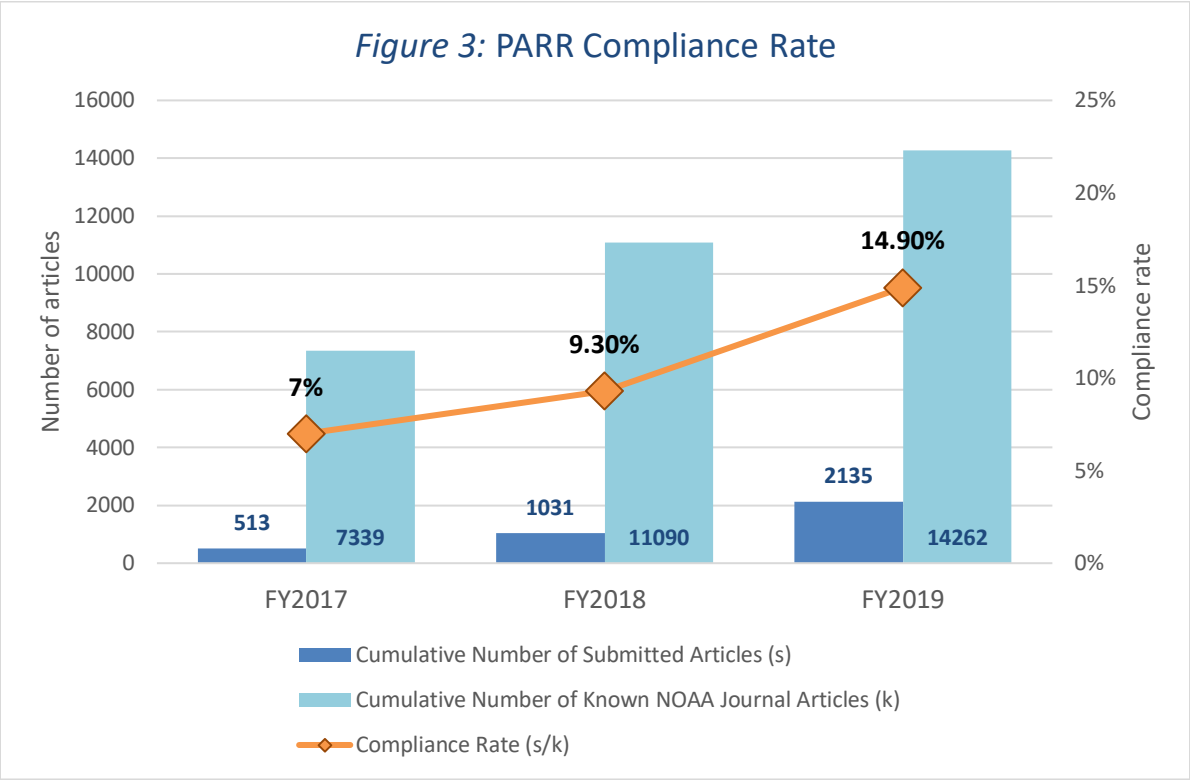


*Figure 3. Cumulative number of journal articles submitted for inclusion in the NOAA IR compared to the cumulative number of known journal articles published since FY2016 (October 2015). Also shown is the rate of compliance as reported to the OSTP for each fiscal year.*

Submissions of journal articles authored by NOAA employees, contractors and grantees has doubled annually for the past two fiscal years while the total number of articles known to have been published by NOAA employees, contractors and grantees has increased at a steady rate of approximately 3,500 articles annually (*Figure 3*). The rate at which articles are submitted has increased, while the rate at which they are published has held steady, which has resulted in NOAA's overall rate of compliance as reported to the OSTP more than doubling between FY2017 and FY2019. The rate of submission has likely been effected negatively by the implementation of Section 508 compliance requirements in January 2018 and the federal shutdown in January 2019 but positively affected through outreach to NOAA's Cooperative Institutes which resulted in a large number of articles dating back to FY2016 being submitted to the IR.

Aside from these specific conditions and situations, it is likely that the rate at which offices, programs and authors submit publications for inclusion in the IR is negatively affected by the lack of a formal mechanism to enforce PARR requirements. Additionally, many NOAA grant contracts, including CI agreements, did not include language regarding PARR requirements until sometime after October 1, 2015 therefore publications resulting from these funding streams were not required to be submitted. The effect of this delay in incorporating PARR requirements into NOAA grant language is twofold: first, while some grantees submitted published items to the NOAA IR despite not being required to, most did not, and; second, the number of NOAA journal articles used to calculate the compliance rate includes an indeterminate number of articles that were published on or after October 1, 2015 that were not subject to PARR.

## 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).

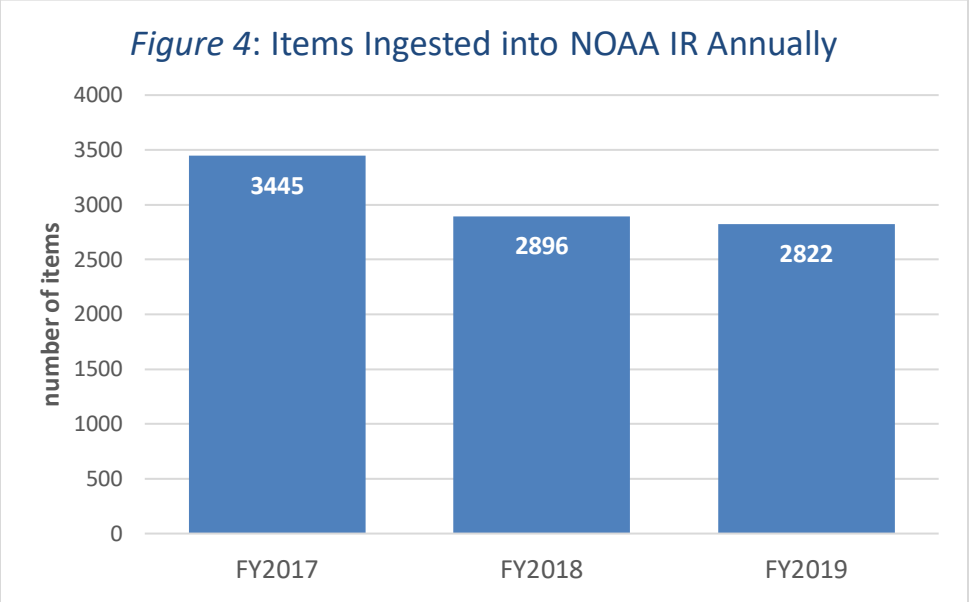


*Figure 4. Non-cumulative comparison of the number of total items, regardless of document type, ingested into the NOAA IR per fiscal year.*

As shown in *Figure 4,* more items were ingested into the IR in FY2017 than in subsequent years. This is largely due to Library staff ingesting NOAA publications published prior to FY2016 and thus not subject to PARR but included in the IR scope at the discretion of the Library in accordance with the NOAA Publications Policy. Additionally, some decrease in the number of items added in FY2019 can likely be

attributed to the effect of the federal shutdown in December 2018 and January 2019. The Library continues to ingest more items than are submitted by users (see *Figure 2*) through efforts such as the digitization of pre-digital era NOAA publications and harvesting Open Access journal articles identified through the Library's Bibliometrics program.

*Pageviews and Downloads*

Currently, the Library reports usage metrics obtained through Google Analytics; however, Google Analytics were not fully operational until FY2018, thus this figure is not available for FY2017. The numbers provided in Table 1 reflect annual pageviews for the NOAA IR as well as for each line office collection. A steady increase can be observed in the number of views over all collections from FY2018 through FY2019.

| Pageviews | FY2018 | FY2019 |
|---|---|---|
| **NOAA IR** | **122,709** | **183,953** |
| **NESDIS** | 3,731 | 6,867 |
| **NMFS** | 36,499 | 66,009 |
| **NOS** | 14,466 | 20,081 |
| **NWS** | 5,308 | 6,169 |
| **OAR** | 6,578 | 10,804 |

*Table 1. Total pageviews for NOAA IR from FY2018 through FY2019*

At this time, download data is obtained through server end reporting offered to the Library via monthly reports from the CDC. This reporting capability is new and we are working to assess their accuracy and clarify data gathering practices before making that data available to stakeholders. The Library has viewed this as a primary goal for FY2020 and hopes to make the data available for the next reporting period.

## *Line Offices*

*NESDIS*

### Publication Availability

While the National Environmental Satellite, Data, and Information Service (NESDIS) is the NOAA IR's smallest collection, NESDIS is not a large producer of publications. As with all Line Office collections, the Library leveraged the electronic documents that existed in its own collection. This included a number of historical technical memorandum and the NOAA Atlas series. The Library has also utilized digitization funds to scan sections of these series that were available in a physical format only.

## Line Office Specific Metrics

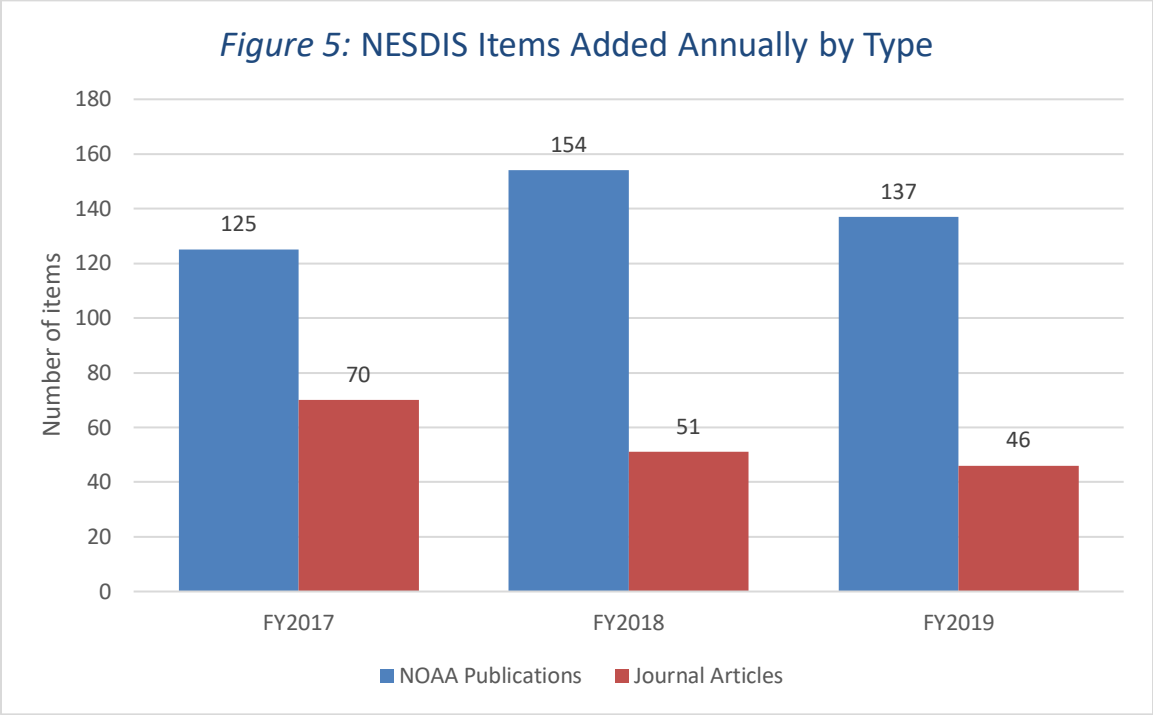


*Figure 5. Non-cumulative comparison of NOAA publications and journal articles produced by NESDIS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 195 items added in FY2017; 205 in FY2018; and 183 in FY219.*

| Metric | Count |
|---|---|
| **Technical Memorandum** | 214 |
| **Technical Reports** | 284 |
| **NOAA Assigned Digital Object Identifiers (DOIs)** | 91 |
| **Journal Articles** | 202 |

*Table 2. 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*

### Publication Availability

The National Marine Fisheries Service (NMFS) Collection is the largest within the NOAA IR. When first populating the system, the Library leveraged the digital holdings within the library network catalog, NOAALINC, with a majority of those publications being from Fisheries offices and programs. Since these initial ingests, the Library has worked closely with a number of offices to obtain both new and historical NOAA publications including technical memorandum, technical reports, and reports to Congress. One of the largest projects the IR has been a part of is the NMFS website redesign; taking publications from old pages and housing them in the NOAA IR as opposed to NMFS servers.

In addition to working with the web and communications offices, the Library has also partnered with the Office of Protected Resources to integrate submissions of Biological Opinions to the NOAA IR via their tracking system ECO. Now, biologists are able to request DOIs (digital object identifiers) for their publications, create metadata, and submit publications to the Library all from one system which has increased submissions from regional offices. During FY2019, Library staff also worked with RPTS developers to create a direct submission method from the system. The update went live over the summer and over the course of Q4 resulted in 16 submissions to the NOAA IR, directly from RPTS. As more offices move to the system, we hope to see an increase in submissions, especially for journal manuscripts.

## Line Office Specific Metrics

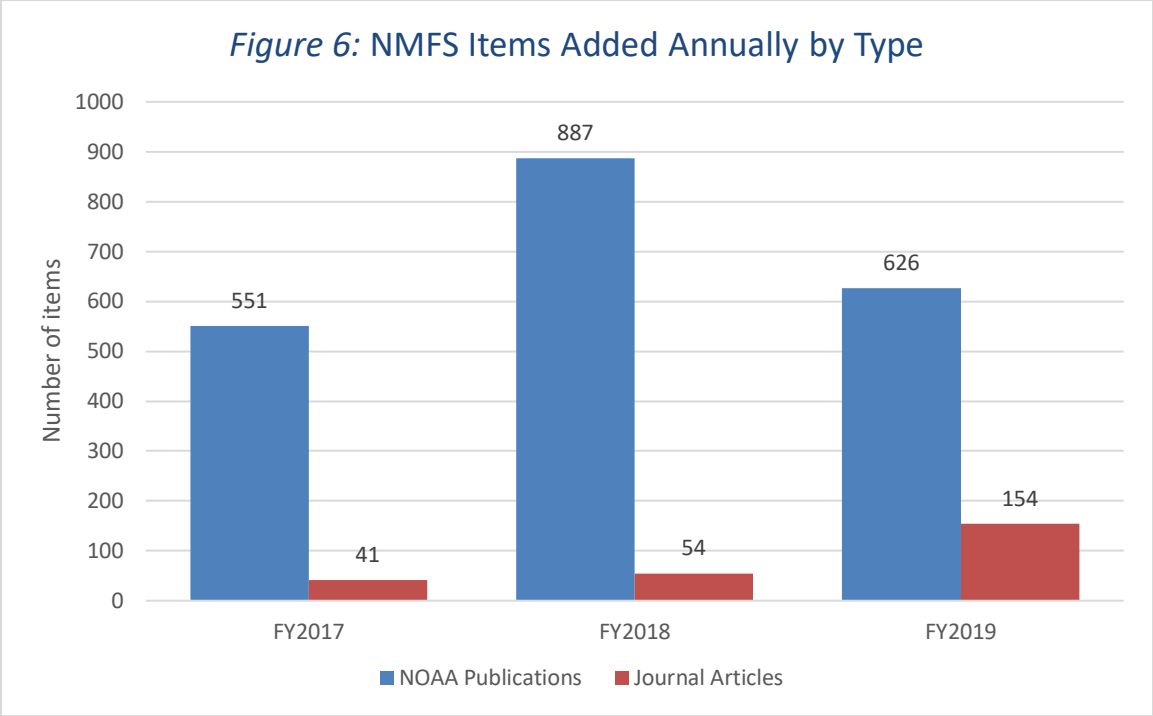


*Figure 6. Non-cumulative comparison of NOAA publications and journal articles produced by NMFS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 592 items added in FY2017; 941 in FY2018; and 780 in FY219.*

| Metric | Count |
|---|---|
| **Technical Memorandum** | 2,440 |
| **Technical Reports** | 1,356 |
| **NOAA Assigned Digital Object Identifiers (DOIs)** | 893 |
| **Journal Articles** | 269 |

*Table 3. Breakdown of the 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*

## Publication Availability

While the initial ingests from the Library's catalog were significant, NOAA publication submissions from a handful of National Ocean Service (NOS) offices, most notably NCCOS, pushed the collection to become the second largest within the NOAA IR. In an effort to garner even more submissions, specifically focusing on journal articles and manuscripts, the IR team has worked with NOS data and publications staff to provide preliminary reports of IR holdings for NOS as a whole as well as on an office level.

In addition to the materials that NOS has submitted to the NOAA IR, the Library has worked to identify physical materials within our holdings from NOS series to digitize. While NOS constituted a small portion of our initial scanning project, the current FY2020 digitization project will make NOS publications a priority.

## Line Office Specific Metrics

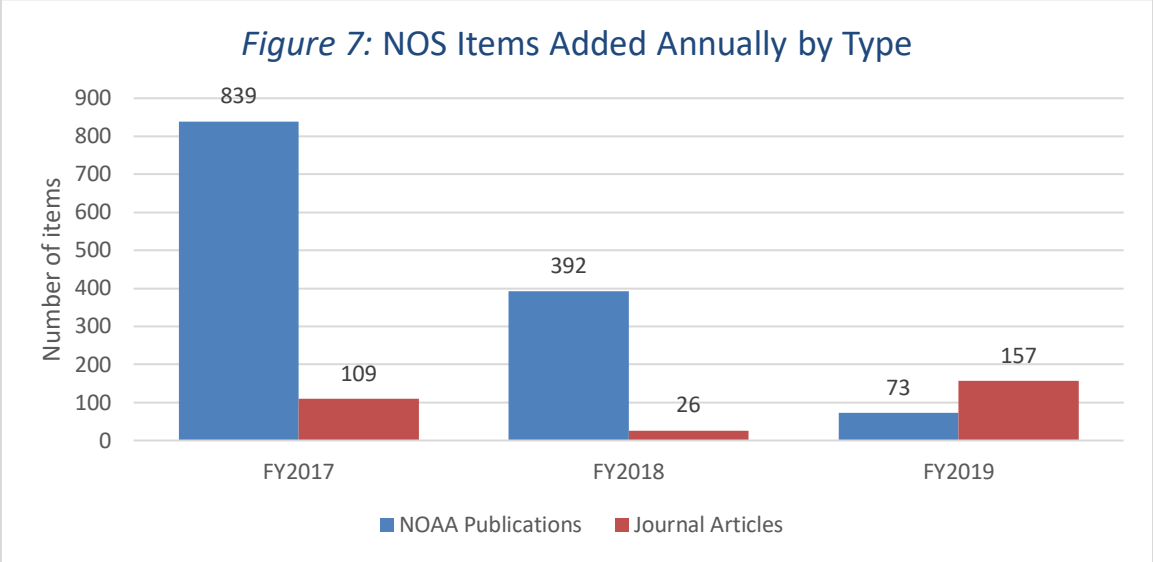


*Figure 5. Non-cumulative comparison of NOAA publications and journal articles produced by NOS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 948 items added in FY2017; 418 in FY2018; and 230 in FY219.*

| Metric | Count |
|---|---|
| **Technical Memorandum** | 573 |
| **Technical Reports** | 274 |
| **NOAA Assigned Digital Object Identifiers (DOIs)** | 135 |
| **Journal Articles** | 294 |

*Table 2.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.*

*NWS*

## Publication Availability

To acquire National Weather Service (NWS) publications, the IR staff has worked with the librarian serving at the Betty Petersen Memorial Library, housed at the NOAA Center for Weather and Climate Prediction in College Park, Maryland. This work has focused on technical publications and office notes from the National Centers for Environmental Prediction (NCEP).

## Line Office Specific Metrics

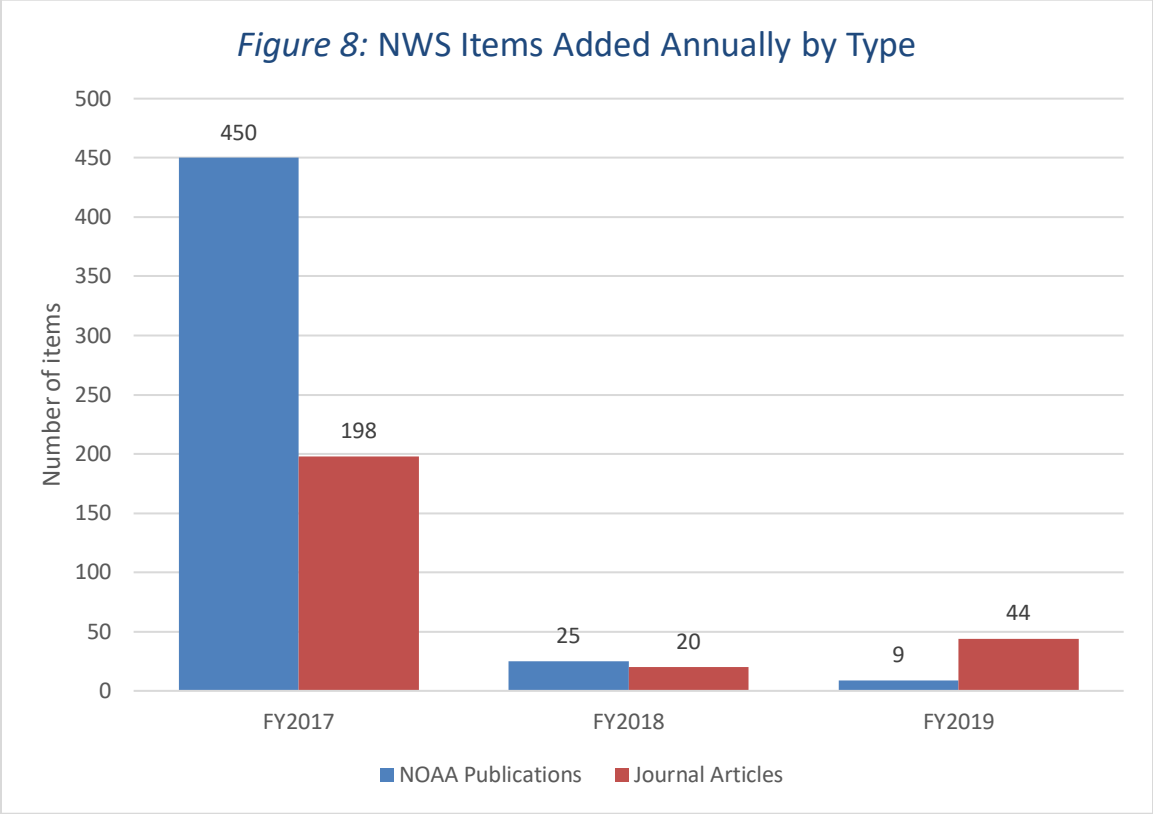


*Figure 6. Non-cumulative comparison of NOAA publications and journal articles produced by NWS employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 648 items added in FY2017; 45 in FY2018; and 53 in FY219.*

| Metric | Count |
|---|---|
| **Technical Memorandum** | 679 |
| **Technical Reports** | 70 |
| **NOAA Assigned Digital Object Identifiers (DOIs)** | 29 |
| **Journal Articles** | 291 |

*Table 3. 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*

## Publication Availability

The initial ingests of the Office of Oceanic and Atmospheric Research (OAR) items to the NOAA IR was limited due to the fact that the NOAA Central Library primarily held OAR publications in physical format with only a few electronic versions available. To bolster these numbers, the Library utilized money earmarked for digitization to focus on scanning and adding historical OAR technical memorandum and reports. The other main area of OAR assets within the NOAA IR are thanks to the Library's long-running collaboration with the Ocean Exploration Program (OER), and included the addition of a number of publications ranging from data reports to cruise summaries and technical memorandum related to the Okeanos program.

The largest gains in the OAR collection have come in FY2019 via the Cooperative Institutes. As mentioned above, the NOAA IR manager was able to take part in an open house with CI directors and representatives to discuss PARR Requirements; after which submissions of NOAA-funded journal articles jumped significantly.

## Line Office Specific Metrics

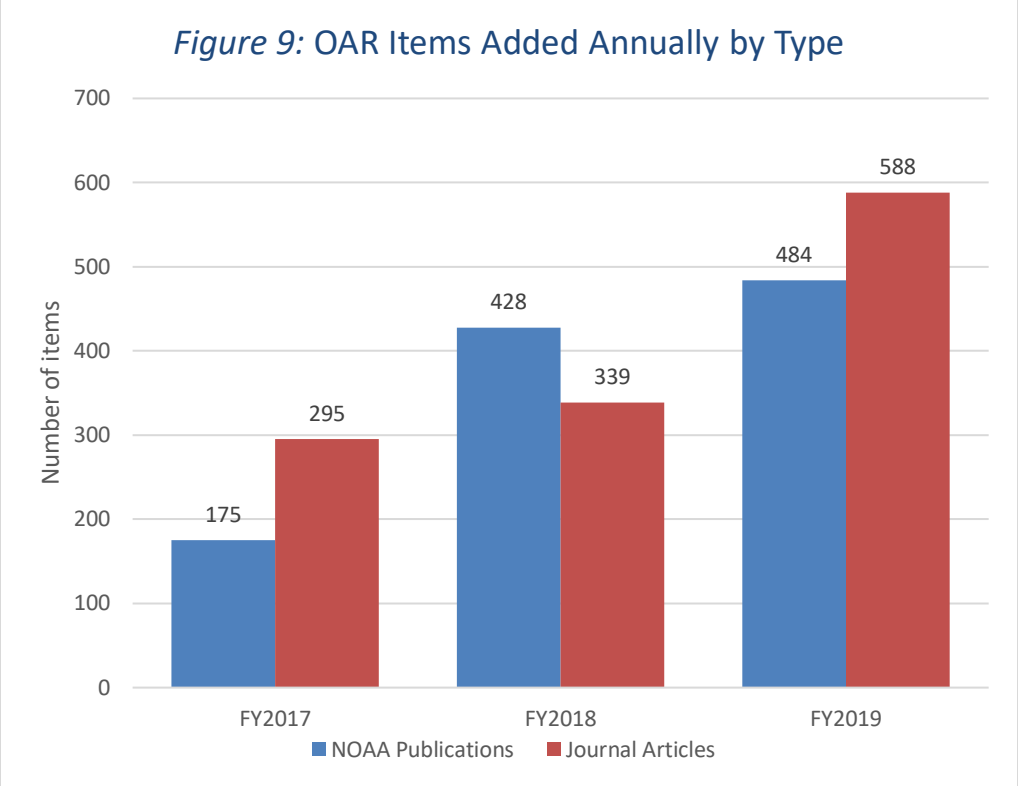


*Figure 9. Non-cumulative comparison of NOAA publications and journal articles produced by OAR employees, contractors, and grantees that were added to the NOAA IR in each fiscal year with a total of: 470 items added in FY2017; 767 in FY2018; and 1,072 in FY219.*

| Metric | Count |
|---|---|
| **Technical Memorandum** | 814 |
| **Technical Reports** | 496 |
| **NOAA Assigned Digital Object Identifiers (DOIs)** | 225 |
| **Journal Articles** | 1688 |

*Table 6. 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.*

## Section IV. Next Steps

The past fiscal year proved to be a stellar year for the NOAA IR and promoting public access throughout the agency; a trend the Library and NOAA IR staff hope to continue into FY2020. With plans to build on the overwhelming success of the submission process instituted for cooperative institutes, the Library is looking to expand this process of citation list submissions to both intramural and extramural researchers. The hope is that by removing some of the onus of determining what publications require a manuscript and which publisher's versions the NOAA IR is able to post, offices/authors will be more likely to submit their journal articles. To further aide this effort, the Library is actively working to contract with CHORUS, the Clearinghouse for the Open Research of the United States, as mentioned in the NOAA PARR Plan, with the intent to use this partnership to identify journal articles that are not traditionally indexed within Web of Science, or that have received NOAA funding, but do not have authors affiliated with NOAA.

While the Library is confident that most NOAA series publications are being submitted to the NOAA IR, there are still a number of these publications that remain hidden. To further incentivize authors and offices, the Library plans to offer records management services related to NOAA IR publications; most notably handling all NARA transfers for NOAA publications that fall under records schedules such as technical memorandum, strategic plans, and reports to Congress that are held in the NOAA IR. Beginning in 2022 NARA will only accept electronic versions of documents, which uniquely positions the NOAA IR to serve as a conduit between NOAA publications through proposed API transfers and harvesting capabilities currently under development at both NARA and the CDC.

While the primary function of the NOAA IR is to house publications, the ability to link to supporting materials, most notably datasets, will also be a focus for the Library in FY2020. Through linking datasets, and ultimately back to research and development project numbers, the NOAA IR can further NOAA's larger open science goals and to better serve the larger research community. Currently, the Library is relying on submitters to provide available dataset link information, which has yielded few responses. Library staff has already begun working with NESDIS colleagues to identify ways of linking publications held within the library and the data that is available via NCEI.

In addition to these new programs, traditional outreach efforts to NOAA staff and affiliates will still be utilized through coordination with the Library's outreach team such as: Knowledge Workshop series participation, NOAA-wide email notifications, trainings, participating the in the Library's Coffee & Questions series, etc. Feedback from all stakeholders will be solicited throughout the year in order to shape development priorities (i.e., through a front end usability study of the NOAA IR's website) and as a way to identify places to streamline submission and processing workflows.

## 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 Library staff have conducted scanning and ingesting of 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.

**Publication Availability**
Availability is defined as how researchers and the public gains access to NOAA publications (including journal articles, series documents, and funded publications).