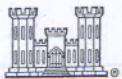
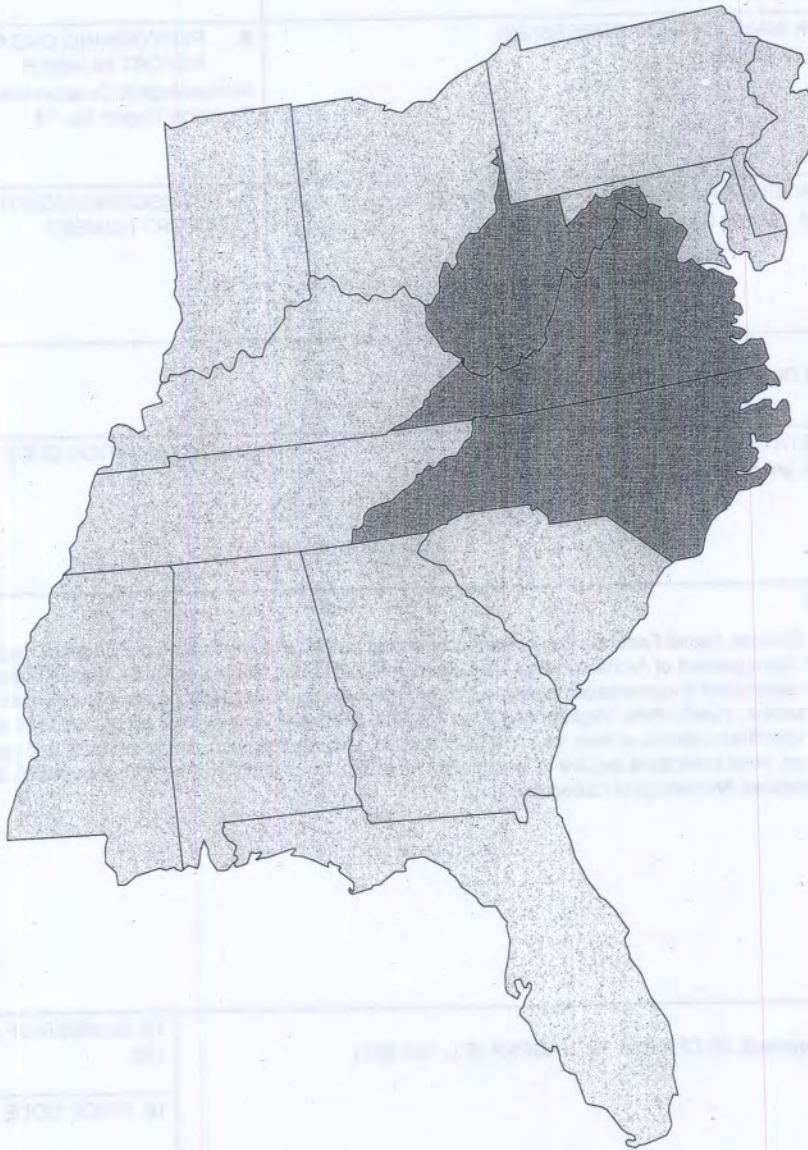


An Archaeological Curation-Needs Assessment for the U.S. Navy, Atlantic Division, Naval Facilities Engineering Command



Archaeological Curation-Needs Assessment
Technical Report No. 14



U.S. Army Corps of Engineers
St. Louis District

Mandatory Center of Expertise for the
Curation and Management of Archaeological Collections



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by
Mary J. Bade and Kenneth L. Shingleton, Jr.

Michael K. Trimble
Christopher B. Pulliam
Series Editors

Prepared for and
submitted in fulfillment
under agreement with
Naval Facilities Engineering Command
Atlantic Division
Norfolk, Virginia

U.S. Army Corps of Engineers
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List of Acronyms

Archaeological Research Consultants	ARC
Armed Forces Experimental Training Activity	AFETA
Espey, Huston & Associates	EHA
Fleet and Industrial Supply Center	FISC
Fleet Combat Training Center	FCTC
Hampton Roads Naval Museum	HRNM
James River Institute for Archaeology	JRIA
Marine Corps Air Landing Field	MCALF
Marine Corps Air Station	MCAS
Marine Corps Base	MCB
Mid-Atlantic Archaeological Research	MAAR
Naval Air Station	NAS
Naval Amphibious Base	NAB
Naval Auxiliary Landing Field	NALF
Naval Base	NAVBASE
Naval Hospital	NAVHOS
Naval Reservation	NR
Naval Security Group Activity	NAVSECGRUACT
Naval Shipyard	NAVSHIPYD
Naval Station	NAVSTA
Naval Supply Center	NSC
Naval Weapons Station	NWS
North Carolina Office of the State Archaeologist	NCOSA
R. Christopher Goodwin & Associates	Goodwin
State Historic Preservation Office, San Juan, Puerto Rico	SHPO, PR
Turabo University Museum	Turabo
U.S. Army Corps of Engineers	USACE
University of North Carolina, Wilmington	UNCW
Virginia Commonwealth University Archaeological Research Center	VCUARC
Virginia Department of Historic Resources	VDHR
William and Mary Center for Archaeological Research	WMCAR

Executive Summary

Problem

Although federal archaeological collections are a valuable, non-renewable national resource, curation of these materials has been inadequate, ignored, or both for more than 50 years. Many of these priceless collections of our nation's legacy were placed in the attics, basements, and closets of storage facilities throughout the United States. Additionally, many objects were illegally transported to Europe, where they remain today. The result has been a steady deterioration of these priceless objects. Improper care and the subsequent decline in quality of many of these collections not only violates the laws under which they were recovered, but also prevents them from being used for educational and scientific purposes. Valuable portions of our national heritage have been lost, and the considerable financial investment by the American public in archaeological recovery has often been compromised.

Background

The Atlantic Division Naval Facilities Engineering Command (Atlantic Navy) is responsible for the management of archaeological and historical resources collected and removed from the facilities under its command. As mandated by federal law, agencies are required to ensure that all collected archaeological materials and associated documentation are adequately curated. Unfortunately, funding shortfalls, lack of consistent national policy, and the magnitude of the problem have prevented compliance.

Collections under Atlantic Navy jurisdiction are public property, the result of many years of archaeological research and the expenditure of millions of federal dollars. A federally sponsored mitigation program ordinarily provides for the collection of materials from archaeological sites, analyses of the recovered items, the publication and circulation of a final report, and the placement of collections in repositories for preservation, display, or future study. Federal agencies formerly paid

little heed to the maintenance of collections after salvage programs were completed. Through the years, most collections have been stored at no cost to the federal government by universities, museums, and contracting offices. Inadequate funding and failing repositories now seriously hinder these institutions' abilities to adequately care for collections.

In fall 1993, Marie Cottrell, Atlantic Navy, requested the services of the U.S. Army Corps of Engineers, St. Louis District, Mandatory Center of Expertise for the Curation and Management of Archaeological Collections, to find and inspect all of the archaeological collections and associated documentation under Atlantic Navy jurisdiction. Preliminary work began in early spring 1994, and fieldwork took place June–August 1994 and in March 1995.

The St. Louis District team located collections or associated records relating to archaeological work conducted on Atlantic Navy facilities at 12 repositories, and approximately 98 reports documenting this work. Although archaeological materials may not have been recovered during every investigation, the St. Louis District team attempted to make the connection between collections and reports whenever possible. This was not possible for 8 of the 98 reports listed in Appendix 1 because of the following factors:

- Collections could not be located.
- Authors could not be contacted for information.
- The person contacted had no knowledge of the report in question.
- The St. Louis District team was told that collections and associated records had been sent to state agencies, but they could not be located at these agencies.
- Documentation was poor to nonexistent at some repositories; therefore, it was difficult to ascertain its relation to a specific collection.

This work recorded evidence of widespread deterioration of and negligence toward many of the Atlantic Navy collections.

Findings

Status of Physical Repositories

Repository Adequacy

Atlantic Navy collections examined in this study are presently stored in 12 repositories (e.g., museums, contracted companies, universities, and state agencies) encompassing 14 storage locations in 3 states and one U.S. territory (Tables 1 and 2). Repositories and storage locations

Table 1.
Summary of Atlantic Navy Artifacts (ft³), by Facility and Repository

Facility	ARC	JRIA	NCOSA	Goodwin	Turabo	UNCW	VCUARC	VDHR	WMCAR	Total
AFETA Camp Peary	—	1.4	—	—	—	—	—	1.2	—	2.6
MCALF Bogue	—	—	1.4	—	—	—	—	—	—	1.4
FISC Cheatham Annex	—	—	—	—	—	—	—	1.0	—	1.0
MCAS Cherry Point	0.7	—	—	—	—	—	—	—	—	0.7
MCB Camp Lejeune	—	—	17.6 ^a	1.2	—	55.4 ^b	—	—	—	74.2
NALF Fentress	—	—	—	1.2	—	—	—	—	—	1.2
NAS Oceana	—	—	—	1.2	—	—	—	—	—	1.2
NAVBASE Norfolk	—	—	—	—	—	—	—	1.0	—	1.0
NAVSTA Roosevelt Roads	—	—	—	1.2	40.0 ^c	—	—	—	—	41.2
NAVSECGRUACT Northwest	—	1.1	—	—	—	—	—	—	—	1.1
NAVHOS Portsmouth	—	—	—	—	—	—	—	—	3.9	3.9
NWS Yorktown	—	0.4	—	0.5	—	—	56.0	11.8	—	68.7
Total	0.7	2.9	19.0	5.3	40.0	55.4	56.0	15.0	3.9	198.2

^a Includes one fragment of human remains.

^b Includes approximately 18.9 ft³ (minimum 38 individuals) of human remains.

^c Includes the human remains of eight individuals.

Table 2.
Summary of Atlantic Navy Associated Documentation (linear inches), by Facility and Repository

Facility	ARC	EHA	JRIA	MAAR	NCOSA	Goodwin	SHPO, PR	Turabo	UNCW	VCUARC	VDHR	WMCAR	Total
AFETA Camp Peary	—	—	9.25	—	—	—	—	—	—	—	0.5	—	9.75
MCALF Bogue	—	—	—	—	2.75	—	—	—	—	—	—	—	2.75
FISC Cheatham Annex	—	—	—	—	—	—	—	—	—	—	0.75	—	0.75
MCAS Cherry Point	17.50	—	—	—	4.0	—	—	—	—	—	—	—	21.50
MCB Camp Lejeune	2.75	15.0	—	—	18.25	2.75	—	—	43.25	—	—	—	82.0
NALF Fentress	—	—	—	—	—	—	—	—	—	—	0.75	—	0.75
NAS Oceana	—	—	—	1.0	—	—	—	—	—	—	0.75	—	1.75
NAVBASE Norfolk	—	—	—	0.25	—	—	—	—	—	—	—	—	0.25
NAVSHIPYD Norfolk	—	27.0	—	—	—	—	—	—	—	—	1.0	—	28.0
NAVSTA Roosevelt Roads	—	—	—	—	—	6.0	4.25	24.0 ^a	—	—	—	—	34.25
NAVSECGRUACT Northwest	—	—	2.25	—	—	—	—	—	—	—	—	—	2.25
NAVSECGRUACT Sabana Seca	—	—	—	—	—	—	2.25	—	—	—	—	—	2.25
NAVHOS Portsmouth	—	—	—	2.75	—	—	—	—	—	—	—	22.75	25.5
NWS Yorktown	—	—	2.25	3.5	—	0.25	—	—	—	22.0	6.0	—	34.0
Total	20.25	42.0	13.75	7.5	25.0	9.0	6.5	24.0	43.25	22.0	9.75	22.75	245.75 ^b

^a Includes 2.0 linear feet of associated records stored at a private residence.

^b 20.5 linear feet

can be separated into six distinct building types, including museums, multistory office buildings, university classrooms/laboratories, buildings converted to office/laboratory space, a collections facility, and a self-storage facility.

None of the 14 storage locations approaches all of the standards mandated by 36 CFR Part 79 (Curation of Federally-Owned and Administered Archeological Collections). Twelve (86%) storage locations are in partial compliance with the major standards: environmental controls, security, pest management, and fire safety. Only 5 (42%) of the 12 repositories have full-time curators for the management of archaeological collections, and 2 (14%) of the storage locations do not approach any of these standards.

Repository Maintenance

Nine (64%) of the 14 storage locations that were inspected receive regular maintenance; five (36%) receive maintenance on an as-needed basis. In addition, 6 (43%) of the 14 storage locations keep such extraneous items as field equipment, hazardous chemicals, and personal items in collections storage areas, a practice unacceptable in professional collections-management facilities. Some of the collections have been neglected, resulting in their deterioration.

Environmental Controls

Adequate environmental monitoring and controlling, which consist of maintaining stable temperature and humidity levels, are crucial for the long-term preservation of collections. Only 1 (7%) of the 14 storage locations examined contain heating, ventilation, and air-conditioning (HVAC) systems that monitor and control both temperature and humidity. Nine storage locations (64%) use central heating and air-conditioning units to control temperature, while the remaining 4 (29%) have no temperature or humidity monitoring or controlling systems.

Security

Three (21%) of the storage locations meet federal standards for the security of archaeological collections. All of the repositories are secured with key and/or dead bolt locks, most provide for limited access, and those with windows use simple locks on them. A primary requirement is the presence of intrusion alarms, which are present at only 3 (21%) of the 14 storage locations inspected. No documented cases of unauthorized entry were linked to losses of Atlantic Navy collections, but the potential for this exists at several of the repositories.

Fire Detection and Suppression

Fire is a major hazard to museum collections. Although 4 (29%) storage locations provide adequate to superb fire detection, only 3 (21%) of these also have sufficient fire-suppression systems. Fire-detection or -suppression systems are not present in 6 (43%) of the 14 storage locations. In most circumstances, fire detection is useless without adequate fire suppression.

Pest Management

Thirteen (93%) of the 14 storage locations control for pests on an as-needed basis by spraying and trap baiting. None has implemented an integrated pest-management program that includes regular monitoring and controlling. One (7%) of the 14 storage locations take no precautions against pests. The St. Louis District team observed dead insects and rodent feces on the floor of one collections-storage area and live silverfish in a box housing associated records at another. Adequate pest-management and -control programs are crucial to the long-term survival of archaeological collections and associated records.

Status of Artifacts

Atlantic Navy artifact collections consist of approximately 198 ft³ (158 boxes) of material recovered from 14 naval facilities (see Tables 1 and 2). Most collections have not been properly cleaned, labeled, or packaged. Only nine (64%) storage locations curate artifact collections. Of these, only one (7%) has properly prepared them for long-term curation.

Overall, primary containers (the largest boxes or receptacles that house an individual artifact or group of artifacts) consist of 1.2–1.4 ft³ acidic-cardboard boxes, with both flap and telescoping lids. Many containers were overpacked and coated with dust. However, all boxes had some sort of label, if only rudimentary.

Most of the secondary containers (the receptacle that holds the artifact(s) within the primary container) consist of nonarchival, zip-lock, plastic bags (28%) and acidic-paper bags (27%), each unacceptable as museum storage containers. Only 32 percent of the secondary containers observed were archival, zip-lock, polyethylene bags or small, archival, acid-free boxes. Most secondary containers were labeled directly, but adhesive labels were also observed.

Major prehistoric material classes encountered, by frequency, were shell (23%), human skeletal remains (13%), ceramics (11%), and lithics (5%). Principal historical-period material classes in the collections include metal (13%), ceramics (8%), glass (8%), and brick (8%).

Status of Human Skeletal Remains

All known human skeletal remains collected on Atlantic Navy facilities are being curated at three repositories. The University of North Carolina at Wilmington (UNCW) houses the majority (38) of the human skeletal remains, one small fragment was observed at the North Carolina Office of the State Archaeologist (NCOSA), and the remains of eight individuals are stored at Turabo University, Puerto Rico (Turabo). The minimum number of individuals (MNI) included in the Atlantic Navy collections (based on anatomical singularity) is 47. Thirty-eight of these have undergone rudimentary analyses to determine age, sex, and possible pathologies. Complete rehabilitation (i.e., reboxing, rebagging, and labeling) needs to be carried out in order to stabilize the remains, and a complete inventory needs to be generated in order to comply with the Native American Graves Protection and Repatriation Act (NAGPRA; P.L. 101-601).

Status of Documentation

Atlantic Navy records encompass 20.5 linear feet and include paper records, maps, draft reports, and photographic records. In addition, the St. Louis District team located 98 final project reports (most stored at state repositories) that document archaeological work at Atlantic Navy facilities.

Adequate archival practices were noted at only one (8%) of the 13 storage locations housing associated records. In many cases, paper records have not been housed in acid-free folders, photographs have not been isolated and stored in chemically inert sleeves, and large-scale maps have not been stored flat in map-storage cases.

Contracting agencies should produce a duplicate set of documents for each project they undertake. These records are often reported to have been sent with the artifacts to the respective state repositories. However, in few instances does a set of project documentation exist in its entirety at a state repository. This may be caused in a number of ways; collections managers and archaeologists in the past may not have considered associated documentation a part of their curatorial responsibilities, records may have been produced but were lost on the way to their final storage area, or records may not have been produced for some projects. The result is that associated documentation for many collections cannot be located.

Status of Repository Management Controls

Only three (25%) of the 12 repositories have accession records for the collections for which they are responsible. Only two (17%) of the repositories retain partial accession records (e.g., artifacts are

accessioned but records are not), while the majority (58%) do not maintain accession records. A written record of where collections are located within structures is available at only one (8%) of the repositories. Two (17%) of the repositories have inventoried the collections in their care, while five (42%) have partially carried out this task (e.g., no written record was kept, but collections were inventoried prior to being transferred to the state repository). Basic policy and procedure statements for artifact curation, inventories, records management, and deaccessioning are present at four or fewer of the repositories. The St. Louis District team noted that written policies regarding loan policies were present at only three (25%) of the repositories. The presence of written loan policies is not applicable in one instance, as the contracting agency in question never loans material. Additionally, written loan policies are partially present at one agency, in that they are included in the administrative procedures but not as an individual document. Only three (25%) of the repositories maintain minimum standards for the acceptance of collections. Two (17%) of the repositories have field guidelines for the curation of archaeological materials, while none has published guides to the archaeological collections in their care. Ten (83%) of the repositories use some form of computerized database management for the collections in their care, although two (17%) of these use word-processing programs. Given the above, it is evident that the collections are at risk and the majority are not being cared for under the provisions of 36 CFR Part 79.

Corrective Actions

A number of corrective actions are necessary to bring the Atlantic Navy collections, and the storage locations housing them, into compliance with 36 CFR Part 79. General recommendations include the following.

1. Bring the collections together into one regionally based, federally owned or leased repository constructed specifically for the curation and long-term management of archaeological collections, or distribute collections into existing repositories in their state or territory of origin and spend the requisite amounts to upgrade the repositories to meet federal curation standards.
2. Develop cooperative agreements with other agencies for sharing the costs of building construction and the rehabilitation of collections.
3. Rehabilitate existing collections by inventorying and cataloging all artifact collections to a standard consistent with those of a professional museum, and rebox and rebag collections in archival containers.
4. Develop and implement uniform inventory procedures.
5. Develop and implement a formal archives-management program.

If implemented, these corrective measures will permit the Atlantic Navy to meet minimum federal requirements for the adequate long-term curation of archaeological collections. By adopting this approach, the Atlantic Navy has the opportunity to implement a curation program that will serve its needs well into the future.

Conclusions

It may not be possible to achieve each recommendation immediately because there is no long-term, consistent management plan for the proper curation of archaeological collections and associated records. The collections, however, are deteriorating in their current storage environments. These federal collections are nonrenewable resources, and if not properly cared for soon they will lose their educational and research potential. Immediate attention to these collections will preserve them for use by future generations.

Acknowledgments

The St. Louis District extends its thanks to Marie Cottrell, Army Training and Doctrine Command, for initiating this project. Her consistent interest in, and support of, archaeological curation for Navy collections is to be applauded. Valerie Hilliard and Bruce Larson of the Atlantic Navy guided and assisted the St. Louis District in completing this curation-needs assessment. Larson's enthusiasm for the care of Atlantic Navy collections is reflected in the depth and quality of this study. His support was instrumental to this study's success and he is a credit to the Navy Historic Properties Program. Additionally, the St. Louis District would like to thank the individuals listed below for their time and effort.

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Introduction

The Atlantic Navy is responsible for archaeological artifact collections and associated documentation (hereafter referred to as archaeological collections) stored in 12 repositories in three different states. This responsibility is mandated through numerous legislative enactments, including the Antiquities Act of 1906 (P.L. 59-209), the Historic Sites Act of 1935 (P.L. 74-292), the Reservoir Salvage Act of 1960 (P.L. 86-523), the National Historic Preservation Act of 1966 (P.L. 89-665), and the Archaeological Resources Protection Act of 1979 (P.L. 96-95). Executive Order 11593 (U.S. Code 1971) and the 1980 amendments to the National Historic Preservation Act provide additional protection for these resources. The implementing regulation for securing the preservation of archaeological collections is 36 CFR Part 79 (Curation of Federally-Owned and Administered Archeological Collections). The U.S. Army Corps of Engineers is the only federal agency that possesses strict standards for the curation of archaeological materials. ER 1130-2-433, which was implemented in April 1991, serves as a standard for long-term archaeological curation.

The Native American Graves Protection and Repatriation Act (NAGPRA; P.L. 101-601) was enacted in 1990 to identify federal holdings of Native American human skeletal remains, funerary objects, sacred objects, and objects of cultural patrimony. In addition, NAGPRA mandates that federal agencies make agreements with Native American tribes and Native Hawaiian groups regarding the repatriation or other disposition of these remains and objects. All federal agencies are required to meet mandated deadlines for compliance with NAGPRA. By

November 16, 1993, a summary of unassociated funerary objects, sacred objects, and objects of cultural patrimony was to be completed. An inventory of human skeletal remains and associated funerary objects was to be completed by November 15, 1995.

As the first step in complying with 36 CFR Part 79 and NAGPRA, Atlantic Navy contacted the U.S. Army Corps of Engineers in fall 1993 to discuss an interagency agreement that would address these requirements. After a series of consultations, an approach was recommended that included evaluating the collections in order to satisfy the federal curation requirements of 36 CFR Part 79. Additionally, the project would provide the Atlantic Navy with information for NAGPRA compliance. The resulting agreement authorized the St. Louis District to conduct a curation-needs assessment of Atlantic Navy archaeological collections. The Atlantic Navy would receive a general inventory of collections, providing a firm estimate of the magnitude of curation needs. In addition, collections managers at storage facilities would receive a plan addressing their specific curation needs.

In the interagency agreement, the St. Louis District was to provide the following:

1. Professional and technical services to the Atlantic Navy for the inspection and inventory of archaeological collections in selected repositories.
2. A final report that would (a) detail the results of the inspection and evaluation; (b) address the physical description of all repositories, artifact collections, and associated documentation collections; and (c) make recommendations for

compliance with the requirements of 36 CFR Part 79, including recommendations for better collections management.

3. A bibliography, by facility, of all archaeological reports identified during the assessment process.

Methods

Twelve repositories, encompassing 14 separate storage locations, were evaluated in the course of the curation-needs assessment. Among these were five archaeological consulting companies, three state repositories, three universities, and one museum. The following schedule reflects the time allocated for information gathering at each repository.

- July 19, 1994, R. Christopher Goodwin & Associates (Goodwin)
- July 20, 1994, Virginia Department of Historic Resources (VDHR)
- July 21, 1994, William and Mary Center for Archaeological Research (WMCAR)
- July 22, 1994, Mid-Atlantic Archaeological Research (MAAR)
- July 25, 1994, Espey, Huston & Associates (EHA)
- July 26, 1994, James River Institute for Archaeology (JRIA)
- July 28, 1994, Virginia Commonwealth University Archaeological Research Center (VCUARC)
- August 22–23, 1994, North Carolina Office of the State Archaeologist (NCOSA)
- August 24, 1994, Archaeological Research Consultants (ARC)
- August 26–27, 1994, University of North Carolina, Wilmington (UNCW)
- March 13, 1995, Turabo University Museum (Turabo)
- March 20, 1995, State Historic Preservation Office, San Juan, Puerto Rico (SHPO, PR)

In addition to conducting the fieldwork, much of the project was conducted in-house. This

work consisted of preliminary work and report preparation. The following schedule outlines the course of activities.

- April 18–June 3, 1994, preliminary work
- June 6–17, 1994, state site-file visits
- June 20–July 15, 1994, fieldwork planning
- July 18–29, 1994, fieldwork
- August 1–19, 1994, fieldwork planning and drafting
- August 22–26, 1994, and March 12 and 20, 1995, report preparation fieldwork
- August 29–October 17, 1994, and April 1995, final draft report preparation

Prefieldwork Investigation

Assessment of each repository's compliance with 36 CFR Part 79 included the following items.

1. A National Park Service National Archeological Database (NADB) and general records search were performed for each naval facility.
2. Topographic maps of each facility were acquired to establish base boundaries and maps necessary for the site-file searches.
3. Site-file searches were conducted at state archaeology and historic preservation offices to determine the sites located within facility boundaries and to determine, when possible, the locations of archaeological collections.
4. After site-file searches, a database of all fieldwork reports deposited at the state repositories was compiled.
5. All facilities and personnel likely to be knowledgeable about the collections were contacted by telephone.
6. A list was compiled of all contracted agencies and repositories associated with the recovery or curation of materials belonging to the Atlantic Navy.
7. Contracted agencies and repositories were contacted by telephone for information regarding

the curation of Atlantic Navy collections. From these telephone conversations a list of agencies and repositories that would require visits was generated.

Field Inspections and Assessments of Repositories and Collections

Assessment of the archaeological collections and the repositories that house them involved the following four major tasks.

1. A survey questionnaire was completed for every repository involved with the curation of Atlantic Navy archaeological collections. The questionnaires solicited information regarding the repositories, artifact collections, and associated documentation.
2. A building evaluation facilitated the determination of whether or not the repository was in compliance with the requirements for repositories specified in 36 CFR Part 79. Building-evaluation forms addressed such topics as structural adequacy, space utilization, environmental controls, security, fire detection and suppression, pest management, and utilities. Information was gathered both by observation and discussion with collections and repository managers.
3. An examination of all documentation was conducted to determine the presence of different types of documentation, quantity present, and state of curation. Documentation types included project and site reports, administrative files, field and curation records, and photographic records. For each type of record, information regarding the total linear feet, physical condition of the containers and records, and overall condition of the storage environment was collected. Determination as to whether or not the repository was in compliance with the archives-management requirements specified in 36 CFR Part 79 was based on this information.
4. Artifact collections were examined and evaluated as to their condition and compliance with 36 CFR Part 79. Assessment included an examination of the condition of primary and secondary

containers, degree of container labeling, extent of laboratory processing, material classes included in each collection, and condition of and approximate MNI in any collections of human skeletal remains. Primary containers are generally acidic or acid-free cardboard boxes that contain artifacts. Secondary containers are those included within the primary container, and they are composed of a wider range of materials. Secondary containers may include, but are not limited to, acidic-paper bags; plastic sandwich bags; archival or nonarchival, plastic, zip-lock bags; glass jars; film vials; aluminum foil; newspaper; packing materials; and small acidic or acid-free cardboard boxes.

NAGPRA-Compliance Assessment

To satisfy the requirements of NAGPRA, the following tasks must be performed at each repository curating Atlantic Navy collections.

1. Conduct a records search of the collections to identify the accession and catalog numbers and location of human skeletal remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony.
2. Perform physical inspections of storage containers to identify human skeletal remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony.
3. Conduct analyses of human skeletal remains that include: (1) a detailed inventory listing elements present, completeness, and condition; (2) measurements of long bones and crania sufficient to provide basic descriptions of physical characteristics, stature, and morphology of the human skeletal remains; (3) estimates of age and gender; and (4) observations of any pathological conditions, cultural modifications, or evidence of life activities or trauma that might provide evidence of cultural affiliation or the context from which the remains were recovered.
4. Produce summary and inventory reports for each repository.

Report Preparation

A written report that details the results of the curation-needs assessment is required. General information in this report includes estimates of the sizes of collections, their conditions, and descriptions of the repositories.

Recommendations are provided for the rehabilitation of the repositories and the collections according to the federal standards established in 36 CFR Part 79.

Chapter Synopsis

Chapters 2–13 provide a detailed examination of the state of archaeological collections under Atlantic Navy jurisdiction, by repository. Each repository is discussed within its own chapter, which contains a summary of Atlantic Navy collections held by the repository, a detailed exami-

nation of the repository and its collections, and recommendations for improved care of the collections. Chapter 14 outlines the findings of the St. Louis District assessment team, and Chapter 15 presents recommendations for improved care of the collections. Appendix 1 is an annotated bibliography of reports produced by the repositories housing Atlantic Navy collections, and Appendix 2 is a table that shows repositories with Atlantic Navy collections that were not visited because of temporal or budgetary constraints.

Unfortunately, the condition of the repositories described in this report reflect the standard of care for archaeological collections across the nation. Lack of funding and lack of a consistent national policy, with the sheer magnitude of collections, have prevented compliance with federal regulations. Without a national strategy and attention to existing deficiencies, Atlantic Navy archaeological collections are in danger of continued deterioration. With some commitment, however, we can preserve our rich national heritage.

Archaeological Research Consultants

Raleigh, North Carolina

Repository Summary

Volume of Artifact Collections: 0.7 ft³

Compliance Status: Artifacts will require complete rehabilitation to comply with existing federal guidelines and standards for curation.

Linear Feet of Records: ~1.7 linear feet (20.25 linear inches)

Compliance Status: Documentation will require complete rehabilitation to comply with

current federal guidelines and modern archival-preservation standards.

Human Skeletal Remains: None

Status of Curation Funding: Curation of collections is financed by fees written into consulting contracts. Staff feel that funding is inadequate for the firm's goal of temporary curation of archaeological collections.

Date of Visit: August 24, 1994

Point of Contact: Thomas Hargrove

ARC is a small, private consulting firm located in Raleigh, North Carolina. The firm is currently housing approximately 0.7 ft³ of artifacts (Table 3) from Cherry Point Marine Corps Air Station (MCAS) and approximately 1.7 linear feet (20.25 linear inches) of documentation from MCAS Cherry Point and Camp Lejeune Marine Corps Base (MCB). The firm does not view itself as a permanent curation facility, but as a temporary one while artifacts await acceptance by the state repository.

Table 3.
Summary of Material Classes Present in Atlantic Navy Collections at ARC, by Percentage

Material Class	%
Prehistoric	
Ceramics	30
Lithics	15
Shell	5
Historical-period	
Ceramics	5
Glass	15
Metal	10
Brick	20
Total	100



Figure 1. Exterior of the ARC storage location.

Assessment

Archaeological collections from completed, inactive projects are housed at a storage location separate from the firm's offices. This temporary repository is one unit in a commercial storage facility, Colonial Self-Storage, which is also located in Raleigh (Figure 1). ARC's storage unit encompasses approximately 100 ft², in which space is allocated for artifacts, documentation, and field equipment.

Structural Adequacy

The storage unit rented by ARC is one in a series of adjacent single-story units. Each unit in the complex has a concrete foundation, concrete-block exterior walls, and plasterboard interior walls. The roof is corrugated metal, and the storage area has no windows. The only utility present is electricity. There have been no renovations, but the facility is structurally sound. There is one exterior, overhead loading door, which faces north. The space is used strictly as artifact, documentation, and field-equipment storage space, with metal storage units. It is filled to approximately 60-percent capacity.

Environmental Controls

There are no temperature, humidity, or dust-prevention environmental controls. Lighting is provided by nonultraviolet-filtered incandescent bulbs. Maintenance of the rented space is performed by ARC.

Pest Management

No integrated pest-management program is in place for the storage unit. Pest-control measures are taken on an as-needed basis by the renter, but Colonial staff attempt to control rodent infestations from the exterior.

Security

Access through the overhead "garage" door of the storage unit is controlled by a padlock. The Colonial Storage complex is fenced, and its gate is locked from 7:00 P.M. to 7:00 A.M. No evidence of unauthorized entry into ARC's rented space has been reported.

Fire Detection and Suppression

No fire-detection or -suppression equipment is present in the ARC storage unit.

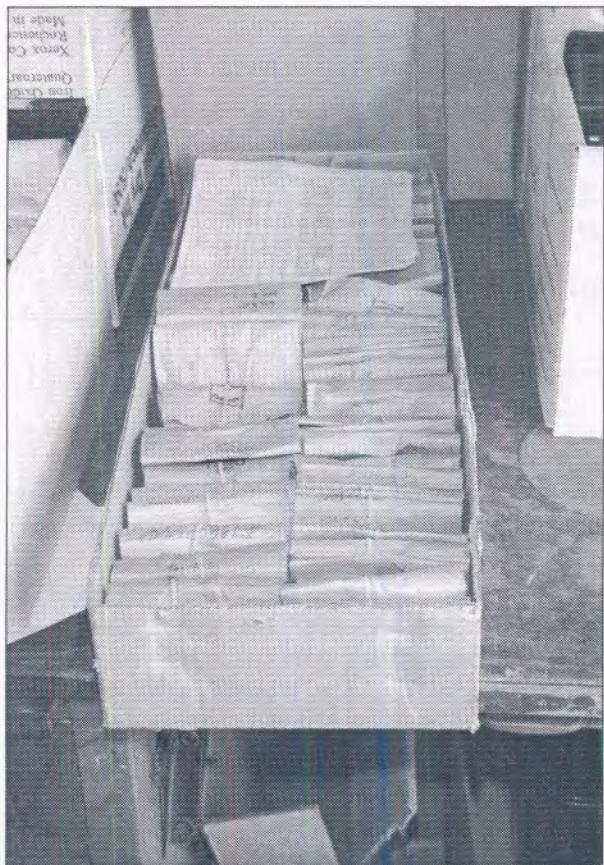


Figure 2. Artifacts stored in acidic-paper bags and an acidic-cardboard box at ARC.

Artifact Storage

Storage Units

Archaeological collections are stored on two open, metal shelving units that measure 4.5 × 7.1 × 3.0 feet (w × h × d). Each unit is five shelves high, and boxes of artifacts are stored one high on each shelf.

Primary Containers

ARC curates artifacts from MCAS Cherry Point only. These are stored in acidic-paper bags and an acidic-cardboard box that has a volume of 0.7 ft³ (Figure 2). The box has a telescoping lid and is labeled in marker on a taped-on, paper tag. Label information consists of the repository name.

Secondary Containers

All artifacts are contained in acidic-paper bags, most of which are bound by rubber bands (see Figure 2). Each bag bears a preprinted stamp that has spaces for the site, date, recorder, unit, level, accession number, feature, and comments. Tertiary containers, when present, generally consist of plastic film vials.

Laboratory Processing and Labeling

All of the artifacts have been cleaned, and approximately 90 percent of them have been labeled. Labels are generally india ink applied over a base of white correction fluid. Label information consists of the accession number. The artifacts have been sorted by provenience and material class.

Human Skeletal Remains

ARC is not currently curating any human skeletal remains associated with Atlantic Navy facilities.

Records Storage

ARC stores a total of approximately 1.7 linear feet (20.25 linear inches) of documentation associated with Atlantic Navy facilities (Table 4). Storage units for the documentation are the metal shelves that the artifact primary container is stored on. Records are arranged by project and by documentation type within project.

Paper Records

Approximately 16.5 linear inches of original paper records, the majority from MCAS Cherry Point, are stored in two acidic-cardboard boxes. All documentation from MCAS Cherry Point is stored in one acidic-cardboard box with a telescoping lid (Container 1; Figure 3), labeled directly with marker "ARC Business Files." The primary container for associated documentation from MCB Camp Lejeune is also an acidic-cardboard box with a telescoping lid (Container 2), this one labeled "Onslow County" in pen on a yellow, adhesive piece of paper. Both boxes are discolored.

Table 4.
Summary of Documentation, by Atlantic Navy Facility, at ARC

Facility	Type of Documentation			Total
	Paper	Photographs	Reports	
MCB Camp Lejeune	0.5	1.5	0.75	2.75
MCAS Cherry Point	16.0	1.5	—	17.50
Total	16.5	3.0	0.75	20.25

Note: All measurements are in linear inches.

Secondary containers for the documentation associated with MCAS Cherry Point in Container 1 include acidic-paper folders and bound material (see Figure 3); loose materials are also present. Acidic-paper folders are labeled with typed, adhesive, paper tags; information includes the contents of the folder. Bound material is la-

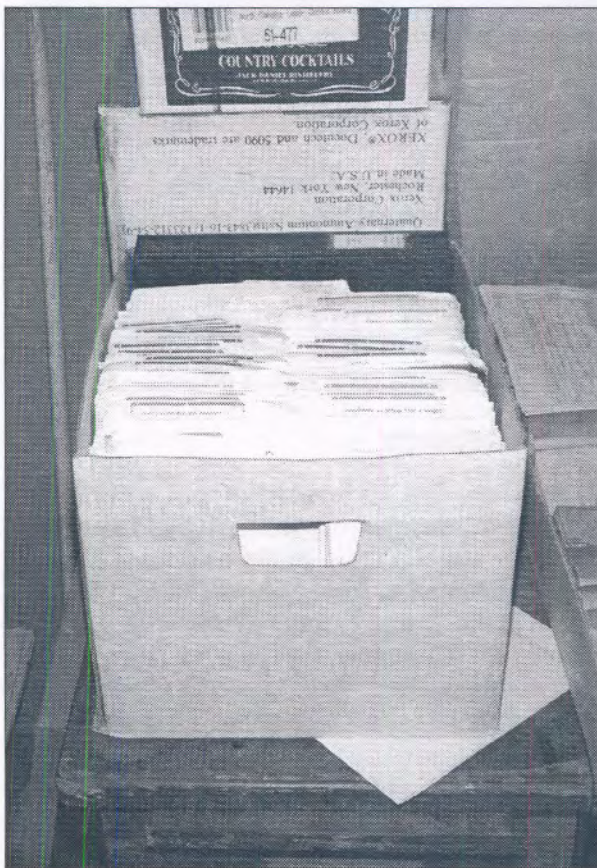


Figure 3. Documentation stored in acidic folders within an acidic-cardboard box at the ARC storage location.

beled with white, adhesive tags; information consists of binder contents. MCAS Cherry Point documentation is labeled and organized by document type.

Secondary containers for the MCB Camp Lejeune documentation in Container 2 are acidic-paper folders, labeled with typed, adhesive, paper tags. MCB Camp Lejeune associated documentation is labeled and organized by project.

All associated documentation is in fair shape, but most is discolored. There is rust on some documents as a result of contaminants (e.g., paper clips and staples).

Approximately 8 linear inches of the paper records associated with MCAS Cherry Point are background records. Most of these background records are literature searches of previous archaeological work conducted on Atlantic Navy properties that primarily function as bombing ranges. The results of the literature search were outlined by Hargrove (Hargrove et al. 1985:Appendix 8). The following is a list of naval facilities in North Carolina that were researched.

- Bombing Target BT-11 (Point of Marsh), northeast of Carteret City
- Cat Island; SSE of Bogue
- Hancock Creek Islands, eastern boundary of MCAS Cherry Point
- Marine Corps Air Landing Field Bogue (MCALF)
- Marine Corps Outlying Field Atlantic, 46 miles from MCAS Cherry Point
- Maw Point, north-northwest of Bombing Target 11, Pamlico City
- Pamlico Point, Hobucken

Photographic Records

Three linear inches of photographic records associated with MCB Camp Lejeune and MCAS Cherry Point are stored at ARC. Approximately 1.5 linear inches of photos associated with MCB Camp Lejeune are stored in Container 2; these consist of black-and-white prints, negatives, and contact sheets. Prints are directly labeled, and are stored in an acidic-cardboard, Kodak photograph box. Contact sheets are directly labeled, and are stored in an acidic-paper folder. Negatives are not labeled, but are stored in the aforementioned folder.

Approximately 1.5 linear inches of photographs from MCAS Cherry Point are stored in Container 1; these consist of black-and-white prints and negatives. Prints are directly labeled in pencil, and are wrapped in a plastic bag. Negatives are stored in archival, plastic sheets that are directly labeled.

Project Reports

Less than 1 linear foot of project draft reports associated with MCB Camp Lejeune are stored at ARC. Draft reports are located in acidic-paper folders within Container 2. Label information is typed on adhesive folder labels, and consists of document type.

Collections-Management Standards

Registration Procedures

Accession Files

All artifacts are labeled with accession numbers assigned by NCOSA.

Location Identification

The location of artifacts within the repository is not specified in any document.

Cross-Indexed Files

Files are not cross-indexed.

Published Guide to Collections

No guide to the collections, other than project reports, has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used. Materials are organized by project.

Computerized Database Management

No computerized database-management program is used by ARC.

Written Policies and Procedures

Minimum Standards for Acceptance

ARC only accepts collections generated by its own projects. Collections are not accepted from outside researchers.

Curation Policy

No standard, comprehensive plan for curation is in place. ARC temporarily curates artifacts and documents from its own projects. The artifacts, with copies of associated documentation, are then sent to the state repository.

Records-Management Policy

No formal policies for the curation of documentation are in place.

Field-Curation Procedures

No formal field-curation guidelines have been produced.

Loan Policy

ARC does not loan artifacts or documentation.

Deaccessioning Policy

ARC does not deaccession materials.

Inventory Policy

No formal inventory policy has been created.

Latest Collection Inventory

Collections are inventoried as they are brought in from the field, prior to being placed in boxes.

Curation Personnel

There is no full-time curator for the archaeological collections. ARC has one full-time employee, Thomas Hargrove, who is responsible for the collections. Hargrove has a Bachelor's degree in anthropology from the University of New Mexico, a Master's degree in anthropology from

George Washington University, and is currently in the fourth year of the University of North Carolina, Chapel Hill, Ph.D. program. There are also four part-time employees.

Curation Financing

Curation is financed through establishing contract overhead in archaeological research projects. ARC does not curate on a long-term basis, but does so on a temporary basis.

Access to Collections

Hargrove is the only person who has access to collections after they are placed in the storage unit.

Future Plans

ARC has no plans to upgrade its curation program.

Comments

1. Original documentation is stored in acidic-paper envelopes within acidic-cardboard boxes.

2. Artifacts are stored in acidic-paper bags within acidic-cardboard boxes.

3. There is one padlock on the door to the storage area, and gates are locked from 7:00 P.M. to 7:00 A.M., but no other security measures are present.

4. No fire-detection or -suppression system is present. The storage location is not equipped with fire extinguishers, smoke alarms, or sprinkler systems.

5. There are no environmental controls for heating, air-conditioning, or humidity monitoring or controlling.

6. No integrated pest-management program is in place. Exterior pest infestations are addressed by Colonial management, and interior infestations are addressed by ARC.

Recommendations

1. Remove artifacts from acidic-paper bags and the acidic-cardboard box, and place them in 4-mil, acid-free, archival, zip-lock bags and an acid-free box. Interior tags made from spun-bonded, polyethylene paper (e.g., Nalgene poly-paper) should be labeled in indelible ink and inserted in the polyethylene bags.

2. Remove documentation from all acidic-paper folders and acidic-cardboard boxes, and place records in acid-free, archival secondary containers and acid-free boxes. Duplicate the records on acid-free paper and store the copies at a separate, fire-proof, secure location.

3. Transfer artifacts and documentation from Colonial Self-Storage to a storage location that offers fire protection, environmental controls, and security measures.

4. Secure the artifacts and documentation in a place that provides a storage area with no windows and a solid, metal door with key and dead bolt locks. Provide a security monitoring system with motion detectors, and ensure that it is wired into the local police department.

5. Provide fire-detection and -suppression equipment in the selected storage location that includes fire extinguishers, smoke alarms, and a sprinkler system. Install a fire alarm system that is wired into the local fire department.

6. Ensure that there are adequate environmental controls. Install an HVAC system if possible. If this is not feasible, ensure temperature regulation through the use of central air-conditioning and heating. Monitor humidity with a sling psychrometer or hygromograph and install a dehumidifier.

7. Implement an integrated pest-management program that includes regular monitoring and controlling.

3

Espey, Huston & Associates

Williamsburg, Virginia

Repository Summary

Volume of Artifact Collections: None

Linear Feet of Records: 3.5 linear feet (42 linear inches)

Compliance Status: Documentation will require partial rehabilitation to comply with current federal guidelines and modern archival-preservation standards. Records should be removed from current acidic folders and placed

in archival quality primary and secondary containers.

Human Skeletal Remains: None

Status of Curation Funding: Curation is funded through monies written into archaeological-consulting contracts. Staff feel that funding is generally adequate for the goals of the repository.

Date of Visit: July 25, 1994

Point of Contact: Carol Tyrer, Staff Archaeologist and Curator

EHA is an environmental consulting firm that frequently performs archaeological work. The firm is currently storing 3.5 linear feet of records from MCB Camp Lejeune and the Norfolk Naval Shipyard (NAVSHIPYD), Portsmouth. The firm does not view itself as a long-term curation facility, but as a temporary one.

Assessment

EHA is located in an office building that is approximately five years old. The firm occupies two office spaces on two floors, but the archaeology personnel and the collections storage area are located in the first-floor office.

Structural Adequacy

The structure has a concrete foundation, brick exterior walls, and a built-up asphalt roof. Interior walls are plasterboard, and the floors are concrete covered with carpet. The plumbing and electrical systems are original to the building. Exterior windows and doors are numerous, but there is only one, north-facing, interior door leading into the EHA office area from the lobby of the building.

The offices of EHA encompass approximately 9,000 ft² of the 60,000 ft² building. Within this area there are offices, a mechanical and utility room, and a laboratory and collections storage area. The collections storage area totals approximately 280 ft², is defined by walls, and is divided into subareas (Figure 4). These subareas include an artifact-holding area, a processing lab, a temporary artifact-storage area, and a records-storage area. The suspended, acoustical ceiling of the office has recessed



Figure 4. Standard office partitions delineate the collections storage area at EHA.

fluorescent lights. There are no windows in direct proximity to the collections storage area; they are all located within walled offices surrounding the center of the office space leased by the firm. If Atlantic Navy collections are to be kept at EHA, some rehabilitation of the collections storage area is necessary.

Environmental Controls

The repository, including the collections storage area, is equipped with central air-conditioning and heating; dust filters are present in the system. Humidity is neither monitored nor controlled. The building is regularly maintained for the tenants by a staff contracted by the owner of the building.

Pest Management

No integrated pest-management program is in place. Pest management is undertaken on an as-needed basis. No signs of insect or rodent infestations were observed during the site visit.

Security

The building housing EHA is equipped with key locks on all exterior and interior doors. There is a time lock on the exterior, front door. Outside the building there are flood lights in the parking lot and around the grounds, and a contracted security company patrols the area 24 hours per day. The EHA offices are separated from the remainder of the building by a door equipped with a key lock. Aside from the door to the EHA offices, there is no security for the collections storage area; however, no instances of unauthorized entry have been reported.

Fire Detection and Suppression

The structure is equipped with fire-detection and -suppression systems. These include smoke detectors, manual fire alarms, and a sprinkler system. However, within the collections storage area there is only an overhead sprinkler system. No fire extinguishers are present in the EHA office.

Artifact Storage

No artifact collections associated with Atlantic Navy installations are curated at EHA.

Laboratory Processing and Labeling

No artifact collections associated with Atlantic Navy installations are curated at EHA. Therefore, laboratory processing and labeling of artifacts will not be addressed.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy installations are curated at EHA.

Table 5.
Summary of Documentation, by Atlantic Navy Facility, at EHA

Facility	Type of Documentation				Total
	Paper	Photographs	Maps	Reports	
NAVSHIPYD Norfolk	2.5	2.5	9.0	13.0	27.0
MCB Camp Lejeune	6.0	—	8.0	1.0	15.0
Total	8.5	2.5	17.0	14.0	42.0

Note: All measurements are in linear inches.

Records Storage

Approximately 3.5 linear feet of associated documentation from MCB Camp Lejeune and NAVSHIPYD Norfolk is currently stored at EHA (Table 5). The firm processed the documentation, and duplicates on acid-free paper were sent with the artifacts to the respective state repositories in North Carolina and Virginia.

Paper Records

Paper records are stored in acid-free Hollinger boxes, each with a telescoping lid. Primary containers are usually stored in other boxes or on the floor. At the time of the site visit, the primary containers were placed on a work table for ease of access. Boxes are labeled with adhesive, yellow slips of paper; information is written in pen and consists of the project name and the box number. One of the containers had a yellow strip of notebook paper taped to the end of the box, with label information consisting of project name, phase of study, year, project number, and materials enclosed.

Paper records are stored in acidic-paper, hanging folders, either loose or bound, or are stored loose in the primary containers (Figure 5). Bound materials bear adhesive labels with typed information. Green, acidic-paper, hanging folders bear white paper labels in clear label holders; label information is typed. Documents are organized by project and type of document.

Photographic Records

Photographic records are stored in the primary containers with paper records. They are still in their original, acidic, nonarchival photograph

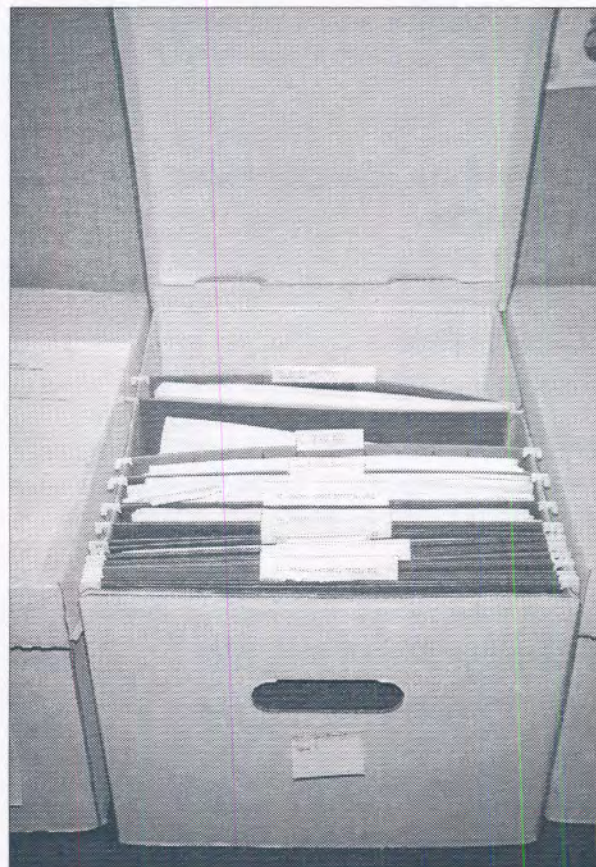


Figure 5. Documentation is stored in acidic hanging file folders within acid-free boxes. This is not an archival procedure.

sleeves and laid loose in the box with original reports. The photographs are not labeled.

Maps and Oversized Documents

Approximately 1.4 linear feet of records consists of drawings, small maps, oversized topographic

and real estate maps, and proton magnetometer readouts. Drawings and small maps are stored in the primary containers with paper records. Oversized maps and readouts are rolled, bound by rubber bands or wrapped in clear plastic, and loosely laid on tables in the collections storage area. Yellow, adhesive paper labels provide identification information, which consists of a number (e.g., #1, #2).

Project Reports

Original reports are stored in the primary containers with paper records. There are bound or loose draft reports in all three primary containers. One box consisted almost entirely of draft reports.

Collections-Management Standards

Registration Procedures

Accession Files

Collections at EHA are not accessioned.

Location Identification

Locations of collections within the repository are identified only by primary-container labels.

Cross-Indexed Files

Files at EHA are not cross-indexed. Documentation is arranged by project name.

Published Guide to Collections

No guide to the collections, other than the project reports, has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used.

Computerized Database Management

EHA uses WordPerfect to manage its files. However, WordPerfect is a word-processing program, not a database-management program. Back-ups are recorded on disks daily, and on tapes weekly. No copies are stored off-site.

Written Policies and Procedures

Minimum Standards for Acceptance

There is a document that explains how artifacts are to be brought from the field, processed, and catalogued.

Curation Policy

EHA catalogs artifacts and sends them to the respective state repositories.

Records-Management Policy

Associated documentation is duplicated on acid-free paper and sent to the respective state repositories. Originals are stored in boxes at EHA.

Field-Curation Procedures

No guidelines for researchers depositing collections are in place; EHA is a temporary-curation facility and does not accept collections from outside researchers.

Loan Policy

No loan policy is in place; EHA does not loan collections.

Deaccessioning Policy

No deaccessioning policy is in place at EHA.

Inventory Policy

Collections are inventoried as they are prepared for shipment to state repositories.

Latest Collection Inventory

The Atlantic Navy collections were inventoried before being sent to state repositories.

Curation Personnel

Carol Tyrer is a staff archaeologist and the full-time curator of archaeological collections. She has two Bachelor's degrees, one in archaeology and the other in technical writing, from the University of Tennessee. She has 14 years of experience. Alain Outlaw is the principal archaeologist. He has a Master's degree from the University of Florida and 23 years of experience.

Curation Financing

Curation is financed by writing fees into contracts. The staff maintains that curation monies are adequate for the objectives of the firm.

Access to Collections

Tyrer controls the collections, and all staff members must contact her for access. Outside researchers can access the collections by appointment, but only within the EHA office.

Future Plans

EHA does not have any plans to upgrade their curation program, as it is sufficient for the firm's temporary-curation objectives.

Comments

1. Documentation is stored in acid-free primary containers, but secondary containers consist of acidic, hanging file folders.
2. Oversized maps are rolled and are not stored flat in a map case.
3. Photographs are not archivally preserved.
4. Humidity is neither monitored nor controlled.
5. Fire suppression is not adequate in the firm's office.

6. Collections are not secure in the furniture space that delineates the collections storage area.

Recommendations

1. Replace associated-documentation secondary containers with acid-free folders, and store them in acid-free, cardboard boxes. Ensure that documentation is duplicated on acid-free paper and is free of such contaminants as staples and paper clips. Photographs should be stored in archival, polyethylene sleeves or in acid-free envelopes. Small-scale maps can be stored with the paper records, but large-scale maps should be stored flat in a map case.
2. Move documentation to an interior room where the environment can be controlled and the materials can be secured. Install an HVAC system. If an HVAC system is infeasible, monitor humidity with a sling psychrometer or hygromograph and install a dehumidifier. Secure the documentation by installing key and dead bolt locks and a security system for the room.
3. Equip the office and the collections storage area with multiple fire extinguishers.
4. Install baked-enamel, metal shelves in the collections storage area. There should be enough shelves to store all documentation primary containers off the floor, and have them stacked only one high on each shelf.

4

James River Institute for Archaeology

Williamsburg, Virginia

Repository Summary

Volume of Artifact Collections: 2.9 ft³

Compliance Status: Artifacts will require partial rehabilitation to comply with existing federal guidelines and standards for curation.

Linear Feet of Records: ~1.1 linear feet (13.75 linear inches)

Compliance Status: Documentation will require complete rehabilitation to comply with

current federal guidelines and modern archival-preservation standards.

Human Skeletal Remains: None

Status of Curation Funding: Curation of collections is financed by fees written into consulting contracts. Staff feel that funding is adequate for the firm's goals.

Date of Visit: July 26, 1994

Points of Contact: Garrett Fesler, Research Archaeologist; Diane Masters

JRIA is a private consulting firm. JRIA is currently curating 2.9 ft³ of artifacts (Table 6) and 1.1 linear feet (13.75 linear inches) of documentation from Armed Forces Experimental Training Activity (AFETA) Camp Peary; Naval Weapons Station (NWS), Yorktown; and Northwest Naval Security Group Activity (NAVSECGRUACT), Chesapeake (Table 7). The firm views itself as a temporary curation facility while artifacts await acceptance by the state repository.

Table 6.
**Summary of Material Classes Present in
Atlantic Navy Collections at JRIA,
by Percentage**

Material Class	%
Prehistoric	
Ceramics	1
Lithics	1
Soil	25
Historical-period	
Ceramics	21
Glass	8
Faunal remains	1
Shell	1
Metal	35
Brick	7
Total	100

Table 7.
Summary of Artifact Collections,
by Atlantic Navy Facility, at JRIA

Facility	Volume (ft ³)
AFETA Camp Peary	1.4
NAVSECGRUACT Northwest	1.1
NWS Yorktown	0.4
Total	2.9

Assessment

JRIA is located in a rented structure near Williamsburg, Virginia. Encompassing approximately 1,250 ft², the repository contains space for artifact receiving, loading, holding, washing, processing, and exhibit, as well as a records-study area, records storage, and mechanical and supply rooms.

Structural Adequacy

This single-story building, approximately 20–25 years old and originally used as a restaurant, was at some point converted to offices (Figure 6). JRIA is currently renting this building, which they moved into approximately two years

ago. The building is concrete, including a concrete-slab foundation and concrete-block interior walls with brick exterior. The roof is flat, composed of built-up asphalt. Renovations to the building occurred when it was changed to office space.

The structure's foundation and walls are sound. The roof occasionally leaks over the laboratory area, but not over the collections. There are five windows in the building, all of which have wooden frames, and all but one are equipped with shades. Two of the windows face north, two face west, and one faces south. The south-facing window, which is located in the collections storage area, is not equipped with a shade. Utilities present consist of water, electricity, and telephone, all probably original to the building.

The collections storage area is located in the south third of the repository. It is separated from the other offices by one wood-panel door, which is not equipped with a lock. Adjacent to the south-facing window is a wooden, exterior door that has been sealed shut. An overhead, loading, "garage" door located on the west wall leads into a small storage area that is separated from the collections storage area by a wood-panel door that is not equipped with a lock. The ceiling in the collections storage area is suspended acoustical.



Figure 6. Exterior view of JRIA.

Within the collections storage area there is space for artifact receiving, holding, washing, processing, and storage. Also present are a field and lab equipment storage room and a mechanical room. There is approximately 500 ft² of floor space. Currently, JRIA is at approximately 90-percent collections storage capacity.

Environmental Controls

Temperature in JRIA, including the collections storage area, is controlled by central heating and air-conditioning. In addition to these controls there are floor fans, space heaters, and radiators in the collections storage area. No dust filters are present in these systems. Humidity is not monitored, but control is attempted through the placement of silica gel in some type collection artifact-storage drawers. Building maintenance is conducted by the landlord on an as-needed basis; however, the collections storage area is cleaned by the curatorial staff. Water damage to carpet and tile in the doorway between the collections storage area and the office space, caused by a leaking air-conditioning unit, was observed during the site visit. Lighting is accomplished by fluorescent, incandescent, and natural light; no ultraviolet filters are present. There is noticeable water damage on the collections storage-area ceiling around light fixtures.

Pest Management

No integrated pest-management program is in place. A contracted pest-control service is used on an as-needed basis to control pest-infestation problems. There have been problems with insects, but no collections have been infested.

Security

JRIA has locks on all doors for security purposes. The “garage” door in the rear of the building is equipped with an interior padlock and a crossbar. This door is made of wood, but has a metal frame. The front door is equipped with key and dead bolt locks. On the north and west

sides of the building there are night lights that activate at dusk. The adjacent Jamestown Settlement has 24-hour drive-by security patrols that also watch JRIA.

Window security is minimal. The windows on the north and west are “picture” windows, but the south window (into the collections storage area) has moving parts and only simple locks. No episodes of unauthorized entry have been reported, but a staff member once forcibly entered through the south window.

Fire Detection and Suppression

Fire-detection devices present in the repository consist of manual fire alarms. Fire-suppression equipment consists of two dry-chemical fire extinguishers, neither of which bear inspection tags. One fire extinguisher is present in the collections storage area. There is a firewall between the collections storage area and the remainder of the repository.

Artifact Storage

Storage Units

Archaeological collections are stored on open, metal shelving units that each measure approximately 3 × 7 × 1 foot (w × h × d; Figure 7). These units are two to three shelves high, and boxes of artifacts are stacked two high on most shelves.

Primary Containers

There are four primary containers housing artifacts from AFETA Camp Peary, NWS Yorktown, and NAVSECGRUACT Northwest. Two of these containers are acid-free cardboard boxes, each with a volume of 1.1 ft³. The other two are acidic-cardboard boxes with volumes of 0.3 and 0.4 ft³. The acid-free containers are folded boxes with telescoping lids; the acidic containers have folded-flap lids. Labels are adhesive, with computer-generated information. One of the boxes is labeled directly in marker. Information consists of facility and site numbers, if applicable.



Figure 7. Artifact primary containers are stored two or three high on metal shelves, causing compression.

Secondary Containers

Secondary containers consist of paper bags; zip-lock, plastic bags; and acidic boxes (Table 8). All secondary containers are labeled directly with marker. Label information usually consists of facility and provenience, but sometimes

Table 8.
Summary of Secondary Containers Used for Atlantic Navy Collections at JRIA, by Percentage

Container Type	%
Paper bags	48
Plastic zip-lock bags	27
Acidic boxes	25
Total	100

includes field site number and sample number. For plastic and paper bags, the tertiary container type is zip-lock bags.

Laboratory Processing and Labeling

All of the artifacts have been cleaned, but none has been directly labeled. Plastic-bag secondary containers contain acid-free paper labels with facility and provenience noted on them. All of the artifacts have been sorted by material class within provenience.

Human Skeletal Remains

JRIA does not curate any human skeletal remains associated with Atlantic Navy facilities.

Records Storage

JRIA maintains a total of approximately 1.1 linear feet (13.75 linear inches) of original documentation from AFETA Camp Peary, NWS Yorktown, and NAVSECGRUACT Northwest (Table 9). Records are stored in acidic, expanding files on open, metal shelves (Figure 8). The shelves are located in the main office area of the repository.

Paper Records

There are approximately 2 linear inches of paper records (see Table 9). Primary containers consist of acidic, expandable files. Secondary containers for records are manila folders, labeled directly with marker. Label information consists of facility name. Documentation is organized by naval facility or project.

Maps and Oversized Documents

There are 1.5 linear inches of maps (see Table 9), which are stored in two places: a map case (Figure 9) and the acidic, expandable files containing the paper records. The map case is an enameled-metal, five-drawer cabinet with mat-board dividers. Large-scale maps are stored in the map case and are arranged alphabetically, by naval facility. Small-scale maps are folded and stored in the acidic, expandable files with the paper records.

Table 9.
Summary of Documentation, by Atlantic Navy Facility, at JRIA

Facility	Type of Documentation			Total
	Paper	Maps	Reports	
AFETA Camp Peary	0.5	—	8.75	9.25
NWS Yorktown	1.25	1.0	< 0.05	~2.25
NAVSECGRUACT Northwest	0.25	0.5	1.5	2.25
Total	2.0	1.5	~10.25	~13.75

Note: All measurements are in linear inches.

Project Reports

There are 10.25 linear inches of reports (see Table 9). Cardboard magazine files serve as the primary and secondary containers for 8.75 linear inches of the reports. The remainder (1.5 linear inches) are stored in the acidic, expandable files. Storage units are open, metal shelves, each measuring 6 × 3 feet (w × d; see Figure 8).

Collections-Management Standards

Registration Procedures

Accession Files

Materials are assigned an accession number that is a compilation of the state, trinomial site number and provenience (e.g., 44JC308/14/b).

Location Identification

No list that identifies the location of artifact collections is present.

Cross-Indexed Files

Files are not cross-indexed, but are organized by project.

Published Guide to Collections

No guide to collections, other than the project reports, has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used. Materials from sites are organized by project.



Figure 8. Documentation is improperly stored in acidic file folders placed directly on metal shelves.

Computerized Database Management

JRIA uses a computerized database program called dBASE III+. Back-up copies are kept on disks and tapes, and are frequently updated.



Figure 9. Large maps are properly stored in an archival-quality, metal map flat.

There are back-up copies stored off-site at the homes of two staff members, Straube and Masters. Off-site back-up copies are updated weekly. JRIA operates a self-contained computer network that all crew members have access to.

Written Policies and Procedures

Minimum Standards for Acceptance

No formal minimum standards for the acceptance of archaeological collections are in place. Collections are occasionally accepted from individuals. The objective of the firm is to deposit collections in the state repository.

Curation Policy

There is no standard, comprehensive plan for curation. The firm curates material on a case-by-case basis, depending on the type of contracts entered into. JRIA is not viewed as a long-term curation facility, although some material is curated in perpetuity by default.

Records-Management Policy

There are no written policies for the curation of documentation.

Field-Curation Procedures

No field-curation guidelines are in place.

Loan Policy

No formal loan policy is in place. Loans are made on a case-by-case basis and are documented.

Deaccessioning Policy

No formal deaccessioning policy is in place. Items are deaccessioned on a case-by-case basis, and this is documented.

Inventory Policy

No inventory policy is in place.

Latest Collection Inventory

Collections are not regularly inventoried.

Curation Personnel

Beverly Straube is the full-time curator for the archaeological collections; she earned a Master's degree in American studies at the College of William and Mary, Williamsburg, Virginia. Sherrie Beaver is the part-time collections manager; she earned a Bachelor's degree in history from Christopher Newport University. JRIA also employs a part-time artifact processor (M.A. in sociology and anthropology, Virginia Commonwealth University) and a full-time soil floater (B.S. in architecture, University of Virginia). Garrett Fesler is a research archaeologist for the firm.

Curation Financing

Curation is financed through a percentage of the contract, which is used for processing, supplies, and conservation, when appropriate.

Access to Collections

Access to collections is limited, but not controlled. Three or four members of the staff of 24 have complete access to the collections. Researchers are allowed access to collections, when possible, on a case-by-case basis.

Future Plans

JRIA, as a consulting firm, accords recovery of artifacts a higher priority than curation. JRIA is not considered a long-term curation facility, and there are no plans to upgrade the curation program.

Comments

1. Two of the four artifact primary containers are acidic-cardboard boxes. Zip-lock, paper, and cardboard-box secondary containers are not archival quality.
2. Primary and secondary containers for documentation are acidic, expandable files and manila envelopes.
3. Small maps are folded and stored in the same acidic primary and secondary containers as are other records.
4. Two uninspected fire extinguishers are the only fire-suppression devices present.
5. Security is minimal; there are only simple locks on windows in the collections storage area and no locks on any doors into this area. Window frames and doors are wooden.
6. A leaking air conditioner has damaged the carpet and tiles in the entrance to the collections storage area. Further leakage could damage the

collections. There is also evidence of roof leakage, as evidenced by water-damaged ceiling tiles in the collections storage area.

7. No integrated pest-management program is in place.
8. Humidity is neither monitored nor controlled.

Recommendations

1. Inventory the collections and replace acidic-cardboard boxes containing artifacts and associated documentation with standard-size, acid-free cardboard boxes. Replace secondary artifact containers with 4-mil, zip-lock, polyethylene bags labeled in indelible ink. Interior labels made from spun-bonded, polyethylene paper (e.g., Nalgene polypaper) should be labeled in indelible ink and inserted into the polyethylene bags.
2. Unfold large-scale maps; store these in archival sleeves within the map case.
3. Inspect fire extinguishers, note condition, and address existing inadequacies. If feasible, install a sprinkler system. Install smoke detectors and wire them into the local fire department, ensuring 24-hour monitoring and protection.
4. Repair the leaking air conditioner, and repair any leaks in the roof.
5. Install an HVAC system. If this is infeasible, monitor humidity with a sling psychrometer or hygrothermograph and install a dehumidifier.
6. Cover and seal the windows in the collections storage area, and install dead bolt locks on the doors to this area.
7. Install an electronic security system in the building, and wire it into the local police department.
8. Implement a regular pest-management program that includes monitoring and controlling.

Mid-Atlantic Archaeological Research

Williamsburg, Virginia

Repository Summary

Volume of Artifact Collections: None

Human Skeletal Remains: None

Linear Feet of Records: ~0.6 linear feet (7.5 linear inches)

Compliance Status: Documentation will require complete rehabilitation to comply with current federal guidelines and modern archival-preservation standards.

Status of Curation Funding: Curation of collections is accomplished by writing monies into consulting contracts. Staff feel that funding is inadequate, even for the firm's temporary-curation goals.

Date of Visit: July 22, 1994

Point of Contact: Jerome Traver, Branch Manager

MAAR is a private consulting firm. The firm is not currently housing any artifacts from Atlantic Navy facilities, but is storing 0.6 linear feet of documentation from Norfolk Naval Base (NAVBASE), Oceana Naval Air Station (NAS), Portsmouth Naval Hospital (NAVHOS), and NWS Yorktown. The firm does not view itself as a permanent curation facility, but rather as a temporary one while artifacts await acceptance by the state repository.

The firm's office in Williamsburg (Figure 10) also serves as the repository and project-direction center for most work in Virginia. The building occupied by MAAR contains approximately 1,200 ft² of floor space, which includes areas for offices, artifact holding and processing, temporary storage, and storage areas for photographs, other records, and field equipment and supplies.

Assessment

MAAR, Williamsburg, Virginia, is a branch office of the same firm based in Newark, Delaware.

Structural Adequacy

The building, which originally served as offices, is approximately 10 years old. The firm's single-floor building has a concrete foundation and wooden siding, with plasterboard interior walls. The asphalt-shingled roof is original to the building, which appears to be structurally solid. There are six wood-framed windows in the building, all equipped with blinds. Three of the windows face west, two face east, and one faces south; no cracks or signs of leakage were observed during



Figure 10. Exterior view of MAAR.

the site visit. The most recent renovation is a five-year-old interior wall that was constructed to separate two laboratory areas in the south portion of the repository. Utility systems are original to the structure.

The collections storage area has a concrete foundation covered with carpet. The ceiling in the collections storage area is suspended acoustical, and there is one east-facing window.

There is one double, exterior, metal-panel, south-facing door to the collections storage room, and one wood-panel, east facing door to the interior of the repository. The exterior doors to the collections storage area pose a security and environmental risk, as there is a wide gap between the double doors (Figure 11). The collections storage area is filled to approximately 90-percent capacity.

Environmental Controls

MAAR, including the collections storage area, uses a heat pump for central air-conditioning and heating. Temperature and humidity are not monitored or controlled within the collections storage area. The heat pump does not monitor humidity, but it does control it. Although no HVAC system is present, there are dust filters in the air system. Lighting is by fluorescent tubes, with nonfiltered, plastic shields over the lights.

Maintenance for the repository is conducted on an as-needed basis by the curatorial staff.

Pest Management

No integrated pest-management system is in place at MAAR. There have been pest infestations in the past; the building sometimes becomes home to mice in the winter. Baited traps are used to control rodents, and spray is used to control insects, both on an as-needed basis.

Security

MAAR lacks adequate security measures; neither an alarm system nor any type of security patrol are used. However, there are key locks on the two exterior doors and locks on all windows. An outside light is present.

Staff members' access to all records and collections is tightly controlled by Jerome Traver, the branch manager. Only Traver, two lab technicians, and a few field technicians have access to the building.

Fire Detection and Suppression

No fire-detection or -suppression systems are present at MAAR.



Figure 11. Exterior doors in the collections storage area. Environment and security are compromised by the gap between the doors.

Artifact Storage

No artifacts associated with Atlantic Navy installations are curated at MAAR.

Laboratory Processing and Labeling

No artifacts associated with Atlantic Navy installations are curated at MAAR. Therefore, laboratory processing and labeling will not be discussed.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy installations are curated at MAAR.

Records Storage

MAAR stores approximately 0.6 linear feet (7.5 linear inches) of associated documentation (Table 10). Photographs are not included in Table 10 because of the small amount; however, they are described in a following section. Documentation from Atlantic Navy archaeological projects is stored throughout the repository, both in the collections storage room and in office space.

Paper Records

Documentation associated with archaeological work at Atlantic Navy installations is stored in four types of storage units. Two of these are letter-size, metal filing drawers; one drawer is located in a metal desk and measures 1.3 × 1.1 × 2.3 feet (w × h × d; File Drawer 1). The other file drawer is part of a larger, metal materials-storage cabinet, and measures 1.2 × 1.0 ×

Table 10.
Summary of Documentation, by Atlantic Navy Facility, at MAAR

Facility	Type of Documentation			Total
	Paper	Maps	Reports	
NAVBASE Norfolk	0.25	—	—	0.25
NAS Oceana	1.0	—	—	1.0
NAVHOS Portsmouth	1.5	0.5	0.75	2.75
NWS Yorktown	2.5	0.5	0.5	3.5
Total	5.25	1.00	1.25	7.50

Note: All measurements are in linear inches.

1.5 feet (w × h × d; File Drawer 2). Neither file drawer is equipped with a lock.

The other documentation-storage containers consist of an archival, Hollinger box and two plastic, three-ring binders. The Hollinger box measures 1.1 × 0.9 × 1.3 feet (w × h × d), and has a telescoping lid. The Hollinger box is the only documentation-storage container located in the collections storage room, and is stored on a wooden tabletop near the window. Vinyl, three-ring binders are stored on a set of wooden shelves measuring 2.3 × 5.9 × 1.3 feet (w × h × d). Two plastic binders directly contain Atlantic Navy paper records. Records are organized by project, and label information is typed on an adhesive label on the binder. Label information consists of naval facility and MAAR code.

Secondary containers in the file drawers and the Hollinger box consist of green, acidic hanging file folders. These have nonarchival, plastic label holders with nonarchival, paper labels bearing typed information. Label information usually includes a MAAR code and the type of documents contained. The MAAR code is a project number (e.g., NAVHOS Portsmouth is MAAR code V69). The files are organized by project and MAAR code.

File Drawer 1 houses approximately 1.5 linear inches of associated documentation from NAVHOS Portsmouth and approximately 1 linear inch of associated documentation from NAS Oceana. Filing Drawer 2 houses approximately 0.25 linear inches of paper records from NAVBASE Norfolk. Approximately 1 linear inch of paper records from NWS Yorktown is stored in the Hollinger box. Approximately 1.5 linear inches of paper records from NWS Yorktown are stored in two plastic binders.

Paper records are generally in good condition, although many contaminants (e.g., staples and paper clips) are present. These documents are originals, although MAAR sent duplicates on acid-free paper to the state repositories with the artifacts, per state requirements.

Photographic Records

There is less than 0.05 linear inches of photographic records, all from NAVHOS Portsmouth. The photos consist of a small quantity of negatives and contact sheets, and are stored in green,

acidic hanging file folders within File Drawer 1. The negatives and contact sheets are directly labeled with, and organized by, MAAR code.

Maps and Oversized Documents

Approximately 0.5 linear inches of small maps from NAVHOS Portsmouth are stored in acidic hanging file folders within File Drawer 1. The maps are in file folders with other paper records from the naval hospital. Additionally, there are approximately 0.5 linear inches of small maps and drawings from NWS Yorktown stored with other Yorktown paper records in acidic hanging file folders within the Hollinger box. All are organized by the MAAR code, which is typed on nonarchival paper and placed within a nonarchival, clear, plastic tag.

Project Reports

Approximately 0.75 linear inches of reports from NAVHOS Portsmouth are stored in acidic hanging file folders within File Drawer 1. In addition, there are approximately 0.5 linear inches of reports from NWS Yorktown stored in acidic hanging file folders within the Hollinger box. These are organized by the MAAR code, which is typed on nonarchival paper placed within a nonarchival, clear, plastic tag. Final reports produced by MAAR are stored in a report library on metal bookshelves. The library is organized by state.

Collections-Management Standards

Registration Procedures

Accession Files

MAAR does not accession materials, but artifact cataloging procedures are in place.

Location Identification

The locations of artifacts within the repository are not specified in any document.

Cross-Indexed Files

There is no cross-indexing of files. Files are organized by MAAR code and facility project.

Published Guide to Collections

No guide to the collections, other than project reports, has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used. Materials are organized by project of origin.

Computerized Database Management

A WordPerfect word-processing program is used. Back-up copies are made as necessary and stored on disks. One back-up copy is stored in the Delaware office. Paper copies are used as another form of back-up.

Written Policies and Procedures

Minimum Standards for Acceptance

MAAR curates collections acquired through work it performs. Collections from outside researchers are not accepted.

Curation Policy

No comprehensive curation plan is in place. MAAR temporarily curates artifacts and documents from its own projects, and then sends the artifacts and copies of associated documentation to the state repository. MAAR curates the original associated documentation in perpetuity.

Records-Management Policy

No formal policies for the curation of documentation are in place.

Field-Curation Procedures

No formal field-curation guidelines are in place.

Loan Policy

No formal loan policy is in place, but MAAR occasionally loans documents to institutions. Artifacts and at least one copy of the associated documentation are never loaned, because they belong to the contracting agency.

Deaccessioning Policy

No deaccessioning policy is in place.

Inventory Policy

An inventory policy is in place.

Latest Collection Inventory

Artifacts are inventoried before being sent to the state repository.

Curation Personnel

There is no full-time curator at MAAR. Jerome Traver, Branch Manager, oversees all archaeological work, including artifact processing, cataloging, and temporary curation. Traver has a Master's degree in anthropology from Southern Illinois University, Carbondale, and has taken several courses in museology. In addition to Traver, the firm employs two lab technicians and a number of field technicians.

Curation Financing

MAAR does not curate archaeological collections in perpetuity; monies for temporary curation are acquired through fees written into contracts.

Access to Collections

Access to collections is limited to Traver and the staff of lab and field technicians. Generally, researchers can only access the collections after they have been received at state repositories.

Future Plans

MAAR has plans to acquire more file cabinets and to place inactive files in acid-free boxes.

Comments

1. Original documentation is stored in acidic-cardboard secondary containers or metal binders, neither of which is acceptable archival practice.
2. Documentation associated with individual facilities and projects is located in several different filing cabinets and binders.
3. No acceptable security measures are in place. There are no locks on the filing cabinets, and no alarm system wired into the police department. Windows and wood-panel doors provide inadequate security for the associated documentation.

4. There is no fire-detection or -suppression system. MAAR is not equipped with fire extinguishers, smoke alarms, or a sprinkler system.

5. No integrated pest-management system is in place. Pest infestations are controlled on an as-needed basis.

6. No humidity-monitoring or -controlling devices are present.

Recommendations

1. Replace documentation secondary containers with acid-free folders, and store in acid-free cardboard boxes. Ensure that documentation is duplicated onto acid-free paper and is free of such contaminants as staples and paper clips. Photographs should be stored in archival, polyethylene photo sleeves or in acid-free envelopes. Small-scale maps can be stored with the paper records, but large-scale maps should be stored flat in a map case.

2. Consolidate documentation associated with each project and facility. Duplicate documents on acid-free paper and store off-site, in accord-

ance with current federal guidelines and modern archival-preservation standards.

3. Install locks on filing cabinets, and provide security for the repository. This security should include an alarm system wired into the police department, dead bolt locks on all doors, and drive-by security patrols.

4. Bring filing cabinets together in one room that is accessible only from the interior of the repository, with no exterior windows or doors. A solution would be sealing the windows in the main office, installing a dead bolt lock on the door, and bringing the filing cabinets together in that room.

5. Install fire extinguishers and smoke detectors. If possible, a sprinkler system and a fire alarm that is wired into the local fire department should be included.

6. Implement an integrated pest-management program that includes regular monitoring and controlling.

7. Install an HVAC system. If this is infeasible, monitor humidity with a sling psychrometer or hygrothermograph and install a dehumidifier.

North Carolina Office of the State Archaeologist

Raleigh

Repository Summary

Volume of Artifact Collections: 19 ft³

Compliance Status: Artifacts will require partial rehabilitation to comply with existing federal guidelines and standards for curation.

Linear Feet of Records: ~2.1 linear feet (25 linear inches)

Compliance Status: Documentation will require partial rehabilitation to comply with current federal guidelines and modern archival-preservation standards.

Human Skeletal Remains: NCOSA is currently curating one human skeletal fragment

(< 1% of material classes) from an Atlantic Navy collection.

Status of Curation Funding: Curation of collections is accomplished through state and federal funds budgeted for NCOSA. National Park Service (NPS) funds are also used for curation. Staff feel that funding is inadequate for the firm's goal of long-term curation of artifacts and associated documentation; a yearly budget of approximately \$500,000 would be adequate.

Dates of Visits: August 22–23, 1994

Points of Contact: Dr. Steve Claggett, State Archaeologist; Dr. Bill Oliver, Curator

NCOSA is the state repository for archaeological collections. NCOSA is part of the Division of Archives and History, State Historic Preservation Office (SHPO). Atlantic Navy holdings at NCOSA include 19 ft³ (Table 11) of archaeological collections from MCB Camp Lejeune and MCALF Bogue, and approximately 2.1 linear feet (25 linear inches) of documentation from MCB Camp Lejeune, MCAS Cherry Point, and MCALF Bogue. NCOSA is the long-term-curation repository for state archaeological collections. Although NCOSA is not currently

Table 11.
Summary of Artifact Collections,
by Atlantic Navy Facility, at NCOSA

Facility	Volume (ft ³)
MCB Camp Lejeune	17.6
MCALF Bogue	1.4
Total	19.0

accepting collections because of storage-space constraints, a warehouse in downtown Raleigh is being renovated to curation standards in order to alleviate this problem. Table 12 summarizes the material classes present in the artifact collections assessed by the St. Louis District team.

Table 12.
Summary of Material Classes Present in
Atlantic Navy Collections at NCOSA,
by Percentage

Material Class	%
Prehistoric	
Ceramics	13
Lithics	9
Human remains	< 1
Faunal remains	2
Shell	15
Soil	8
Flotation	3
Historical-period	
Ceramics	8
Glass	5
Shell	1
Metal	22
Leather	< 1
Coins	< 1
Brick	13
Other	1
Total	~100

Assessment

NCOSA is located in downtown Raleigh. The structure is known as the Heartt House, and was originally constructed in 1870 (Figure 12). It encompasses approximately 5,000 ft² of floor space, which includes areas for a variety of activities. In addition to offices, there are artifact holding, processing, conservation, and storage areas. There are also study rooms for artifacts and records, and storage space for hazardous materials, field equipment, supplies, and photographs and other records.

Structural Adequacy

Heartt House was originally built to function as a personal residence; NCOSA began operating there in 1972. A section was added to the rear of

the building in the early 1900s. Utilities were upgraded in the 1930s. The most recent upgrades include a new steam boiler several years ago and a new roof in 1991. The foundation of the building is brick. The exterior walls are wooden, and the interior walls are plaster. The roof consists of shingles and built-up asphalt. There are two floors, as well as an attic and a basement. There are numerous windows on all sides of the building. Three collections storage areas at NCOSA house archaeological materials associated with Atlantic Navy facilities. An artifact and records storage room (Collections Storage Area 1) contains Atlantic Navy artifacts and associated documentation. A records-storage room (Collections Storage Area 2) contains more associated documentation from Atlantic Navy archaeological projects, and a reports library (Collections Storage Area 3) houses project reports generated by archaeological work on Atlantic Navy facilities.

Collections Storage Area 1

All Atlantic Navy artifacts at NCOSA are stored in this room, as is some associated documentation that is stored with the artifacts. This collections storage area encompasses approximately 190 ft² and is located on the first floor of the building, on the west side (Figure 13). It contains two west-facing windows that have wooden frames and no shades; one window supports an unplugged window air-conditioning unit. This collections storage area has a wooden floor, plaster walls, and a suspended, acoustical ceiling. One east-facing, wood-panel door is present. This storage room is filled to approximately 90-percent capacity. No evidence of window or window-seal leakage was observed during the site visit, but a ceiling tile is missing and there is a 1-inch hole in the wooden floor. For our convenience, the staff had removed the primary containers in preparation for the site visit and placed them in a conference area with a work space.

Collections Storage Area 2

This room measures approximately 190 ft² and is located on the south side of the first floor of the building housing NCOSA (Figure 14). The room is attached to the main offices of the



Figure 12. Exterior of NCOSA.



Figure 13. Vertical stacking of boxes causes compression damage, and proximity to windows poses a security risk at NCOSA.



Figure 14. The records storage room at NCOSA. Documentation is stored in file cabinets in proximity to exterior windows.

secretary and state archaeologist. Collections Storage Area 2 has a wooden floor overlain with carpet, plaster interior walls, and a suspended, acoustical ceiling. There are four windows present; three of these face south and one faces west. The windows have wooden frames and are equipped with blinds. There are two double-door entrances to this storage area, each of which has a wooden frame and glass panels. There is one door to the exterior that is locked and has access blocked by a table. No evidence of window or window-seal leakage was observed during the site visit. Collections Storage Area 2 is filled to approximately 75-percent capacity.

Collections Storage Area 3

This reports library measures approximately 130 ft² and is located on the west side of the second floor of NCOSA (Figure 15). The room is located between a small kitchen area to the south and an office to the north. This collections storage area has a wooden floor covered with carpet, plaster interior walls, and a suspended, acoustical ceiling. There are two windows, both of which face west, have wooden frames, and are equipped with shades. The three doors to the interior are wood panel. There is a door in the east wall of the room leading to the hallway, a south-facing door to the kitchen area, and a north-facing door to an adjacent office. Collections Storage Area 3 is filled to approximately 40-percent capacity.

Environmental Controls

The building housing NCOSA is equipped with central heating and air-conditioning, both equipped with dust filters, for temperature control. No humidity-monitoring or -controlling devices are present. The structure is regularly maintained by the Facilities Management Division, Department of Administration. Cleaning services are provided twice weekly by a contracted cleaning company.

Collections Storage Area 1

A radiator is present in the artifact and records storage room. Humidity is neither monitored nor controlled. Lighting is accomplished by fluorescent tubes covered with nonultraviolet, plastic



Figure 15. The reports library. Reports are stored in acidic magazine holders on wooden and metal shelves.

shields. Maintenance in this area is performed by curatorial staff on an as-needed basis. In addition to its use for artifact and records storage, the room is used to store hazardous chemicals (Figure 16). These chemicals are stored on open, metal shelves; ventilation has not been provided. Chemicals present include ammonium chloride, benzotriazole, ethyl alcohol, hydrochloric acid, and tannic acid.

Collections Storage Area 2

The records storage room uses NCOSA's central heating and air-conditioning system for temperature control. Humidity is neither monitored nor controlled. Lighting is furnished by fluorescent tubes covered with nonultraviolet, plastic shields. Maintenance is furnished by the contracted cleaning company twice weekly, and overseen by the Department of Administration.



Figure 16. Hazardous chemicals are stored in proximity to archaeological collections in Collections Storage Area 1.

Collections Storage Area 3

The reports library uses NCOSA's central heating and air-conditioning system for temperature control. No humidity-monitoring or -controlling devices are present. Lighting is provided by fluorescent tubes covered with nonultraviolet, plastic shields. Maintenance is performed by the contracted cleaning company.

Pest Management

No integrated pest-management program is in place at NCOSA. Evidence of pest infestations, which will be discussed below, was observed by the St. Louis District team in two of the three collections storage areas.

Collections Storage Area 1

No integrated pest-management system for this area is in place. Rodent feces and the remains of small insects were observed by the St. Louis District team on the floor of this storage room among the artifact boxes. A large pair of insect wings was observed next to the hole in the floor. Many spider webs were observed next to the window air-conditioning unit.

Collections Storage Area 2

No integrated pest-management program for this room is in place. The St. Louis District team observed the remains of a large insect on the sill of the center, south-facing window.

Collections Storage Area 3

No integrated pest management program for this room is in place. However, no evidence of pest infestation was observed in this area by the St. Louis District team.

Security

Security measures present at NCOSA are minimal. These include key locks on all exterior and some interior doors and simple window locks. The Capital Area Police patrol the area regularly and have access to the building. Approximately one month prior to the site visit, NCOSA was illegally entered and car keys were stolen; these keys were then used to steal a state-owned vehicle. Access to collections is controlled by Dr. Oliver and Dr. Claggett. The collections are generally secured in locked rooms. However, any of the NCOSA staff and lab volunteers can use the collections without supervision.

Collections Storage Area 1

This area has an east-facing door equipped with key and dead bolt locks. The door opens into an interior hallway. The two west-facing windows present have simple locks.

Collections Storage Area 2

This records storage room has three exterior, south-facing windows, one exterior, west-facing

window, one east-facing, exterior door with glass panels, and two interior sets of double doors with glass panels. The exterior windows all have simple locks. The exterior door is equipped with a key lock, and access is blocked by a table. The two sets of interior doors are not equipped with locks.

Collections Storage Area 3

The reports library has two south-facing windows and three doors to the interior (facing north, south, and east). Only the east-facing door opens to the repository, and it is equipped with a dead bolt lock. The south-facing and north-facing doors that open into the kitchen and office do not have locks. The windows are equipped with simple locks, but are accessible from the outside by ladder. There is a gently sloping, shingled roof over the first floor that could be used for entry.

Fire Detection and Suppression

NCOSA maintains manual fire alarms and smoke detectors for fire detection. Fire-suppression equipment present consists of fire extinguishers (including one halon). No sprinkler system is present.

Collections Storage Area 1

No fire-detection or -suppression systems are located in this area. However, there is a smoke detector and a fire extinguisher located in the hallway outside. The fire extinguisher was last inspected in 1985.

Collections Storage Area 2

No fire-detection or -suppression systems are located in this area.

Collections Storage Area 3

No fire-detection or -suppression systems are present in this area.

Artifact Storage

Storage Units

Artifact primary containers are stored on the wooden floor in Collections Storage Area 1. Boxes are stacked several high. For convenience, the St. Louis District team inspected the boxes in a conference room.

Primary Containers

There are 13 boxes of five sizes that contain artifacts. These containers have volumes of 0.6, 1.2, 1.4, 1.5, and 1.6 ft³. Only one primary container (1.4 ft³) is acid-free cardboard (Figure 17); it contains artifacts from MCALF Bogue. The remaining twelve containers are acidic-cardboard boxes housing artifacts from MCB Camp Lejeune.

Two of the 13 boxes have telescoping lids, one of which is the box of MCALF Bogue artifacts. The remaining 11 primary containers have folded-flap lids; two have the flaps folded into the boxes. Almost all of the primary containers have been compressed to some degree.

Eight of the 13 artifact primary containers, including the MCALF Bogue container, have adhesive labels. Four primary containers are labeled directly in marker, and one box is identified with only a United Parcel Service shipping label. Label information generally consists of project or facility name, site number, and contents, written in marker. Primary containers labeled directly in marker also bear provenience, catalog numbers, and research-firm name.

Secondary Containers

Secondary artifact containers consist of archival and nonarchival zip-lock bags, archival cardboard boxes, and acidic-paper bags (Table 13). Most (78%) secondary containers are nonarchival, zip-lock bags. The acid-free, archival cardboard boxes and archival, zip-lock bags are present only in the primary container housing the artifacts from MCALF Bogue (see Figure 17).



Figure 17. Only some artifacts are stored in acid-free, archival-quality primary and secondary containers.

Table 13.
Summary of Secondary Containers Used for
Atlantic Navy Collections at NCOSA,
by Percentage

Container Type	%
Nonarchival zip-lock plastic bags	78
Archival zip-lock plastic bags	11
Acid-free cardboard boxes	7
Loose	3
Acidic-paper bags	1
Total	100

Various types of labels are used on secondary containers. Archival cardboard boxes bear adhesive labels with information written in marker. Archival, zip-lock bags contain interior labels written in marker on preprinted, acid-free tags; some are also directly labeled with marker. Non-archival, zip-lock bags are labeled directly in marker. In addition to direct labels, some non-archival, zip-lock bags have interior, acidic-paper tags with typed information. Acidic-paper bags are labeled directly in marker.

Label information generally consists of project, site number, provenience, and contents. Some secondary container labels include accession

number, catalog number, field site number, and the extent of lab and field processing.

Laboratory Processing and Labeling

Approximately 72 percent of the artifacts have been cleaned, and 29 percent of the artifacts have been labeled. Artifacts that have not been cleaned consist mainly of soils and historical-period metal. Shell composes a large percentage of the unlabeled artifacts.

Sorting of the Atlantic Navy materials is by three methods. Approximately 90 percent of the artifacts are sorted by material class within provenience, whereas the other artifacts are sorted by provenience within material class or by site number, with materials mixed within bags.

Human Skeletal Remains

There is one human skeletal fragment (from site 31ON309) in the collections from MCB Camp Lejeune. It is curated in an acidic-cardboard box and an archival, 4-mil, zip-lock bag. There are no other artifacts stored in the same zip-lock bag, which is directly labeled with marker; information includes field site number (FS31) and state site number (ON309). The bone fragment was not labeled as human and has not been analyzed.

Table 14.
Summary of Documentation, by Atlantic Navy Facility, at NCOSA

Facility	Type of Documentation				Total
	Paper	Photographs	Maps	Reports	
MCB Camp Lejeune	2.25	< 0.05	—	16.0	18.25
MCAS Cherry Point	—	< 0.05	—	4.0	4.0
MCALF Bogue	0.5	0.25	1.0	1.0	2.75
Total	2.75	0.25	1.0	21.0	25.0

Note: All measurements are in linear inches.

Records Storage

NCOSA stores a total of approximately 2.1 linear feet (25 linear inches) of associated documentation from MCB Camp Lejeune, MCAS Cherry Point, and MCALF Bogue (Table 14). Records are stored in all three collections storage areas, which are discussed below.

Paper Records

Collections Storage Area 1

Approximately 3.75 linear inches of associated documentation is stored in this collections storage area, in the primary containers housing the artifacts. Paper records present in Collections Storage Area 1 total 2 linear inches. These records include documentation associated with archaeological projects at MCB Camp Lejeune and MCALF Bogue.

Approximately 1.5 linear inches of paper records are housed in an acidic-cardboard, 0.6-ft³ box. Documentation is on acid-free paper, and includes administrative and excavation records from MCB Camp Lejeune; artifacts are also stored in the box. Secondary containers consist of acidic-paper folders that are labeled in pencil with facility name and contents. The originals of these documents were encountered at EHA, Williamsburg, Virginia.

Approximately 0.5 linear inches of records from MCALF Bogue is stored in an archival, cardboard, 1.4-ft³ box; artifacts are also stored in the box. The records include survey and excavation records printed on acid-free paper. Secondary containers consist of acid-free folders

labeled directly and on adhesive labels with site number, facility name, and contents.

Collections Storage Area 2

There are 0.75 linear inches of paper records associated with MCB Camp Lejeune stored here. Records include spiral-bound field notes and artifact-inventory records printed on acidic paper. The storage unit for these records is a letter-size, metal filing cabinet that measures 1.3 × 5 × 2.1 feet (w × h × d). Records are stored in one drawer of the filing cabinet, which is labeled with information typed on a paper tag in a metal tag holder. Label information consists of county; records are organized by project within each county. The filing cabinet is not equipped with a lock. The secondary container is an acidic-paper folder with a blue adhesive label written on in ink. Label information consists of county, facility name, and contents.

Collections Storage Area 3

No paper records associated with Atlantic Navy facilities are stored in this collections storage area. Refer to the sections on Collections Storage Areas 1 and 2, above, for discussions of paper records stored at NCOSA.

Photographic Records

Collections Storage Area 1

Approximately 0.25 linear inches of photographic records from MCALF Bogue are stored with the Bogue paper records. The photographic records consist of black-and-white contact sheets labeled with site number in black marker,

and are stored within acid-free secondary containers with the paper records.

Collections Storage Area 2

Less than 0.05 linear inches of photographic records from MCB Camp Lejeune and MCAS Cherry Point are present. These consist of black-and-white prints and negatives. Prints are labeled in ink; negatives are not labeled. Photographic records are stored in their original acidic-paper envelopes, within manila folders that contain paper records.

Collections Storage Area 3

No photographic records associated with Atlantic Navy facilities, other than those within project reports, are stored in this collections storage area. Refer to the sections on Collections Storage Areas 1 and 2, above, for discussions of photographic records stored at NCOSA.

Maps and Oversized Documents

Collections Storage Area 1

Approximately 1 linear inch of maps from MCALF Bogue are stored with the Bogue paper records. These consist of small and large profile maps and large-scale site maps. They are directly labeled in pencil with site number, provenience, and date. The maps are stored within the acid-free secondary containers housing paper records.

Collections Storage Area 2

No maps or oversized documents associated with Atlantic Navy facilities are stored in this collections storage area. Refer to the section on Collections Storage Area 1, above, for a discussion of map and oversized-document storage at NCOSA.

Collections Storage Area 3

No maps or oversized documents associated with Atlantic Navy facilities are stored in this collections storage area. Refer to the section on Collections Storage Area 1, above, for a discussion of map and oversized-document storage at NCOSA.

Project Reports

Collections Storage Area 1

There are 0.5 linear inches of draft project-report records associated with MCALF Bogue present, stored loose with the Bogue paper records.

There is one report on acid-free paper, and it is labeled with a title page. The report is in the artifact primary container, with the secondary containers, for documentation.

Collections Storage Area 2

No reports generated by archaeological work at Atlantic Navy facilities are stored in this collections storage area. Refer to the sections on Collections Storage Areas 1 and 3, above and below, for discussions of project reports stored at NCOSA.

Collections Storage Area 3

Approximately 20.5 linear inches of project reports are located in Collections Storage Area 3. The reports describe archaeological work performed at MCB Camp Lejeune (16 linear inches), MCAS Cherry Point (4 linear inches), and MCALF Bogue (0.5 linear inches, one report). Storage units for the reports are wooden shelves measuring 3.0 × 6.0 × 0.8 feet (w × h × d), and metal shelves measuring 3.9 × 6.5 × 1.0 foot (w × h × d). Primary containers for reports are acidic-cardboard magazine boxes, each with a volume of approximately 0.2 ft³. The magazine boxes are directly labeled in marker with county and box number within that county. Reports are not organized within the cardboard boxes. A card catalog organized by county is used for locating reports. Several of the reports are discolored.

Collections-Management Standards

Registration Procedures

Accession Files

NCOSA does not accession material, but some depositing agencies assign their own accession numbers.

Location Identification

The location of artifacts within the repository is not specified in any document.

Cross-Indexed Files

Files are cross-indexed by site number, accession number, and specimen number.

Published Guide to Collections

No guide to the collections, other than the reports that NCOSA receives with collections, has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used.

Computerized Database Management

Two systems are used for database management. Artifacts are managed using dBASE III/IV, and site records are managed via mainframe with a UNIX system. Back-up copies consist of disks that are recorded monthly and stored on-site. Back-up copies for UNIX are recorded daily on disk packs and stored at the location of the mainframe. Collections files are accessible by three computers on a local network; no password is required.

Written Policies and Procedures**Minimum Standards for Acceptance**

There are formal, but outdated, policies and procedures that do not include standards for the acceptance of boxes and bags.

Curation Policy

No standard, comprehensive plan for curation has been produced. NCOSA does not currently accept collections because of space constraints. However, when the curation facility remodeling is completed it will be possible for a large number of collections to be deposited there.

Records-Management Policy

No formal policy for the curation of documentation has been produced. However, a plan is being drafted.

Field-Curation Procedures

No formal field-curation guidelines have been created.

Loan Policy

The current loan policy is from the administrative procedures of the Division of Archives and History. No document relating specifically to loan procedures has been produced, but the responsibilities of the loaning party are addressed on the loan form.

Deaccessioning Policy

Formal administrative procedures state that materials are never to be deaccessioned.

Inventory Policy

No formal inventory policy has been created.

Latest Collection Inventory

The collections at NCOSA have not been completely inventoried.

Curation Personnel

There is no full-time curator for the archaeological collections. Dr. Steve Claggett, State Archaeologist and Office Head, is responsible for the collections. Dr. Bill Oliver is part-time curator. Dr. Oliver supervises volunteers that process and inventory artifacts. Dr. Oliver earned his Ph.D. in anthropology from the University of North Carolina, Chapel Hill, and Dr. Claggett earned his Master's degree in anthropology from Wake Forest University, Winston-Salem, North Carolina.

Curation Financing

Curation is financed through funds allocated in state and federal budgets and historical-preservation funds from the NPS. Staff feel that curation financing is inadequate and that a yearly budget of approximately \$500,000 would be sufficient for their needs.

Access to Collections

Access to collections is controlled by Dr. Oliver and Dr. Claggett. Collections are stored under

lock, but can be used by outside researchers, if they give 24-hour notice, with the permission of Dr. Oliver and Dr. Claggett. Policy states that notice must be written, but this is not enforced. Researchers are not always supervised; the need for supervision is decided on a case-by-case basis, depending on the user and the situation.

Future Plans

A warehouse in downtown Raleigh is currently being remodeled to serve as a collections storage location. This will likely be completed in 1995. At that time there will be a need for additional equipment, funds to cover operating costs, and staff.

Comments

1. Only one of the 13 primary artifact containers and 18 percent of the artifact secondary containers are acid free and archival quality.
2. Only a small amount of documentation is printed on acid-free paper and stored in acid-free, archival containers.
3. Collections Storage Area 1 has limited shelf space for artifact storage. Most artifact primary containers are stacked several high on the floor, which results in box compression and inaccessibility.
4. Security for Collections Storage Area 1 is compromised by the lack of a dead bolt lock and the proximity of collections to windows with simple locks. Security for Collections Storage Area 2 is compromised by the proximity to first-floor windows on all sides. Collections Storage Area 3 has second-floor windows that are accessible from a low-angle roof overhang.
5. There are no fire-detection or -suppression systems in the collections storage areas. The building housing NCOSA has minimal fire-safety protection, consisting of smoke alarms and fire extinguishers.

6. No integrated pest-management program is in place at NCOSA, and evidence suggests that both insect and rodent infestations exist.

7. NCOSA has temperature controls, but no humidity monitoring or controlling capability.

8. NCOSA has no security system other than key locks and simple window locks.

9. Hazardous chemicals, including hydrochloric acid, are stored in close proximity to the artifacts in Collections Storage Area 1.

Recommendations

1. Inventory the collections and replace acidic-cardboard boxes containing artifacts and documentation with standard-size, acid-free cardboard boxes. Replace secondary artifact containers with 4-mil, zip-lock, polyethylene bags labeled in indelible ink. Interior labels made from spun-bonded, polyethylene paper (e.g., Nalgene polypaper) should be labeled in indelible ink and inserted into the polyethylene bags.
2. Replace secondary documentation containers with acid-free folders, and store these in acid-free cardboard boxes. Ensure that documentation is duplicated on acid-free paper and is free of metal contaminants (e.g., staples and paper clips). Replace magazine folders holding project reports with acid-free documentation holders. Photographs should be stored in archival, polyethylene photograph sleeves or in acid-free envelopes. Small-scale maps can be stored with paper records, but large-scale maps should be stored flat in a map case.
3. Inspect fire extinguishers, note their condition, and address existing inadequacies. If feasible, install a sprinkler system. Install fire alarms wired into the local fire department to ensure 24-hour monitoring and protection.
4. Install an HVAC system. If this is infeasible, monitor humidity with a sling psychrometer or hygromograph and install a dehumidifier.

5. Board and seal the windows in collections storage areas, and install dead bolt locks on the doors to these areas.

6. Install an electronic security system wired into the local police department in the building and the collections storage areas.

7. Implement a regular pest-management program that includes monitoring and controlling. Address the existing insect and rodent infestations.

8. Move the hazardous chemicals in Collections Storage Area 1 into a workroom with a ventilation hood and adequate security.

9. Add baked-enamel, metal shelves to the collections storage area. There should be enough shelves to hold all artifact primary containers off the floor when stacked only one high on each shelf.

10. Move the collections if the recommendations for the present repository are infeasible. Ensure that the new repository has environmental controls, security, pest management, and fire detection and suppression to the standards outlined in the above recommendations.

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