

Advancing NOAA Library Services

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Advancing NOAA Library Services

Executive Summary

The NOAA Libraries Advisory Committee (NLAC) has developed this document at the request of the NOAA Research Council (RC). We propose specific steps that continue moving NOAA towards having a more viable library system. In this summary, we highlight the major principles guiding the committee's work, key findings from two recent surveys, specific recommendations, and additional topics of concern.

NOAA libraries have been highly successful and efficient at providing services, and most employees who need library services to successfully perform their jobs were satisfied with those services at the time of the last employee survey in 2012. To the extent possible, we strongly recommend against taking actions that might break the parts of the current library system that are working well. Our recommended actions are intended to balance employee satisfaction with the current services with a desire to move towards a more effective and efficient library system that will be able to respond appropriately to future changes in technology, resources, and user needs. In formulating these recommendations, no specific assumptions have been made regarding levels of funding. If funding were to increase or decrease substantially in the future, the recommendations would be affected.

Major Guiding Principles

One of the first things the NLAC accomplished was to develop a set of guiding principles, which were approved by all NLAC members. They can be found at the following URL: https://docs.google.com/document/d/1mdFMFMGVYVCywR3XPfiWi41kLajrYZhH_PZaJrR0Cu0/edit. Some of the key points include:

- Library resources and services are critical to NOAA's and its Line Offices' (LOs) missions;
- NOAA librarians are the best group within NOAA to recommend how library services should respond to changes in the informational landscape as well as to institutional needs within given budget constraints;
- Consolidation of some library services may be an efficient way to meet NOAA's needs, but any additional library consolidation or library closure should be reviewed carefully to ensure continuity of library services and preservation of critical NOAA intellectual material. Local ease and efficiency of access to specific material may outweigh administrative advantages of centralized services. These needs should be determined on a case-by-case basis.

In addition to these guiding principles, there are some "best practices" that we have identified from our research that guide us. Steps have already been taken to move our library system towards following these practices, and this document's recommendations are intended to continue that progress. Specifically, we strive to have a library system that:

- Routinely assesses and understands the informational needs of employees at NOAA;

- Establishes regular communication across the NOAA libraries, providing multiple benefits to library staff and employees;
- Has a thorough understanding of its holdings and of the services it has at its disposal;
- Ensures that decisions are made for the long-term benefit of the agency and are not driven by temporary budgetary or other pressures.

Key Findings of Recent Surveys

Two recent surveys relating to NOAA library services have been performed; both of these informed the development of our recommendations. A survey in 2012 was sent to all employees at NOAA, and the NLAC conducted a survey of NOAA librarians in 2015.

Insights gained from a 2012 survey of library users include:

- Employees at NOAA who had local access to library services were generally very satisfied with those services;
- Some employees identified certain service needs as important but not effective at the time of the survey; however, this was a small fraction of those responding to the survey, demonstrating a generally successful overall library system;
- The most valued library service is access to scientific journals, especially remote access to electronic journals.

From the 2012 survey, we conclude that the current combination of centralized services that are beneficial across NOAA, and regional and field libraries, which focus on meeting specific local requirements, has generally served employees at NOAA well. However, the survey also pointed out that not all staff were receiving the library services they needed.

Results from a 2015 survey of NOAA librarians showed:

- There was a 26% decrease in library staffing from 2005 to 2015;
- The majority of NOAA Library budgets have remained flat or declined while scientific journal costs increased, on average, 6-8% per year;
- Reduction in staff and effective funding has affected library services in a variety of ways, including: suspension of important projects; loss of archival/preservation capability; reduced ability to pursue innovative ideas and technologies; inability to maintain skilled staff; and dramatically slowed pace of reviewing and dispensing donated materials;
- Over the last decade several NOAA libraries have closed. Impacts of these closures have included loss of NOAA-related archival materials, loss of local access to needed physical materials, and a shift in library services workload to library staff in other NOAA libraries.

This 2015 survey has improved the NLAC's understanding of the current status of the various NOAA libraries and has illuminated some key concerns of library staff.

The recommendations below try to balance the overall satisfaction with current library services with concerns about challenges that may be encountered by the library system. Not all problems can be foreseen, and some that are currently expected to pose challenges may not due to evolving external forces. Thus, while we recommend some actions to address specific concerns, we also recognize the need to implement a process

that improves communication and responsiveness within the libraries to position them to better handle unexpected future challenges.

Specific recommended actions:

Improve Communication Among Libraries

- Establish a Committee of Librarians. This committee would have representation from all NOAA libraries, if feasible. The committee would be chaired by an NLAC member and would work with the NLAC, as necessary, to ensure that any recommendations approved by the NOAA Research Council are implemented. Proposed initial tasks for the Committee of Libraries could include:
 - develop a corporate process, to be approved by the Research Council, for libraries that will close or are considering closure;
 - identify and develop a list of core resources that could allow for purchasing efficiencies and/or more widespread distribution within NOAA;
 - develop guidance for collection development on a NOAA-wide basis;
 - develop a consistent format for annual reports that each library will prepare.

Improve Understanding of Library User Needs

- As an agency, we need to be able to properly evaluate the importance of our libraries and how they are being used, as they will continue to compete for valuable and limited resources. In order to assess their health and effectiveness and to understand the potential impacts of library closures or consolidation, relevant and current data are needed on the services they provide and on NOAA employee library use and needs. The following should be implemented to make sure that sufficient information is available to inform future decisions:
 - Conduct regular surveys of library customers and library staff to determine the evolving needs for libraries and library services and impacts if those needs are not met. Consider ways to reduce biases inherent in surveys when responses represent a small fraction of the entire workforce; one option is to survey a random subset of employees and put greater emphasis on increasing the response rate from that group.
 - Ensure that all NOAA library staff are aware of the library services that are available so that a proper corporate assessment of the need for those services can be performed.
 - Require that each library produce an annual report for the NLAC to provide information on routine activities, customers served (including their affiliation), types and frequency of services provided, library staffing levels and responsibilities, annual highlights, and evolving needs. The report should also include detailed data about the ways library users are accessing information and what information they are requesting.

Improve Corporate Knowledge of Our Holdings

- Begin a systematic approach to catalog items held in NOAA libraries that are currently not cataloged, and thus likely not accessible. This is generally a higher priority than digitizing existing material for the purpose of archiving. However, if during this process particularly useful material is identified, it might be prudent to proceed with archiving that material to make it digitally available more rapidly.

Develop a Corporate Process to Deal with Library Closures

- Develop a process relating to library closures that includes:
 - assessing and mitigating the impact of a possible closure on existing customers and other NOAA libraries;
 - assessing and mitigating potential impacts of the loss of the librarian position(s) on existing customers and other NOAA libraries;
 - ensuring that unique NOAA material and expertise are not irretrievably lost;
 - a plan for where customers that are currently served by a closing library would turn for library services, and who would pay for those services.
- Library closure or consolidation should not be imposed without engaging with the relevant NOAA stakeholders

Begin Considering Service and Funding Requirements in Response to the Recently Changed Library Organization

- The NLAC should begin the process of evaluating the funding structure regarding laboratory, Line Office, and Direct Bill (i.e., charges assessed on appropriated funds prior to distribution to financial management centers) funding of the various libraries. Each funding mechanism could play a legitimate role, given the range of services provided by the libraries.
- Most NOAA libraries now reside in OAR and NMFS. The NLAC should develop a plan to ensure that other Line Offices are effectively served by these libraries; service needs could be identified from the survey referenced above. Consideration should be given to how the other Line Offices will financially compensate OAR and NMFS for the service.

Additional topics of concern:

Staffing

- Evaluate staffing needs as well as the distribution between federal and contract staff. This should be an ongoing activity for the funding entity of each library, particularly when staff retire or leave.

Outsourcing Library Services

- Exercise caution in considering reliance on external library service providers (e.g., Cooperative Institutes) at the expense of in-house library support until a thorough evaluation of risks and benefits of such a shift is conducted.

Print vs. Electronic Resources

- Continue to assess the merits of choosing electronic journal subscriptions over combined print and electronic subscriptions. It is important to balance short-term budget challenges with long-term effectiveness.

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Advancing NOAA Library Services

**Prepared for the National Oceanic and Atmospheric Administration
Research Council**

by the NOAA Libraries Advisory Committee

Introduction

The NOAA Libraries Advisory Committee (NLAC) developed this document to provide the NOAA Research Council (RC) with some initial steps that will improve the ability of the NOAA Libraries to serve the agency in the future. While this plan will provide a starting point for RC discussions, we recognize that it is likely the RC will need additional information. We look forward to addressing additional requests.

Our recommended actions are intended to lead to a more effective and efficient library system, a system that will be able to respond appropriately to future changes in technology, resources, and user needs. The emphasis of these actions is to lead to a more successful library system, with no specific assumptions made regarding levels of funding. If funding were to increase or decrease substantially in the future, the recommendations would be affected.

The initial discussions within the NLAC were focused around the recommendations of the previous library Management Oversight Group and involved an organizational approach called “*virtual +1*”, in which there would be a single physical library holding all of NOAA’s non-digital resources and a limited number of librarians embedded in various NOAA laboratories and offices who could provide library services. As discussions progressed among the NLAC members, it became clear that it was important, if not essential, to have physical holdings co-located with some field offices due to the specificity of those holdings. Having distributed libraries and library staff also allows for services to be tailored to the needs of the particular local NOAA office, and allows for decisions that affect those services to be made by people who have the best knowledge of the local needs. While NOAA may naturally move towards having a reduced number of physical libraries in the coming years, with library staff embedded in the laboratories to provide library services, the direction we suggest below does not recommend mandating this evolution in the near term.

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The NLAC identified a set of principles to guide our discussions, which were unanimously approved by the members in 2014 ([here](#)), including:

- Library resources and services are critical to NOAA's and its Line Offices' (LOs) missions;
- NOAA librarians are the best group within NOAA to recommend how library services should respond to changes in the informational landscape as well as to institutional needs;
- Consolidation of some library services may be an efficient way to meet NOAA's needs, but any additional library consolidation or library closure should be reviewed carefully to ensure continuity of library services and preservation of critical NOAA intellectual material. Local ease and efficiency of access to specific material may outweigh the administrative advantages of centralized services. These needs should be determined on a case-by-case basis.

Also, we unanimously agreed that while LOs have a particular interest and responsibility for their own libraries, at the same time they should recognize the interconnectedness of some libraries and library services across Line and Staff Offices.

Multiple sources of information were considered in the development of this document. One critical source of information involved discussions among the NLAC members as well as with the Field Librarians Advisory Group (FLAG) and the NOAA Central Librarians. The discussions took advantage of the collective knowledge and experience of the members of these groups. For most of the last year (2015-2016), we also regularly consulted with members of FEDLINK at the Library of Congress; this collaboration allowed us to put our challenges and concerns in context of the experiences of other agencies addressing various library service models, and to help ensure that our suggested approaches follow "best practices". To include a wider range of voices, we conducted a survey of NOAA librarians and also used results from a survey that was distributed to all NOAA employees and many Cooperative Institute (CI) and contractor staff in 2012. Finally, we visited other libraries (external to NOAA) to broaden our vision of current library practices and possible solutions to existing and expected challenges. In this process, we have identified a set of "best practices" that helped guide us in the formulation of our recommendations. These "best practices" involve having a library system that:

- Routinely assesses and understands the informational needs of employees at NOAA;
- Demonstrates regular communication across the NOAA libraries, providing multiple benefits to library staff and employees;
- Has a thorough understanding of its holdings and of the services it has at its disposal;
- Ensures that decisions are made for the long-term benefit of the agency and are not driven by temporary budgetary or other pressures.

In addition to specific challenges currently faced by our libraries, it is almost certain that the informational services provided by libraries and librarians and required by

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NOAA staff will substantially change over the next decade. The recommendations of this document provide a path to navigate this transition in a successful and efficient manner. A few relevant events that could cause, or at least affect, some of these changes include: (1) the scientific community's choice between traditional and open-source journals; (2) the role of technology in providing material; (3) the success and method of implementing the OSTP requirement for making federally-funded research available to the public; and (4) changing perceptions of face-to-face contact with library service support *vis-a-vis* a help desk or online chat service. Because changes to library service needs are likely, a key characteristic of a library system that will continue to be successful and efficient is one that can adapt and respond quickly to the changing landscape.

Current Status

Meeting NOAA's mission of "Science, Service and Stewardship" requires broad expertise across its Line and Staff offices and a commensurate variety of library resources and services. All libraries within The NOAA Library Network share a common purpose of supporting the overall NOAA mission along with the mission of their individual locations. In addition, NOAA libraries serve a broad group of customers that work in areas not co-located with those libraries, including the general public, academia, industry, and other government agencies, as well as NOAA employees and contractors. The way the various library missions are implemented and exactly what is delivered varies across the agency depending on the specific type of management, conservation, communication, or type of science being conducted by the particular office. The majority of NOAA libraries are organizationally located in OAR and NMFS (see Figure 1).

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NOAA Libraries
(scaled by acquisition budgets)

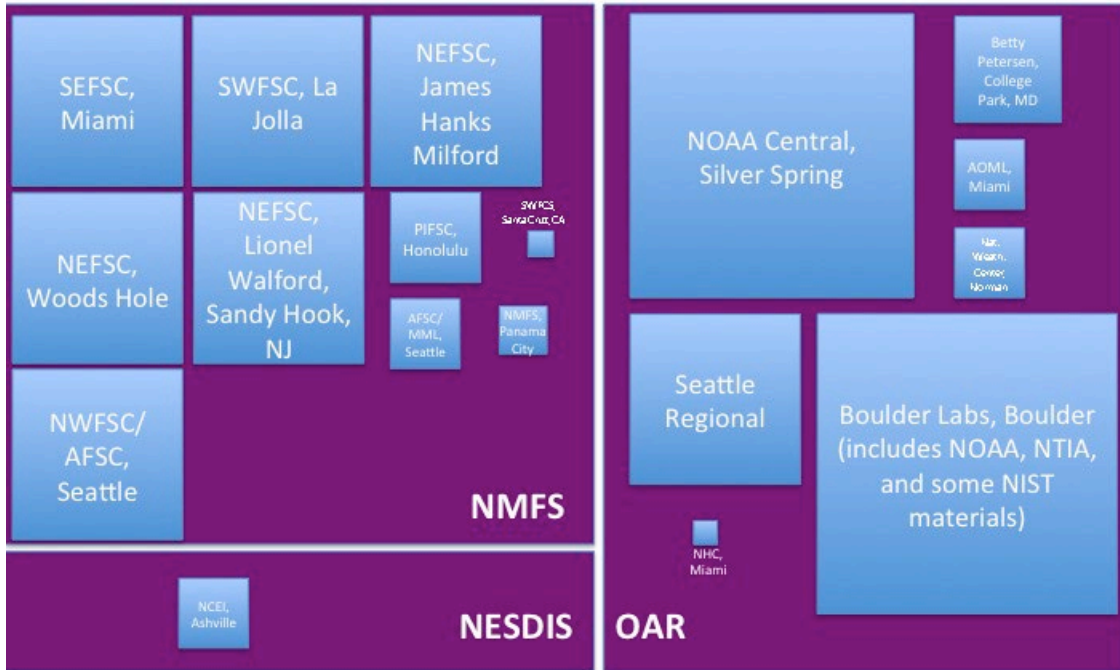


Figure 1. Organization of NOAA libraries, from results received in 2015 library survey. Areas of library boxes are proportional to the reported library acquisition budgets. The Betty Petersen Library serves and receives support from three Line Offices (NWS, NESDIS, and OAR). The Rice Library in Beaufort, North Carolina, is not included in the above figure; it is located in the NOS Line Office, but reported an acquisition budget of “0” in the survey. The AOML and NHC libraries are two branches of the Miami Regional library.

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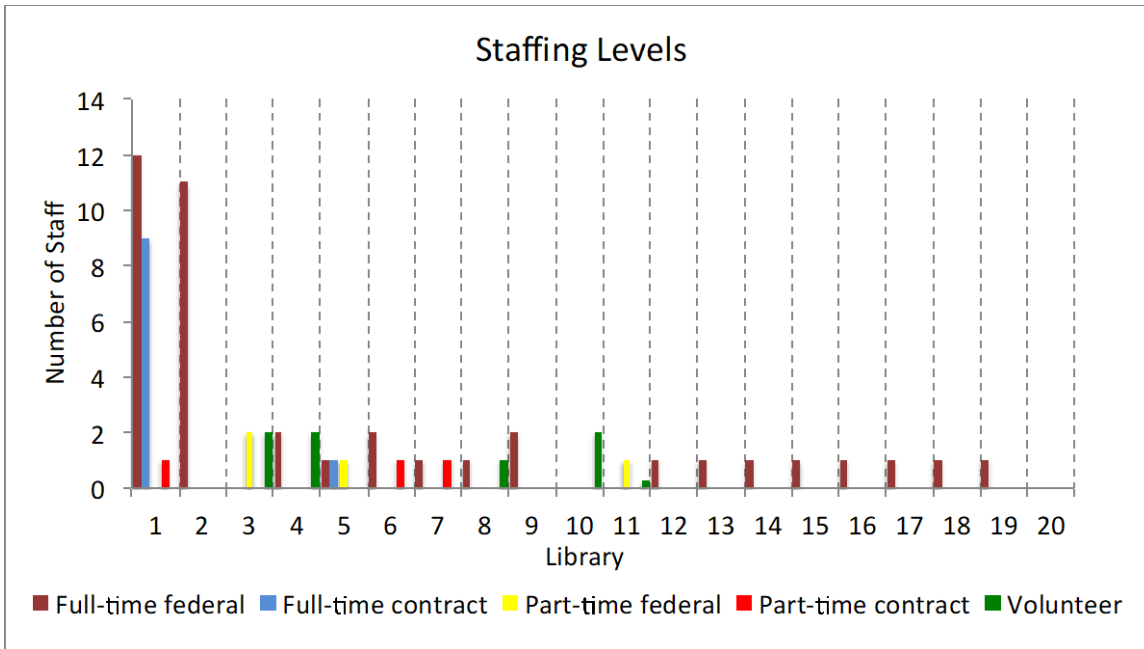


Figure 2. Staffing levels for 20 NOAA libraries that responded to the 2015 library staff survey.

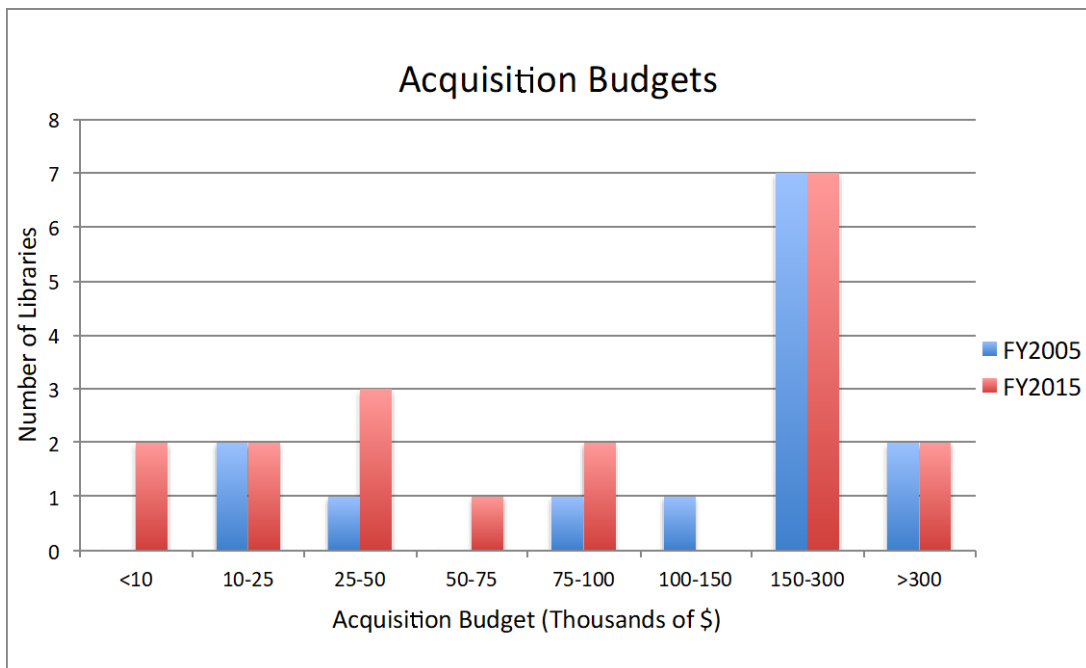


Figure 3. Acquisition budgets (e.g., journals, books) of the libraries shown in Figure 2. Budgets for 2005 are also included, if available.

The staffing levels (Figure 2) and acquisition budgets (Figure 3) of NOAA libraries vary substantially, with impacts on the degree to which these libraries can serve their customers. Some libraries and library staff are able to meet the needs of their customers but others are underfunded and are not able to support full-time library staff. Furthermore, some NOAA employees are not co-located with any library facilities and may be underserved by the current library network. The link below is

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to a spreadsheet that summarizes the missions of the various NOAA libraries, staffing levels, services provided, and other information.

<https://docs.google.com/spreadsheets/d/1Q9sjRJoMzp8CbUB4bKjr1FuJW09QimcO3up2ld12-lc/edit#gid=0>

More libraries are listed in the spreadsheet than in Figures 2 and 3 because some libraries in the spreadsheet have closed and others did not respond to our survey. Of those that did not respond and are still open and operational, four are in OAR, one is in NMFS, and four are in NOS. However, the acquisition budgets for each of these is small and staffing is either non-existent, limited, or in transition.

Library staff already take advantage of the collective knowledge of librarians across the agency and beyond through coordination and collaboration among the various libraries in the system. Examples of coordination and collaboration include:

- Participation in the NOAA Library Network via interlibrary loan (ILL), and with the NOAA Librarian listservs to share ideas and information;
- Coordination with FedLink contracts, to which all NOAA Libraries contribute funds;
- Participation in the NOAA-wide journals contract, which provides NOAA libraries a vehicle to place orders for journals, databases, and other products. It streamlines the purchasing and licensing of these critical information resources.
- Participation in the NOAA Institutional Repository, which will be led by the NOAA Central Library in the near future, and involves an online system that will help NOAA meet the Office of Science and Technology Policy (OSTP) mandate to make the results of research freely available to the public;
- Participation in the NOAA Library and Information Network Catalog (NOAALINC), which provides a means for NOAA and the public to identify the holdings of all NOAA libraries, and provides a library system for those libraries that wish to take advantage of its circulation, metadata, and serial control functions;
- Participation in the NOAA Fisheries Library Consortium (NFLC), which was formed at the direction of the NMFS Science Board. The NFLC is recognized as the standing advisory body to NMFS leadership on matters relating to library and information needs. This group of NMFS librarians interacts with the greater NOAA Library Network but also regularly collaborates on specific issues related to equality of access, core resource identification, acquisition of resources and services uniquely required by NMFS users, and promotes, assists, documents, and shares scholarship and research throughout the NMFS Line Office;
- Participation in the NOAA Photo Library, which provides access to over 75,000 high-quality, copyright-free photographs from different areas in NOAA;

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- Through the Direct Bill process the NOAA Central and Regional Libraries (NCRL) license and fund access to the following resources that are widely used within NOAA:
 - NOAA-wide databases:
 - Web of Science
 - Aquatic Sciences and Fisheries Abstracts (ASFA);
 - Journal Packages
 - American Meteorological Society Journals
 - JSTOR – Archival Journals;
 - BioOne

The 2015 survey of librarians identified the most important of these centrally-provided resources as being NOAALINC, online reference resources, interlibrary loans, and contract coordination. It is expected that the institutional repository service will also be widely used and valued in the near future.

A survey of the NOAA library users was conducted in 2012 and led to important conclusions about the libraries at that time. Perhaps the most important finding of the survey is that those employees at NOAA who had access to library services were generally very satisfied with those services. On the other hand, it showed there are many people in NOAA who do not need significant library services. The difference in library access among the Line Offices is apparent in Figures 4 and 5, with over 50% of NWS employees not visiting the physical library or the online library presence even once in the year preceding the survey. On the other hand, over a quarter of NMFS and OAR (and almost a quarter of NESDIS) employees visited physical library facilities 10 or more times in the previous year, with over 40% of NMFS, OAR, and NESDIS employees visiting the online presence more than 10 times that year. Library access needs would be expected to vary across NOAA, as they reflect the different foci of the Line Offices. However, these differences make identifying core resources, funding approaches, and corporate library oversight challenging.

In particular, differences among Line Offices make evaluation of library service more difficult than it would be for a highly uniform agency. In Figure 6, the lower row of the NWS grid shows that 49% of the survey responders assessed the effectiveness of the NOAA libraries' electronic journal access with a score of 1 or 2 on a scale of 1-5, with 5 being most effective. That might initially suggest cause for concern, but nearly all (>80%) of that 49% also rated the importance to journal access with a score of 1 or 2. Thus, this is not a sign of libraries failing NWS, rather it signals that many in NWS report that they do not need journal access. A key conclusion from this figure is that at least 75% of respondents in every Line Office who rated the importance of journal access with a score of 3, 4, or 5 rated the effectiveness also with a 3, 4, or 5. Thus, the strong majority of employees in each of NOAA's Line Offices who found library access important also found it effective.

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It is our overall assessment that the current organization of having centralized services that are beneficial across NOAA, while having regional libraries to focus on specific local requirements, has been largely successful in meeting the needs of NOAA’s employees. This general success of the current library system has implications for our recommendations and the extent to which we suggest changes. On the other hand, there are some employees who need library services and are not receiving them. So there is unquestionably room for improvement in some areas.

Physical Visits to Local NOAA Library

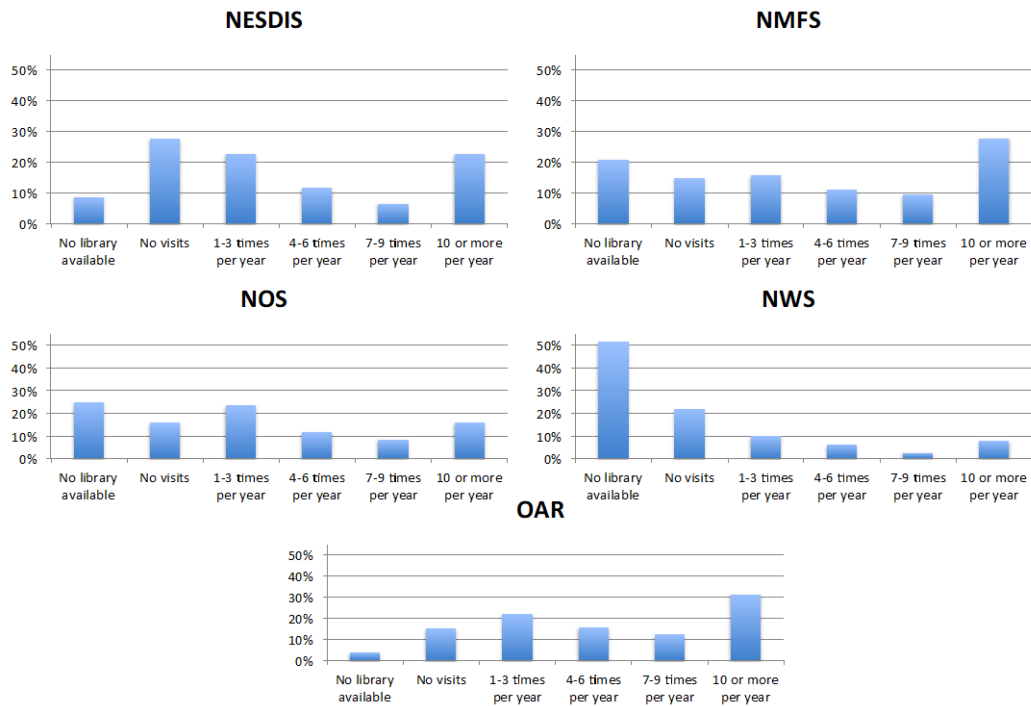


Figure 4. Visits to NOAA library physical facilities as reported in the 2012 library user survey.

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Online Visits to Local NOAA Library

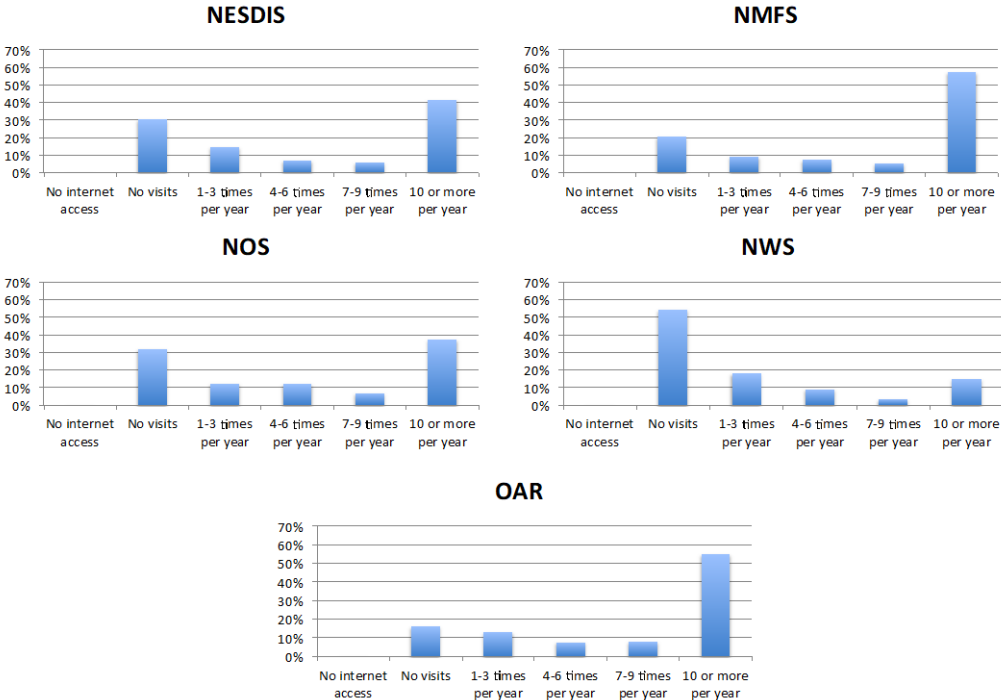


Figure 5. Visits to NOAA library online presence as reported in the 2012 library user survey.

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Remote Electronic Journal Access (all values in percent)

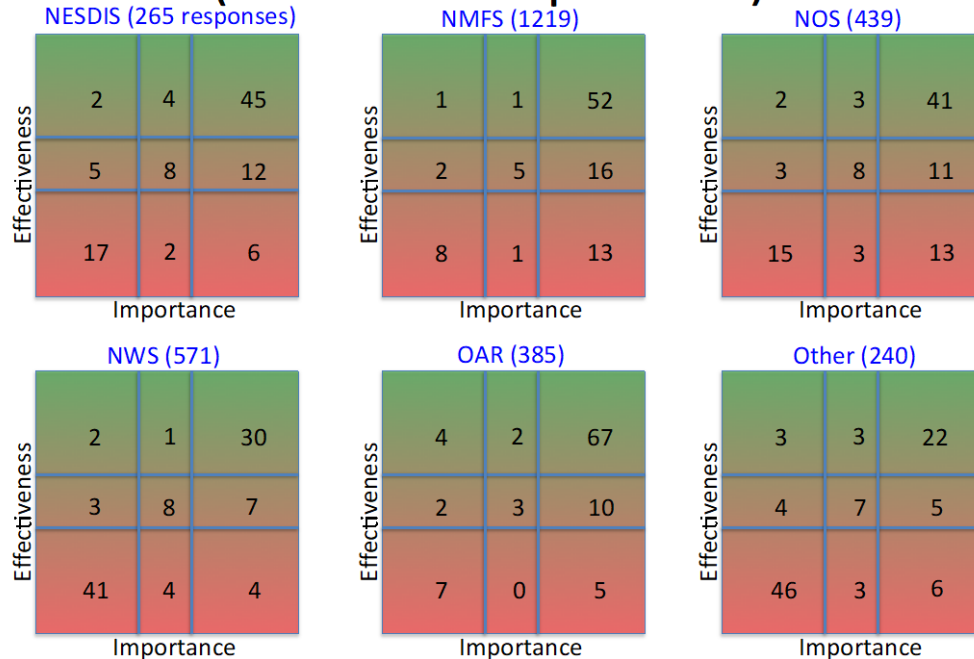


Figure 6. In the 2012 NOAA-wide library services survey, effectiveness and importance were ranked on a 5-point scale, with “5” being most effective/important. Starting in the lower left box of each panel, the boxes represent scores of 1-2, 3, and 4-5. Thus, the lower-left box of each panel corresponds to a response of 1 or 2 for both importance and effectiveness. For example, from NESDIS, 4% of the responses ranked the effectiveness of electronic journal access as a 4-5 and its importance as a 3.

Library System Trends

Reductions in staffing. There has been a decline in full-time library staff between 2005 and 2015 from 50 to 37 employees with a decline in federal employees from 40 to 23 (see Figure 6). Of those 23 federal employees, 13 are located in two of the twenty libraries that responded to the survey, meaning that 10 FTEs are employed at the remaining 18 libraries. While there are many tasks and positions that can be performed by contractors, it is important to balance any potential benefits (e.g., quicker hiring, improved flexibility to bring in specific skill sets required by rapid changes in the field) with the long-term presence and institutional knowledge that career federal employees provide.

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We have no recommendation regarding a particular level of staffing, but we express our concern that the NOAA library system could fall below a critical mass of staff, with negative implications for maintaining long-term services and institutional knowledge. In addition, the retirement or departure of librarians appears to be related to library closures, e.g., retirement or departure of library staff was followed by five library closures in the past decade.

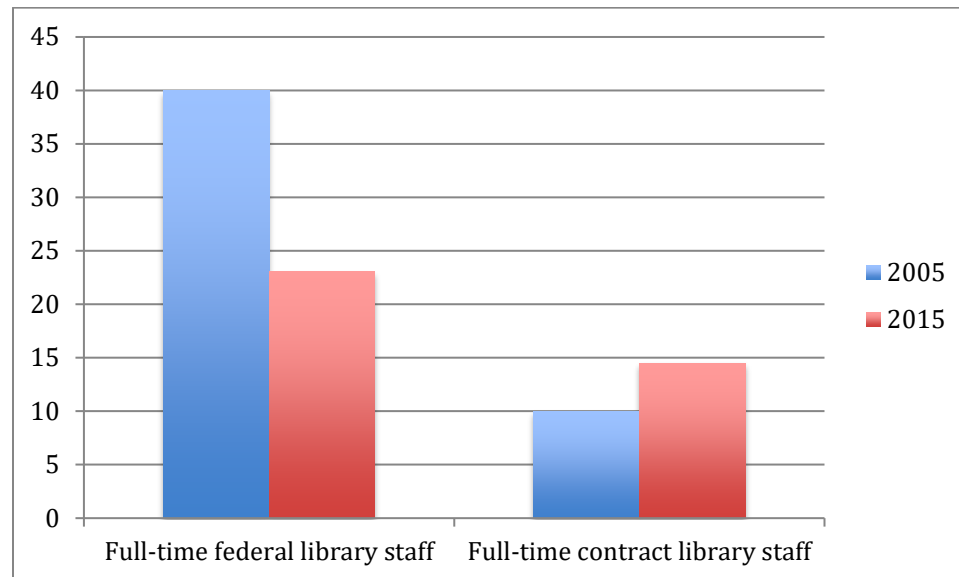


Figure 6. Comparison of federal and contract library staffing levels across the NOAA libraries in 2005 and 2015.

Services lost. The reduction in staff and funding has impacted library services in the following ways:

- Less access to materials and databases for research staff;
- Less access or elimination of interlibrary loan services;
- Reduced access to bibliographic instruction and/or to other specialized skills of the library staff (editing, citation analysis, etc.);
- Important, but less urgent projects, like creation of digital collections have been suspended;
- Loss of archival/preservation capability when print journals within the system are dropped and replaced with leased electronic versions;
- Loss of ability to archive and preserve historical hardcopy, digital, or photographic records under the libraries' purview;
- Inability to maintain skilled staff as contractors leave (e.g., to pursue better opportunities in libraries that can provide more upward mobility);
- Slowed pace of reviewing and dispensing of materials provided to libraries by retiring staff;

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- While innovation has continued to occur on multiple fronts, it has been hampered by lack of time and funds to pursue ideas gleaned from the external scientific librarian community.

Library closures. Over the past decade, multiple offices have used the departure or retirement of library staff to reassess the need for a local library and its library services, with some opting to close their library. When libraries close, local library services are inevitably lost, and some of these services are shifted to alternate NOAA or non-NOAA staff. For example, the collections at Charleston have been dispersed to other libraries, removing the physical access from the research staff and resulting in less use of the materials. Archiving the Rice Library website has resulted in losing the ability to browse the collection and to search the databases and other content on the website; this has led to the false impression that the physical collection and services were removed. Closing the Kodiak and Auke Bay Laboratory libraries has shifted the library service workload to other library staff; library staff workload in other libraries has increased, but the extent of this is unknown because library workload is typically not quantitatively tracked. NOAA libraries have experienced an increase in interlibrary loan requests from locations that have sustained a library closure.

Shift from print resources. The 2012 survey showed that the most important service the library provides is access to scientific journals, with an emphasis on electronic access. In a time of fixed or declining library budgets, this reality will almost certainly lead to the sacrifice of other important services as journal costs grow. Journal subscriptions already consume over 50% of the library acquisition budgets across NOAA libraries and there are serious concerns about how this need will be met in the future as costs are increasing at 6-8% per year. One way libraries have tried to alleviate this budget difficulty is by shifting journals from “print only” or “print and electronic” to strictly electronic. While it may save money in the near term, it has the potential to have significant negative impacts in the future. Perhaps the most obvious concern is that if electronic access to a journal is discontinued, NOAA would not just lose access to future content, but in some cases would lose access to all content, even content provided when the subscription was held. This is an example of how cost-cutting measures required by tight budgets in a single year have the potential to negatively affect NOAA in the long term in profound ways.

Observations and Insights from other Library Systems

The NLAC members have extensive experience relying on and working with NOAA libraries. To better understand current challenges faced by libraries outside NOAA, and thus to gain insight into how to address our challenges, NLAC members toured the libraries for the Seattle office of the Environmental Protection Agency, Microsoft, Fred Hutchinson Cancer Research Center, and the National Center for Atmospheric

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Research. Each entity houses a major library that provides a variety of services to thousands of people.

Key commonalities shared by multiple non-NOAA libraries include:

- A shift to using electronic delivery for some, but not all, journal and print resources;
- A commitment to maintaining print resources and a library “space”¹;
- A loss in funding and staff;
- Routine surveys of users to ensure their most pressing needs are being met;
- Strategic planning to ensure that new services are identified and provided over the short- and long-term; and
- Experimentation, with varied levels of success, with using the library as a space for non-library activities.

All non-NOAA library staff we interviewed felt strongly that while going “all digital” is prevalent in the media and sounds “hip” they have found that it is not practical; even the Microsoft librarians expect to continue to maintain a core collection of physical materials. Many e-books cost six times more than hardcopy books, many important materials are not available as e-books, and it is not practical, or legally possible, to digitize all of the important print holdings in a collection. Non-NOAA librarians interviewed noted a general trend that when a library loses its printed materials, all library services are gradually eroded because without a print collection, there is no longer a clear, positive understanding of what a “library” does, and the services become a target for elimination when funds are limited.

Key Characteristics for a Successful Future

In developing recommendations for the NOAA library system, it is useful to consider some more general characteristics that would make the libraries most effective. The majority of the subsequent recommendations that we make follow from these general characteristics.

Agility. With the rapid changes that have occurred and are expected to continue to occur in the field of information technology and library resources, as well as in NOAA’s mission and fiscal limitations, it is imperative that the structure, processes, and procedures of our library system be able to adapt rapidly. The system must be able to provide support to field libraries and staff when libraries close as well as to employees who are not co-located with a NOAA library. Also, a key prerequisite to agility is to understand how successful libraries are in providing services at any given time.

¹ A dedicated area for reading or research. In some cases, the libraries include an area to work in small, relatively quiet groups.

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Interconnectedness. There should be ongoing evaluations of the most effective way to balance the advantages and disadvantages of coordinating ([coord googledoc](#)) with those of centralizing ([central googledoc](#)) various services. A successful library system will consistently seek to identify efficiencies in processes, recognize the benefits of cross-Line Office collaboration, and invoke processes and decision-making that engenders trust across the system. Part of such an approach involves bringing the various stakeholders to the table when decisions that affect more than a single library are made.

Physical organization. There are clear benefits to having some physical materials co-located with staff who use them. The 2012 employee survey also showed that people are generally more satisfied with their library services when they have direct access to library staff members. This argues for retaining library staff even if a physical collection is no longer available.

Funding model. Ideally, managers who make library funding decisions understand the role of the libraries, their relevance and importance to supporting NOAA's mission, and have a stake in their effectiveness. In such a case, decisions to increase or decrease funding would have the best chance of serving NOAA's overall goals.

The current library funding model is extremely complex with funding coming from local laboratories, Line Offices, Direct Bill, and even other agencies. This situation makes it difficult to envision how more widespread library services could and should be provided once it is determined who in NOAA is underserved. Conversely, if library services are reduced or efficiencies are found, the entity that recovers the savings is highly dependent on the specific situation.

In terms of funding the future NOAA library system, an important question involves who should pay for the libraries and services they provide. It is arguably more important to identify a fair and equitable approach now that the vast majority of library services reside in only two Line Offices (NMFS and OAR), when at the same time employees in other Line Offices have certainly found library services important to accomplishing their mission. A few options include:

- placing the entire burden of library costs on those that use the services;
- all NOAA line offices contribute according to some equitable formula;
- a hybrid system with one approach for funding regional and field libraries and another for funding the NOAA Central Library; or
- the Line Office that houses the library covers the cost of services even if services are provided to employees in other Line Offices. This approach would effectively represent an additional tax on the Line Offices that oversee libraries.

The first approach (users pay all) could place a heavier burden on the research arms of NOAA; however, to the extent that research informs the non-research parts of NOAA, an argument could be made that the NOAA libraries are an agency-wide resource and should be supported as such.

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Our committee does not offer a recommendation for a funding approach, but we identify it as an important issue that will need to be addressed in the future.

Recommendations

NOAA libraries have been highly successful and efficient at providing services, given funding levels, and most NOAA employees who need library services to successfully perform their jobs were satisfied with those services at the time of the last employee survey. Substantial changes, whether to funding, services, centralization, etc., should be carefully studied and opinions of stakeholders, including the NOAA library community, should be considered before changes are implemented. To the extent possible, we strongly recommend against taking actions that might negatively affect the parts of the current system that are working well.

The 2012 NOAA staff survey and the 2015 library survey both provide useful information regarding the state of NOAA library services; however, informational gaps remain that prevent us from addressing important issues. Thus, some recommendations suggest a particular path with specific actions, while others involve less specificity.

In the following list, the higher-level components of the recommendations are provided in bold.

Specific recommended actions:

Improve collaboration and coordination among libraries. NOAA and its libraries have been faced with declining budgets and increasing journal costs for a number of years. Librarians have developed a network that routinely collaborates and coordinates to meet the ongoing needs of their clients. We recommend that this informal network be formalized by **forming a Committee of Librarians with representation from all NOAA libraries**. This committee should have terms of reference that describe how the group should share information, make decisions, identify collaborative opportunities, resolve disagreements, and should identify whom the libraries should contact if they have questions or recommendations that cannot be resolved within their group. **This committee could be charged with developing a strategic plan for the entire library system, while also working with the NLAC to ensure that the recommendations approved by the NOAA Research Council are implemented.**

This Committee would serve as an educational body. The Committee should encourage the sharing of best practices, challenges, and unique situations faced by

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NOAA libraries. This enhanced sharing of information among the libraries should lead to a better understanding of the entire NOAA library system and better decisions about services offered. The Committee should hold regular online meetings and/or webinars, and look for opportunities to hold an actual conference at a central location at least every two years.

The Committee of Librarians could be tasked with identifying a set of core resources and periodically evaluating the list to make sure it is current and reflects cross-Line Office interests. The resources could include, among other things: databases such as Web of Science and BioOne; and journals such as Science, Nature, American Fisheries Society journals, American Geophysical Union journals, American Meteorological Society journals, and JSTOR. Once the set of core resources is identified, purchasing efficiencies can be identified and pursued.

The Committee of Librarians could develop guidance for collection development on a NOAA-wide level and could develop a consistent format for the annual reports that each library will prepare.

Improve understanding of the needs of library users. Every NOAA employee should have access to library services if it helps him/her accomplish his/her job. But at this time, there is not enough routine quantitative information gathered to confidently evaluate what library services are being used, who is using those services, and whether new services are required. Only a few libraries track basic metrics, such as the number of library queries responded to in a year, interlibrary loan requests, etc. Most librarians do not deliberately or routinely engage with NOAA employees to assess whether the services they are providing are sufficient or if new services are needed. The 2012 survey suggested that there was a need for additional online resources. However, many people who said library service was lacking also acknowledged that the service was not necessary to perform their job duties. We recommend three actions to address these issues:

- 1. Conduct regular surveys of library customers and library staff;**
- 2. Ensure that all NOAA staff are aware of the library services that are available so that a proper corporate assessment of the need for those services can be performed; and**
- 3. Require that each library produce an annual report to provide information on routine activities, customers served, types and frequency of services provided, staffing levels and responsibilities, annual highlights, and evolving needs. The report should also include detailed data about the ways library users are accessing information and what information they are requesting.**

The NLAC, in consultation with the Committee of Librarians could design, administer, and analyze the survey of library users, and could specify the information that should be included in the annual report. One of the primary purposes of the survey would be to identify important gaps in library services that negatively affect NOAA's mission, as well as evolving needs. With these data, an informed decision could more likely be made regarding changes to service delivery as well as potential changes required in the amount and source of funding to

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address these gaps. It will be important to consider ways to reduce biases inherent in surveys when responses represent a small fraction of the entire group; one option, for example, is to survey a random subset of employees and put greater emphasis on receiving responses from them.

Catalogue items held in libraries across NOAA. It is almost impossible for NOAA employees to access and benefit from many items held at NOAA because they are not catalogued. However, cataloguing all material in all libraries is a monumental task and cannot be performed with the current level of staffing. While fully cataloguing everything will likely prove elusive, **we recommend that cataloguing current holdings should be a priority over digitizing existing holdings (for the purpose of archiving) both from a fiscal and personnel perspective.** Progress on this front would also aid in the assessment of holdings if libraries close. Despite this recommendation, if, during the process of cataloguing, particularly important information or documents are identified, it might be efficient to digitize them at that time in order to make them available to staff.

Library closures. Closures are perhaps the most serious concern that NOAA and its libraries face in the immediate future.

Given the successful track record of libraries when they are co-located with employees at NOAA, we recommend that **library closure or consolidation should not be imposed without engaging with relevant NOAA stakeholders.** Local library collections and services often go hand in hand with local research programs and any top-down centralization or closure that occurs without consulting the local (and other) users and library staff will likely degrade access to locally important information/knowledge and thus damage to the ability to fulfill the local mission.

Multiple library closures have occurred over the last decade and will likely continue to occur. A process must be in place to ensure that unique, irreplaceable materials from NOAA's heritage are not irretrievably lost. **The Committee of Librarians should develop a plan to provide guidance and assistance to libraries facing closure. This plan should include discussions with relevant stakeholders, a process for assessing what materials should be kept, and a process for assessing the impact of the closure on the local office and beyond.** If possible, a draft plan should be in place by the end of FY2017. Other information that should be provided in the plan includes experience gained from other closures, options for repurposing FTEs, where those currently served by the closing library would turn for service, and the extent to which library space can be repurposed and the ease with which this repurposing of space might be reversed, if deemed prudent.

Ideally, **before a decision is made to close a library, discussions would occur high in the Line Office organization and include input from the affected library staff and the NLAC to determine the present and expected future importance of the library.** The discussions should evaluate whether the space used by the collection is a wise investment, whether other library services are still needed, and how the library is contributing to other parts of NOAA. The process of evaluating a library closure should also consider the continuation of existing librarian positions to meet the ongoing information needs of the staff, recognizing

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that the specific role might evolve. It should also include evaluation of where library services will be procured after closure and how they will be funded.

Service and Funding structure. Historical developments are partly responsible for a highly complex funding structure for the NOAA libraries. While the current structure may not be the most efficient, before any changes are made to it, the impacts of changes on the current level of service should be considered. **For now, we recommend maintaining the current funding structure.** It would make sense, for example, that the Direct Bill be used for funding activities that provide services across Line Offices, while services strictly provided to local entities would be funded from local sources.

With the concentration of libraries now in OAR and NMFS, a plan needs to be formulated to identify and ensure that other Line Offices are effectively served. Service needs could be identified from the survey referenced above. Along with this service, consideration should be given to how the other Line Offices will financially compensate OAR and NMFS for access to the services.

Additional topics of concern:

Staffing composition. All managers and funders of libraries should revisit the size of their workforce and the role of contractors. This could involve an assessment of the appropriate mix of federal employees and contract employees as well as the need for more or fewer employees to meet the mission needs of NOAA. Contractors may make us more agile in this rapidly changing field, while federal employees may provide more long-term stability and institutional knowledge. As an example, the library survey showed that some services provided by the NOAA Central Library are highly valued, while others are valued less by the other libraries. This and other information might have staffing implications.

As librarian positions become vacant, an objective examination should be made regarding whether the staffing of that position is still needed by the primary groups served by the library. This evaluation should recognize that staff losses anywhere in the system will increase the burden on the remaining library staff, and thus could lead to a degradation in service in other locations as well.

External reliance. There are many reasons why relying on an external entity for library services might appear beneficial. For example, NOAA could increase its reliance on Cooperative Institute (CI) libraries, where available. In general, however, we believe that complete external reliance would not be in NOAA's best interest; complete external reliance would mean NOAA would no longer have control of the library resources provided, there would be no guarantee unique NOAA physical items would be available or that staff knowledgeable about unique resources are hired, and NOAA might not control even basic operational decisions like when the library is open. Too much reliance on another library provider could negatively impact NOAA's access to journals if the partner were to drop journals

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important to NOAA or, in the case of a CI providing library services, if a new entity secures the CI contract. It could also unfairly influence CI re-competitions. For these reasons, **we suggest that library services are too important to NOAA's mission to be controlled by another entity.** However, **we do recommend exploring the possibility that some library services could be provided externally, as long as NOAA could pick them up again in a situation in which the external entity failed to meet required needs.** For instance, it might be discovered that some journal and book access could be obtained from a CI library cost effectively and with little risk to NOAA's mission; however, it would need to be possible for NOAA to reacquire that material if the CI were unable or unwilling to provide access in the future. This exploration could be started by the NLAC, but would require substantial outside expertise to fully understand the advantages and risks of such an approach. **Until such an evaluation is performed, we recommend that NOAA not increase its dependence on external library service providers at the expense of in-house reliance.**

Print and electronic resources. We recommend that the discussion about the advantages and disadvantages of print vs. electronic journal resources **continue.** Moving to purely electronic access has been ongoing and achieves cost savings in the near term and helps lead us to fewer physical materials. At the same time, we recommend continued evaluation of these benefits with the long-term potential risks of losing complete access if subscriptions are eliminated at some time in the future. Decisions relating to this issue should be fully informed and made in the best interest of NOAA today and in the future.

Other

Revisit past recommendations. NLAC and Committee of Librarians should work together to reevaluate the recommendations in the 2012 "Action Plan for NOAA Libraries" document.

Future Role of NLAC

Once an implementation plan is approved, the role of the NLAC will likely become more advisory and one of monitoring and facilitating communication (e.g., biennial surveys, quarterly meetings, biannual meetings with the Committee of Librarians, review of annual reports). While monthly meetings would likely no longer be needed, the NLAC could provide a good venue for the NOAA Research Council to bring periodic questions and could act as a channel for communication with the Committee of Librarians.

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Appendix

Table A.1 – NOAA libraries, their organizational affiliation, and status. “Regional” libraries are in blue text, and represent those libraries managed by the NOAA Central Library. “Field” libraries are in black text, and represent libraries managed by their Line Offices, at least in part. Libraries that have closed are in red.

<p>OAR NOAA Central Library (Silver Spring, MD) DOC Boulder Laboratories Library NOAA Seattle Regional Library NOAA Miami Regional Library NOAA Miami Regional Library at National Hurricane Center National Weather Center Library (Norman, OK) Betty Petersen Memorial Library (College Park, MD) Center Library International Tsunami Information Center (Honolulu, HI) Great Lakes Environmental Research Lab Library NOAA Geophysical Fluid Dynamics Laboratory Library (Princeton, NJ) Atmospheric Turbulence and Diffusion Division Library (Oak Ridge, TN)</p>	<p>NMFS AFSC - Marine Mammal Laboratory (Seattle) AFSC/NWFSC Library (Seattle) NEFSC Library – Woods Hole NEFSC Highlands Library – Sandy Hook (NJ) NEFSC/Hanks Memorial Research Library (Milford) PIFSC Library - Honolulu SEFSC Library - Miami SEFSC Library – Pascagoula SEFSC Library - Panama City SWFSC Laboratory Library – La Jolla SWFSC Laboratory Library - Santa Cruz AFSC/Auke Bay Library (Juneau, AK; closed May 2015) AFSC/W.F. Thompson Memorial Library (Kodiak, AK; closed Dec. 2010) SWFSC/Pacific Fisheries Environmental Lab. Library (Pacific Grove; closed ~2014) NEFSC Narragansett Lab Reading Room (closing)</p>
<p>NOS Savannah Library (Gray’s Reef NMS) Oxford Marine Library (Oxford, MD) Rice Library (Beaufort, NC) National Sea Grant Library (Narragansett, RI) Center for Coastal Env. Health & Biomolecular Research Library (Charleston, SC)</p>	
<p>NESDIS National Climatic Data Center Library (Asheville, NC)</p>	

Note that the AOML and NHC libraries are two branches of the Miami Regional library. The Betty Petersen Library is part of the library staffing contract managed by the NOAA Central Library, but the funding and day-to-day management of it is controlled by NCEP management. The Savannah Library serves some NOAA clients, but it is managed by the University of Georgia. The following libraries did not respond to the 2015 library survey and so are not included in data presented in the main part of the report: OAR –International Tsunami Information Center (HI), Great Lakes Environmental Research Laboratory Library (MI), Geophysical Fluid

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Dynamics Laboratory Library (NJ), Atmospheric Turbulence and Diffusion Division Library (TN); NMFS – SEFSC Library (MS); NOS – Skidaway Institute of Oceanography Library/Savannah Library, Oxford Marine Library (MD), National Sea Grant Library (RI), Center for Coastal Environmental Health and Biomolecular Research Library (SC). Reasons for not responding vary, and include there not being a librarian at that particular facility, us omitting them from our email list, etc.