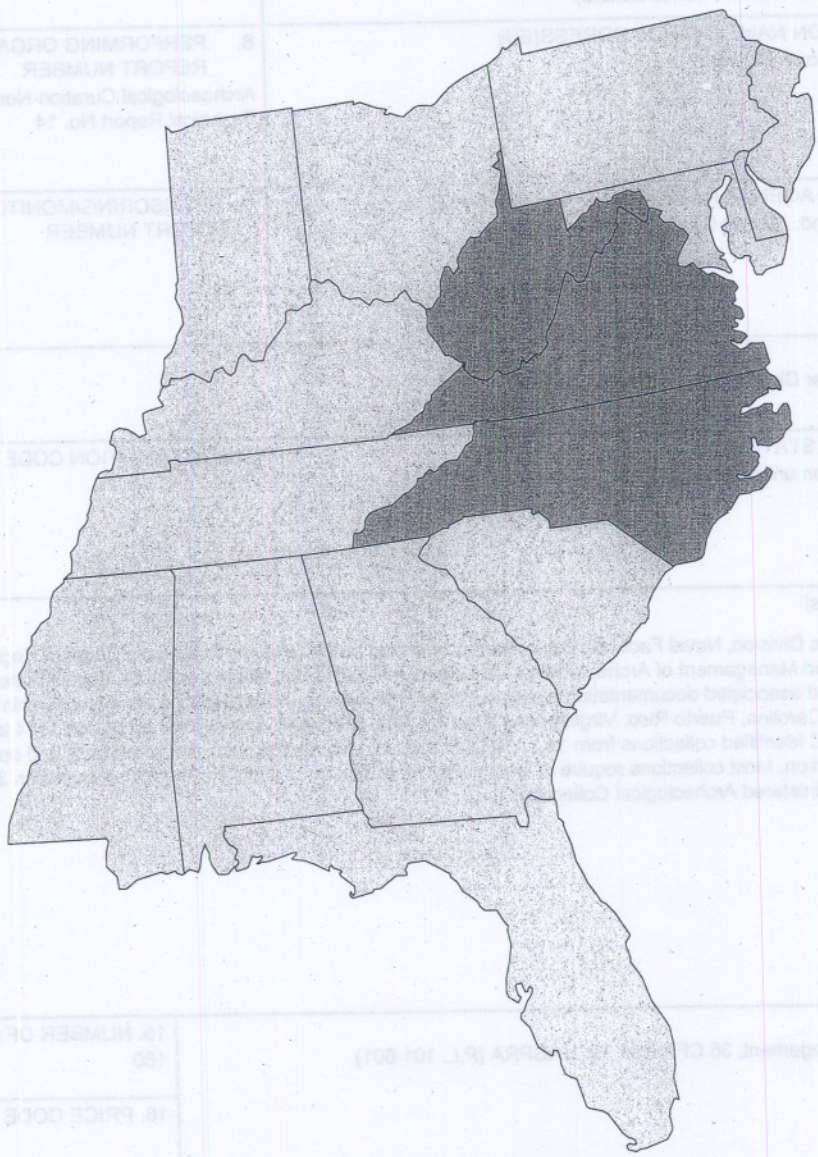
An Archaeological Curation-Needs Assessment for the U.S. Navy, Atlantic Division, Naval Facilities Engineering Command

Archaeological Curation-Needs Assessment

Technical Report No. 14



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Mandatory Center of Expertise for the

Curation and Management of Archaeological Collections

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At the request of the U.S. Navy Atlantic Division, Naval Facilities Engineering Command (LANTDIV), the U.S. Army Corps of Engineers Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (MCX-CMAC), located at the St. Louis District, conducted a survey of archaeological collections and associated documentation generated from archaeological investigations conducted within the boundaries of LANTDIV facilities located in North Carolina, Puerto Rico, Virginia, and West Virginia. Site visits were conducted during 1994 to assess the archaeological collections. MCX-CMAC identified collections from 14 LANTDIV facilities, totaling 198 cubic feet of artifacts and approximately 20 linear feet of associated documentation. Most collections require at least partial rehabilitation to comply with federal regulation 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections.

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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 (ft^3), 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 ft^3 (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 ft^3 (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 ft^3 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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1

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 examination 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.

2

Archaeological Research Consultants

Raleigh, North Carolina

Repository Summary

Volume of Artifact Collections: 0.7 ft^3

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 ft^3 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 ft^2, 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.

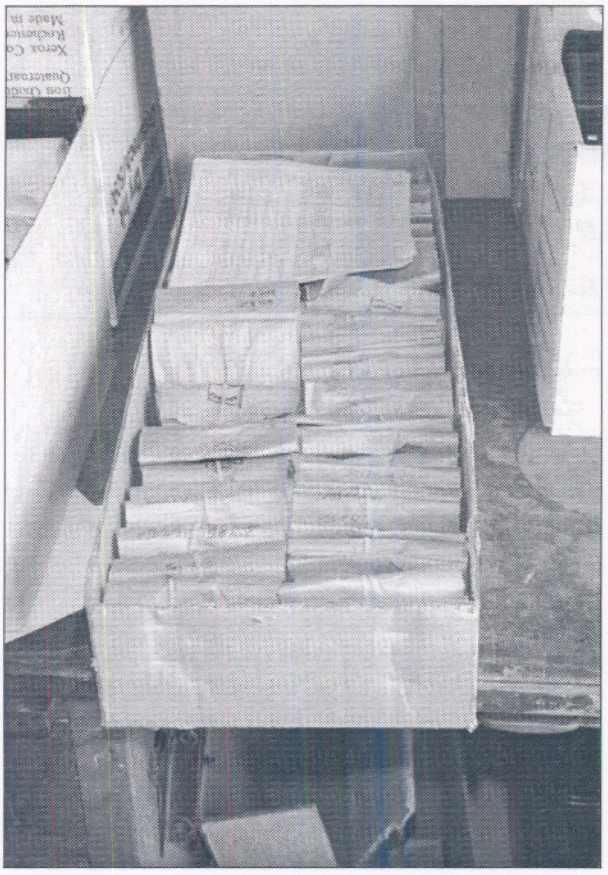

Figure 2. Artifacts stored in acidic-paper bags and an acidic-cardboard box at ARC.

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 ft^3 (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 labeled with white, adhesive tags; information consists of binder contents. MCAS Cherry Point documentation is labeled and organized by document type.

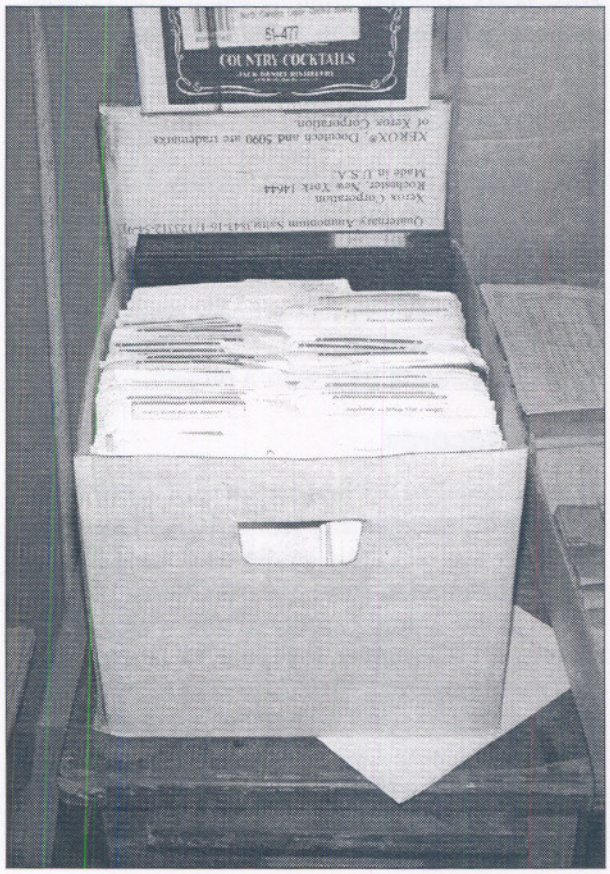

Figure 3. Documentation stored in acidic folders within an acidic-cardboard box at the ARC storage location.

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 hygrothermograph 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 ft^2 of the 60,000 ft^2 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 ft^2, 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 sleeves and laid loose in the box with original reports. The photographs are not labeled.

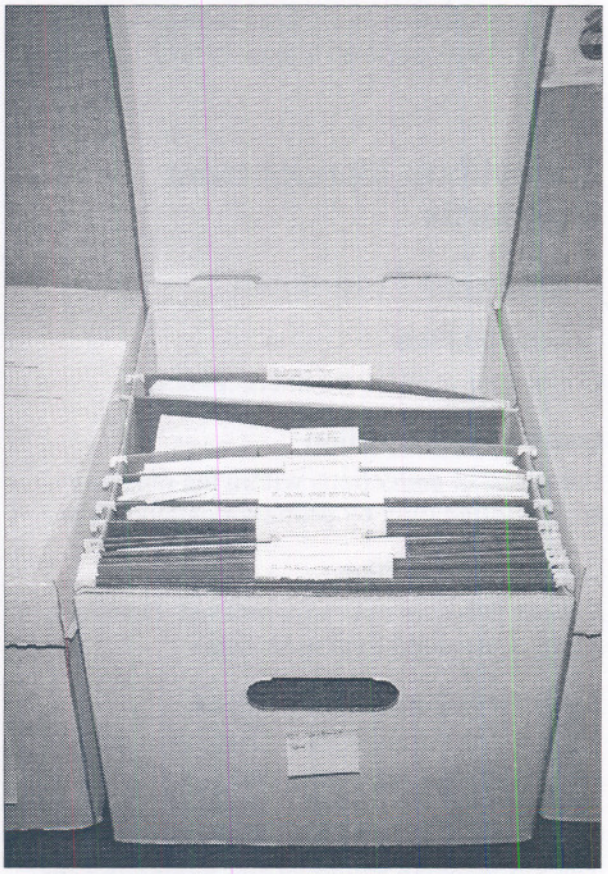

Figure 5. Documentation is stored in acidic hanging file folders within acid-free boxes. This is not an archival procedure.

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 hygrothermograph 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 ft^3

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 ft^3 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 ft^2, 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 ft^2 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 ft^3. The other two are acidic-cardboard boxes with volumes of 0.3 and 0.4 ft^3. 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 includes field site number and sample number. For plastic and paper bags, the tertiary container type is zip-lock bags.

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

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).

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

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.

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.

5

Mid-Atlantic Archaeological Research

Williamsburg, Virginia

Repository Summary

Volume of Artifact Collections: 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.

Human Skeletal Remains: None

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.

Assessment

MAAR, Williamsburg, Virginia, is a branch office of the same firm based in Newark, Delaware. 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 ft^2 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.

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.

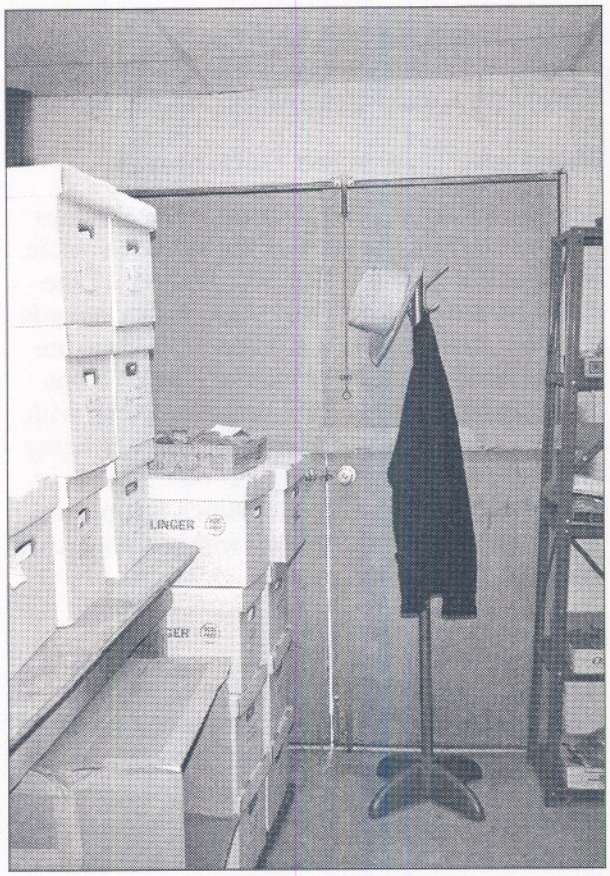

Figure 11. Exterior doors in the collections storage area. Environment and security are compromised by the gap between the doors.

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 accordance 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.

6

North Carolina Office of the State Archaeologist

Raleigh

Repository Summary

Volume of Artifact Collections: 19 ft^3

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 ft^3 (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 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 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

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 ft^2 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 ft^2 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 ft^2 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 ft^2 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.

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

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 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.

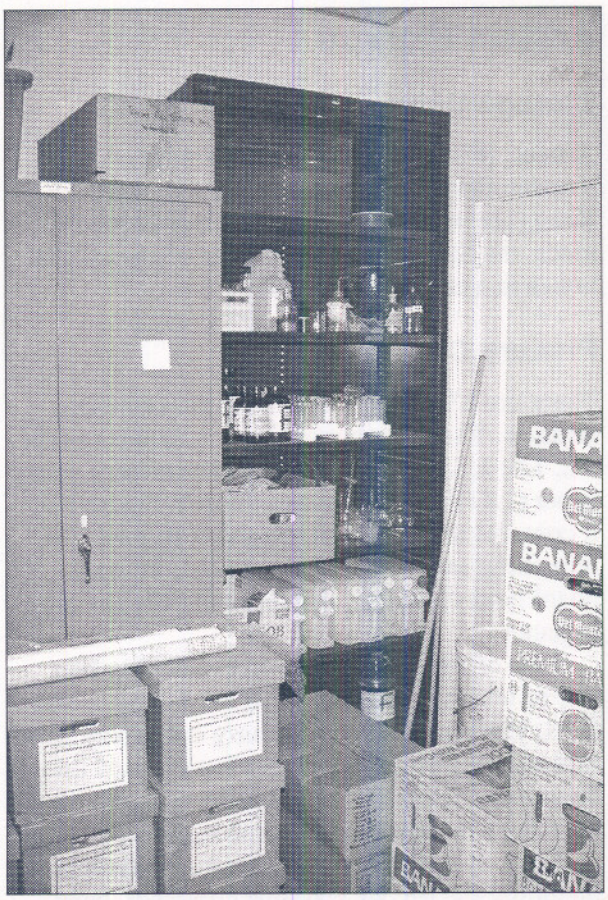

Figure 16. Hazardous chemicals are stored in proximity to archaeological collections in Collections Storage Area 1.

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 ft^3. Only one primary container (1.4 ft^3) 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).

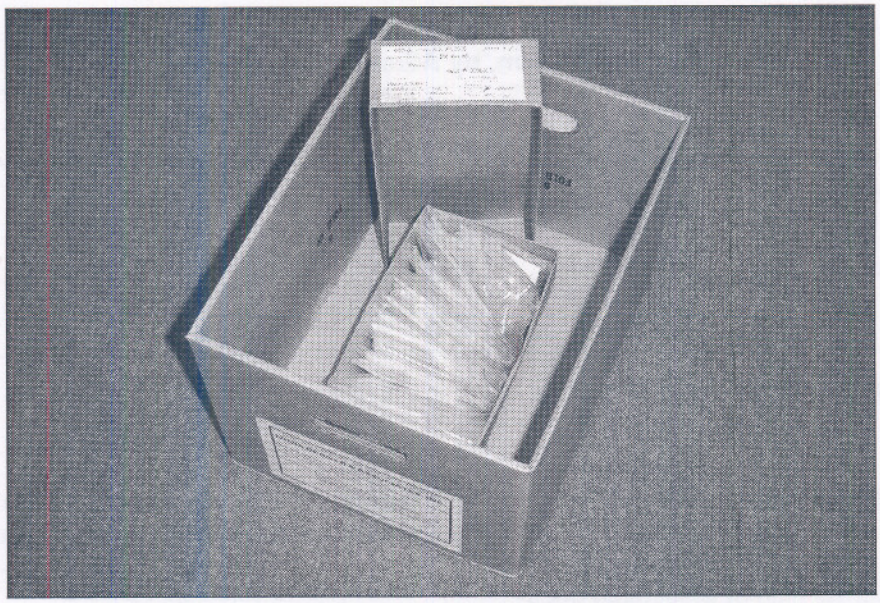

Figure 17. Only some artifacts are stored in acid-free, archival-quality primary and secondary containers.

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. Nonarchival, zip-lock bags are labeled directly in marker. In addition to direct labels, some nonarchival, 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-ft^3 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-ft^3 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 ft^3. 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 hygrothermograph 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.

7

R. Christopher Goodwin & Associates

Frederick, Maryland

Repository Summary

Volume of Artifact Collections: 5.3 ft^3

Compliance Status: Artifacts are boxed according to federal guidelines and standards for curation.

Linear Feet of Records: ~0.8 linear feet (9 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 the artifact containers that they are currently housed within and placed in acid-free cardboard boxes.

Human Skeletal Remains: None

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

Date of Visit: July 19, 1994

Points of Contact: Dr. Christopher Goodwin, President and Chief Executive Officer; Terry Reimer, Curator

Goodwin is an archaeological consulting firm that has offices in Frederick, Maryland; New Orleans, Louisiana; and Tallahassee, Florida. The Frederick, Maryland, office has directed work at MCB Camp Lejeune; Fentress Naval Auxiliary Landing Field (NALF); NAS Oceana; Naval Station (NAVSTA) Roosevelt Roads, Puerto Rico; and NWS Yorktown. The firm currently houses approximately 5.3 ft^3 of artifacts (Table 15) and 0.8 linear feet (9 linear inches) of records from these naval facilities. The firm does not view itself as a long-term-curation facility, but rather as a temporary curation facility for artifacts awaiting acceptance to by state repositories. Table 16 illustrates artifact material classes observed by the St. Louis District team. Goodwin does not presently curate any human skeletal remains from Atlantic Navy facilities.

Assessment

The Maryland office is located in a renovated house, which recently had an addition to provide space for the collections storage area (Figure 18). The building contains more than 6,000 ft^2 of floor space, and consists mostly of offices. However, there is also an artifact-holding area, an artifact-washing area, an artifact-processing lab, and a temporary artifact-storage area.

Table 15.
Summary of Artifact Collections, by Atlantic Navy Facility, at Goodwin

Facility	Volume (ft^3)
MCB Camp Lejeune	1.2
NALF Fentress	1.2
NAS Oceana	1.2
NAVSTA Roosevelt Roads	1.2
NWS Yorktown	0.5
Total	5.3

Table 16.
Summary of Material Classes Present in Atlantic Navy Collections at Goodwin, by Percentage

Material Class	%
Prehistoric	
Ceramics	24
Lithics	37
Shell	5
Botanical	< 1
Historical-period	
Ceramics	11
Glass	9
Faunal remains	2
Metal	11
Other	< 1
Total	100

Structural Adequacy

Originally built in 1920 as a residence, the building was renovated approximately five years ago. The newest portion, an addition to the rear of the building, was completed at about the same time as the renovation. The foundation of the building is concrete block, and the roof is tin. Exterior walls for the older portion are asbestos shingles, and those of the newer addition are corrugated metal. The older portion of the house was reroofed during the past 10 years, while the newer addition was reroofed approximately three years ago. Both the foundation and the roof appear to be structurally sound and free of cracks and leaks.

The building has four stories; the older portion contains three aboveground and one below, whereas in the newer portion there are two aboveground. There are multiple doors to the exterior; the closest to the collections storage area is glass. There are several interior doors, two of which separate the collections storage area from the remainder of the building.

There are a number of windows in the repository, all of which have shades and either wooden or aluminum frames. All windows appear to be sound; no cracks or leaks were observed during the site visit. Windows were replaced during the renovation.

The collections storage room at Goodwin contains approximately 280 ft^2 of floor space (Figure 19). It is located in the newer section of the structure. The area has a carpeted concrete floor, plasterboard walls, and a suspended, acoustical ceiling. The room contains two windows, neither equipped with shades. Window frames are aluminum, and no evidence of cracks or leaks were observed during the site visit.

Environmental Controls

Goodwin has separate temperature controls for the older and newer portions of the building. The older, front portion of the structure is equipped with window air-conditioning units and central, oil heating. The addition, where the collections storage area is located, is equipped with an electric heat pump for cooling and heating, with a back-up electrical heating system. Dust filters are present on the furnace, and Goodwin is cleaned on a weekly basis by a contracted company. Humidity is neither monitored nor controlled.

The targeted temperature in the collections storage area is 68° F. Lighting in the room consists of fluorescent lights with plastic shields; there are no ultraviolet filters on the lights. The storage area is maintained on a weekly basis by a contracted company.

Figure 18. Exterior view of Goodwin. Note addition to the rear.

Figure 19. Collections storage units at Goodwin are enameled-metal shelves.

Figure 20. Artifacts are stored in archival-quality, zip-lock, plastic bags and acid-free cardboard boxes.

Pest Management

Goodwin does not have an integrated pest-management program, but no signs of insect or rodent infestations were observed during the site visit. Problems are generally resolved on an as-needed basis. The most recent extermination work was to eradicate an ant problem.

Security

Security measures at Goodwin include key locks, dead bolt locks, simple window locks, and an intrusion-alarm system with many interior motion detectors. A contracted security company continually monitors the system. Locks and intrusion alarms are located on all exterior doors. Nevertheless, security risks compromising the collections' security are present. Windows are numerous and protected only by latch locks; there are two such windows in the collections storage area. One door in the causeway between the older portion and the most recent addition to the repository is composed of glass. In addition, the two doors separating the collections storage area from the rest of the repository are hollow-core, wooden doors without locks. No episodes of unauthorized entry have been reported.

Fire Detection and Suppression

In addition to smoke detectors, the repository is equipped with a fire-detection system composed of zone-detection systems that the fire department monitors 24 hours per day. One zone covers the collections storage area, and all fire-detection zones are connected to a central alarm. The repository is not equipped with a fire-suppression system; no sprinkler system or fire extinguishers are present. However, there are plans to immediately incorporate these.

Artifact Storage

Storage Units

Archaeological and associated documentation collections are stored on standard, enameled-metal shelving units measuring approximately 3.0 × 5.8 × 1.3 feet (w × h × d) (see Figure 19). Each unit is five shelves high, and boxes are stacked one to two high.

Primary Containers

Primary containers are acid-free, Hollinger boxes (Figure 20), each with a capacity of 1.2 ft^3. These boxes have telescoping lids, and

their construction was by gluing and folding. No damage to the boxes was observed. Each box is labeled with a preprinted, acid-free paper tag placed in a zip-lock bag and glued to the front of the box. Pertinent information is legibly written on the labels in black marker. Label information generally includes project name, box contents, bag numbers, site numbers, and remarks. One box is a variant, an acid-free envelope folder with a folding lid and a capacity of 0.5 ft^3; labels and accompanying information are the same as for the Hollinger boxes. Collections are arranged by project on the storage units (e.g., NAS Oceana; NAVSTA Roosevelt Roads).

Secondary Containers

Secondary containers are 2- and 4-mil, zip-lock bags (see Figure 20). Containers are directly labeled in black marker, generally with the site number, project, and provenience. Within each provenience, artifacts are sorted by artifact class, then bagged separately in tertiary, zip-lock containers. Secondary containers were arranged neatly, vertically laid into the Hollinger boxes.

Laboratory Processing and Labeling

The artifacts have been cleaned, and approximately 70 percent have been labeled. Shell and metal artifacts are inconsistently labeled. Artifacts are labeled directly with india ink, the information consisting of site number and artifact number. Provenience and artifact numbers for nonlabeled artifacts are written on acid-free tags placed in the secondary containers. All artifacts are sorted by provenience and then by material class.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at Goodwin.

Records Storage

Nine linear inches (0.8 linear feet) of records from NAVSTA Roosevelt Roads, NWS Yorktown, and MCB Camp Lejeune (Table 17) are housed at Goodwin. Records are generally stored in the same primary containers as the artifacts, on top of the collections; this is not an archival procedure. Original copies of the documentation are filed in an off-site storage facility.

Paper Records

There are approximately 6.25 linear inches of paper records from MCB Camp Lejeune, NAVSTA Roosevelt Roads, and NWS Yorktown. Most records are bound, but some are stored loose. There are multiple copies of the records, and they have been duplicated onto archival, acid-free paper. Organization is by project. Bound materials are stored in plastic, three-ring binders; label information includes project name and copy number. The paper records are in very good condition.

Photographic Records

Photographic records encompass approximately 2.5 linear inches, and are present for MCB Camp Lejeune, NAVSTA Roosevelt Roads, and NWS Yorktown. Photographs are stored in archival, polyethylene sleeves, and are accompanied by

Table 17.
Summary of Documentation, by Atlantic Navy Facility, at Goodwin

Facility	Type of Documentation			Total
	Paper	Photographs	Maps	
MCB Camp Lejeune	2.0	0.5	0.25	2.75
NAVSTA Roosevelt Roads	4.0	2.0	—	6.0
NWS Yorktown	0.25	< 0.05	< 0.05	0.25
Total	6.25	~2.5	~0.25	9.0

Note: All measurements are in linear inches.

photograph logs duplicated onto acid-free paper. Color and black-and-white prints are directly labeled in pencil. Label information includes project name, provenience, and roll and exposure numbers. Slides are directly labeled with marker; label information includes project name and exposure and roll numbers.

Maps and Oversized Documents

Maps include small duplicates of site maps from MCB Camp Lejeune and drawings from NWS Yorktown. These are printed on archival, acid-free paper, and are bound in the same three-ring binders as the paper records.

Project Reports

Project reports are kept in a library outside the collections storage area. They are organized by state, and include reports that have multiple copies. Copies of these reports are filed at the respective state archaeology offices.

Collections-Management Standards

Registration Procedures

Accession Files

There is no formal accessioning of materials upon receipt. The firm does keep a field-specimen list by lot number.

Location Identification

A list identifies the laboratory and storage facility where materials from projects are stored.

Cross-Indexed Files

There are no cross-indexed files.

Published Guide to Collections

There is no published guide to the collections other than project reports.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used. In addition, sites are organized within projects by name and location.

Computerized Database Management

The computer programs dBASE III and dBASE IV are used to manage files. Back-up copies are kept on disks, and are updated each time files are edited. They are stored in the same room, and no copies are stored off-site.

Written Policies and Procedures

Minimum Standards for Acceptance

Minimum standards for acceptance are provided by every state where Goodwin works.

Curation Policy

There is a comprehensive plan for curation, but it is a very old document. This policy addresses the receipt, processing, and use of materials. The future preservation of materials is not mentioned, because this is not considered a goal of the firm.

Records-Management Policy

Guidelines and standards for the curation of associated documentation are addressed in accordance with the policies of the archaeology offices of the states in question.

Field-Curation Procedures

No field-curation guidelines have been produced, but a field-specimen list is created from a lot-number list assigned in the laboratory.

Loan Policy

There are no formal loan procedures. If a researcher requests a loan of materials, Goodwin contacts the owner of the material and the final repository to reach an agreement.

Deaccessioning Policy

Goodwin does not deaccession material.

Inventory Policy

There is no inventory policy in place, but there is an initial inventory of field specimens that is kept and checked until the artifacts and documentation are deposited at their final repositories.

Latest Collection Inventory

Because Goodwin is not a long-term curation facility, but instead transfers collections to state

repositories for long-term care, collections are constantly being inventoried.

Curation Personnel

Terry Reimer is a part-time curator for the archaeological collections. She has a Bachelor's degree from the University of Maryland and some graduate training from George Washington University. Although Reimer is the person responsible for curation, at least 12 field-crew archaeologists in the Maryland office have some duties related to curation. Dr. Christopher Goodwin, President and Chief Executive Officer, has a Ph.D. from Arizona State University, Tempe.

Curation Financing

Curation is financed through fees written into contracts. Staff believe that curatorial financing is currently adequate.

Access to Collections

Access to collections is controlled by Reimer, but collections are readily accessible. She is familiar with the holdings and their locations.

Future Plans

As a consulting firm, the recovery of artifacts takes higher priority than curation, but there are tentative plans to add larger amounts of storage space, especially as the firm expands to work in more states.

Comments

1. Artifacts are stored in acid-free, Hollinger boxes, but multiple duplicates of associated documentation, on acid-free paper, are stored in the same primary containers. Documentation is bound in three-ring, plastic binders.

2. Photographic materials are stored in archival, polyethylene sleeves.

3. The repository does not have a sprinkler system for the quick suppression of fires. No fire extinguishers were present at the time of the site visit, but there are plans to correct this deficiency. The repository has an integrated fire-detection system that is continually monitored by the fire department; it operates by detecting fires within zones.

4. The repository operates an integrated intrusion-alarm system, with entry and motion sensors.

5. There are many windows on the ground floor, two of which are in the collections storage area. These windows are a security risk, as they are equipped with inadequate locks.

6. Two exterior doors across and down the hall from the collections storage area are made of glass; these doors are a security risk.

7. The two doors leading into the collections storage area are hollow-core wood and do not have locks.

8. There is no way to monitor or control humidity within the collections storage area.

Recommendations

1. Remove associated documentation from the artifact primary containers and place in separate, archival containers. In addition, remove documents from three-ring, plastic binders and store them in acid-free folders.

2. Install fire extinguishers throughout the repository as soon as possible. If feasible, install a sprinkler system. While the fire-detection system linked to the fire department is important, collections can be lost before the fire-fighting personnel arrive.

3. Replace the two doors leading to the collections storage area with either metal or solid-core, wooden doors, with locks.

4. Replace the glass door leading to the exterior. Metal or solid-core, wooden doors with multiple locks are appropriate.

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

6. If it is infeasible to completely close off the windows in the collections storage area, install adequate locks on them to increase security. In addition, add blinds to the windows for security and environmental-control purposes.

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State Historic Preservation Office

San Juan, Puerto Rico

Repository Summary

Volume of Artifact Collections: None

Linear Feet of Records: ~0.5 linear feet (6.5 linear inches)

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

Human Skeletal Remains: None

Status of Curation Funding: Curation is minimally funded through the operating budget. No specific monies are allocated for the curation of archaeological collections.

Dates of Visits: March 20–21, 1995

Point of Contact: Dr. Karen Anderson Cordova

SHPO, PR, establishes guidelines for, and consults on, all archaeological projects in Puerto Rico. The office maintains the Puerto Rico site files and reports library, and receives reports and documentation generated by archaeological work conducted by contracted firms. The office is not considered a repository for artifacts, although some collections are accepted through default by researchers. The repository currently houses 4.25 linear inches of records from NAVSTA Roosevelt Roads and 2.25 linear inches of records from Naval Security Group Activity (NAVSECGRUACT) Sabana Seca.

Assessment

The SHPO, PR, is located in Old San Juan, a historic district dating to the early-to mid-sixteenth century. The office is located in the two top floors of a three-story building, and encompasses 5,698 ft^2. Activity areas present consist mainly of offices and records storage. The records storage area encompasses 300 ft^2.

Structural Adequacy

The building housing the SHPO, PR, was originally built as a residence in the mid-nineteenth century, and is constructed of a variety of materials. The foundation is composed of brick-rubble masonry, and the exterior walls are stucco. The roof is composed of wooden beams and wooden slats laid perpendicular to the beams, overlaid with thin terra-cotta bricks; the age of the roof is unknown. Interior walls are plaster, and the floor is covered by tile. There have been multiple renovations of the building. Utilities present include water, electricity, and telephone. The collections storage area is filled to approximately 90-percent capacity.

Environmental Controls

The repository is equipped with an air-conditioning system, but no humidity monitoring or controlling devices are present. Heating is unnecessary because of the warm Puerto Rican climate. The building is regularly maintained by staff. Lighting is accomplished by nonultraviolet-filtered flourescent tubes.

Pest Management

No integrated pest-management program is in place. Precautions against insects and rodents consist of monthly fumigation. Additional pest-control procedures take place on an as-needed basis.

Security

Security measures for the repository consist solely of key locks on all doors. Access to the two upper stories housing the office is restricted by a single set of stairs. A museum occupies the first floor of the building. The collections storage area is secured by a double, wood-panel door with a key lock. A limited number of staff have keys to the doors within the repository.

Fire Detection and Suppression

The office maintains four fire extinguishers, but none is present in the collections storage area. No fire-detection system or sprinkler system is present in the repository.

Artifact Storage

No artifacts associated with Atlantic Navy facilities are curated at this repository.

Laboratory Processing and Labeling

No artifacts associated with Atlantic Navy facilities are curated at this repository. Therefore, laboratory processing and labeling of artifacts will not be discussed.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at this repository.

Records Storage

The repository houses 6.5 linear inches of documentation generated by archaeological projects on NAVSTA Roosevelt Roads and NAVSECGRUACT Sabana Seca.

Paper Records

The office stores 0.25 linear inches of survey records from NAVSECGRUACT Sabana Seca and 0.25 linear inches of survey and administrative records from NAVSTA Roosevelt Roads. Records are stored in acidic-paper folders within standard, legal-size, metal filing cabinets. The folders are labeled by municipality.

Project Reports

Project reports measure 6.0 linear inches, and are present for both NAVSTA Roosevelt Roads (4 inches), and NAVSECGRUACT Sabana Seca (2 inches). Reports are stored in large, acidic-paper folders within standard, legal-size, metal filing cabinets. The folders and each report are labeled with an accession number and an office number.

Collections-Management Standards

Registration Procedures

Accession Files

Documents are accessioned upon receipt. They are assigned an accession number, and records of the accession are kept in a file. Artifact collections are not accessioned.

Location Identification

The locations of accessioned documents are identified in accession files. There is no location identification for the artifact collections.

Cross-Indexed Files

Files are not cross-indexed.

Published Guide to Collections

No guide to the collections has been published. However, the office is producing a published study of a non–Atlantic Navy collection, which is currently the largest collection curated there.

Site-Record Administration

A system similar to the Smithsonian trinomial site-numbering system is used. Sites are identified with a three-segment designation that includes a number for Puerto Rico, a municipality abbreviation, and a site number (e.g., 21-LO-31).

Computerized Database Management

Archival files are managed using a computerized database system. These files are not accessible by network; they are stored on a few microcomputers. Back-ups of files are frequently, but not regularly, made and are stored on disks and paper. No copies are stored off-site.

Written Policies and Procedures

Minimum Standards for Acceptance

No minimum standards for acceptance are in place. The office prefers not to accept collections. However, collections are accepted by default of responsibility, as was the large, currently curated collection. All records of archaeological work are accepted and stored.

Curation Policy

No curation policy is in place. The office is attempting to create a curation system, a set of standards for Puerto Rico, and a repository meeting the standards of 36 CFR Part 79.

Records-Management Policy

No records-management policy is in place.

Field-Curation Procedures

Guidelines for field curation and the acceptance of outside collections have been produced. These guidelines address how artifacts will be labeled and packaged and how many copies of the associated documentation will be provided, on standard and acid-free paper.

Loan Policy

A formal loan policy has been produced. Standard loan forms regarding length, purpose, and security of loans are filled out by the borrower. Artifacts are rarely loaned, but documents are more frequently loaned.

Deaccessioning Policy

Materials are never deaccessioned. However, some materials are placed in "dead" storage.

Inventory Policy

No inventory policy is in place. Inventories are not conducted on a regular basis.

Latest Collection Inventory

Artifacts have not been summarily inventoried.

Curation Personnel

There is no full-time curator for the archaeological collections. Various individuals on the staff of approximately 30 take responsibility for different areas (i.e., artifacts, site files, field notes, etc.). No one is specifically allocated to curation.

Curation Financing

Funding of curation is solely from the operational budget. No funds are allocated to conservation. Financing is inadequate. Staff feel that a one-time expense of $200,000 and a $5,000-yearly maintenance budget would be adequate for artifacts. A budget of $20,000–30,000 per year is necessary for documents and photos.

Access to Collections

Artifact collections are minimally accessible; documentation files are more readily accessed. The office allows most researchers to use the files.

Future Plans

The office is currently interested in establishing a curation facility for Puerto Rico that meets the standards outlined in 36 CFR Part 79. However, significant monetary-allocation deficits must be overcome first.

Comments

1. The office generally houses only survey files and project reports. Artifacts and associated documentation are only curated for "orphaned" collections.

2. Survey forms and project reports are stored in acidic-paper envelopes.

3. No integrated pest-management program is in place. Pest problems are addressed by monthly fumigation and on an as-needed basis.

4. The repository is air conditioned, but no humidity monitoring or controlling devices are present.

5. No fire-detection system is in place. Fire-suppression equipment present in the repository consists of four fire extinguishers, none of which is located in the records storage area.

6. Repository-wide security consists of key locks on exterior and interior doors.

Recommendations

1. Replace documentation secondary containers with acid-free folders, and store these in acid-free cardboard boxes. Ensure that documentation is copied onto acid-free paper and is free of metal contaminants (e.g., staples and paper clips). Store copies in a separate, fire-proof, secure location.

2. Copy computer records onto multiple storage disks and secure both on- and off-site. Update the records on a frequent, regular basis.

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

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

5. Install a fire-detection system and a sprinkler system for fire suppression. These systems should protect the records storage area and be wired into the local fire department.

6. Install a security system and dead bolt locks on all doors. Wire the security system into the local police department.

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Turabo University

Turabo, Puerto Rico

Repository Summary

Volume of Artifact Collections: 40 ft^3

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

Linear Feet of Records: ~2 linear feet

Compliance Status: The records that were examined will require complete rehabilitation to comply with existing federal guidelines and modern archival-preservation standards.

Human Skeletal Remains: Human skeletal remains of at least 8 individuals recovered from NAVSTA Roosevelt Roads are curated at Turabo.

Status of Curation Funding: Curation activities are financed by private funds through the University and by monies generated by archaeological projects in which the university becomes involved. Staff feel that it is important to compare older collections with their inventories to ensure that all materials are present and to catalog all materials, not diagnostics only. Current funding is felt inadequate to accomplish these goals.

Date of Visit: March 14, 1995

Point of Contact: Dr. Miguel Rodriguez

Turabo curates approximately 40 ft^3 of prehistoric and historical-period artifacts from NAVSTA Roosevelt Roads (Playa Blanca site). The St. Louis District team was able to examine the associated records (artifact inventories) that were stored with the artifacts. However, approximately 2 linear feet of additional records associated with these collections are stored at the home of Dr. Miguel Rodriguez; the St. Louis District team was unable to evaluate these because of logistical and temporal constraints. Information regarding these documents was obtained by telephone. Table 18 illustrates the percentages of materials encountered.

Assessment

Atlantic Navy artifact collections and associated records examined by the St. Louis District team are curated in the second-floor collections storage area of a museum building on the campus of Turabo.

Structural Adequacy

The two-story university museum was constructed in the early 1920s as a plantation house (Figure 21). It was acquired by the university in the 1960s, and held classrooms prior to becoming a museum. It has a concrete foundation, exterior walls of California-redwood siding, and a tin roof. Activity areas within the building include

Table 18.
Summary of Material Classes Present in Atlantic Navy Collections at Turabo, by Percentage

Material Class	%
Prehistoric	
Ceramics	23
Lithics	4
Human remains	9
Faunal remains	3
Shell	52
Soil	6
Historical-period	
Ceramics	< 1
Glass	< 1
Metal	< 1
Brick	< 1
Total	100

offices, exhibit areas, an artifact storage area, a photograph-development room, a library, and an artifact-processing lab. There is also an outdoor artifact-washing area.

The collections storage area encompasses approximately 90 ft^2 on the upper floor of the 4,500-ft^2 building. The floor is constructed of wood overlain with ceramic tile, and interior walls are of painted plywood. The ceiling is suspended acoustical, and there are two south-facing windows. The windows measure approximately 3 × 5 feet (w × h), are screened, and are shaded by built-in, metal louvres. A wood-panel door separates the collections storage area from a hallway and the collections processing area. The door has a small cut-out area (approximately 1 × 1 foot) near the bottom, where a metal vent was formerly present. This space has not been covered, which poses a security risk to the collections.

External renovations include replacing the roof in 1990 as a result of damage sustained by Hurricane Hugo, and recent painting of the structure. In the interior, the plumbing and electrical systems were upgraded in the 1960s, when the university acquired the structure. Several of the wooden stairs leading to the second floor were replaced when necessary.

The collections storage area is currently filled to approximately 95-percent capacity. This area exhibits flaws; evidence of severe termite infestation is present around the windows, and the lack of panes in the windows poses a security risk. If Turabo is to continue to be used for the long-term curation of federal archaeological

Figure 21. Exterior of the museum at Turabo.

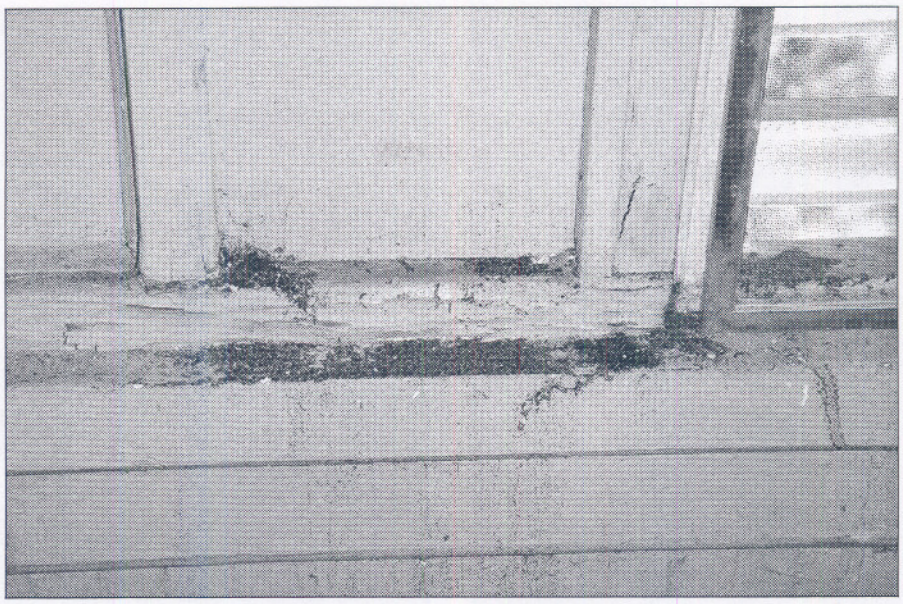

Figure 22. Evidence of termite damage surrounding windows in the Turabo collections storage area.

collections, several rehabilitation measures are necessary.

Environmental Controls

Temperature on the first floor of the building is controlled by central air-conditioning, and a commercial dehumidifier attempts to control humidity. Due to the tropical environment, no system for heating is required. No temperature or humidity controls are present on the second floor of the repository, where collections are stored. Screened windows constitute the only temperature-control measures taken in the collections storage area. Because of the tropical environment and the lack of temperature and humidity controls in the collections storage area, the acidic-cardboard artifact containers have experienced excessive humidity damage and been weakened. Because they are not sealed, the louvered windows provide no protection from excessive humidity. The air-conditioning equipment is not equipped with a dust-filtration system, and dust is evident on box lids. Light in the collections storage area is provided by sunlight entering through the windows. Maintenance to the building is furnished by university janitorial staff, but museum staff are responsible for keeping exhibit and storage areas clean.

Pest Management

No integrated pest-management program is in place for the museum. However, contracted exterminators fumigate on a monthly basis to control rat and roach infestations. The St. Louis District team observed several dead spiders in artifact containers and evidence of termite damage surrounding the windows in the collections storage area (Figure 22).

Security

Key locks on exterior and interior doors, an interior, iron security gate fastened with a padlock and covering a door that separates access from the first floor to the second, and 24-hour patrol by university police constitute the security measures in place at the museum. Museum staff and Dr. Rodriguez, Chairman of the Humanities Department, possess keys to the repository. The louvered windows in the collections storage area (and throughout the repository) lack glass panes and locks. These windows, and the cut-out portion of the door to the collections storage area, pose security risks; unauthorized access can easily be gained.

Figure 23. View of storage unit and nonarchival primary containers housing Atlantic Navy collections.

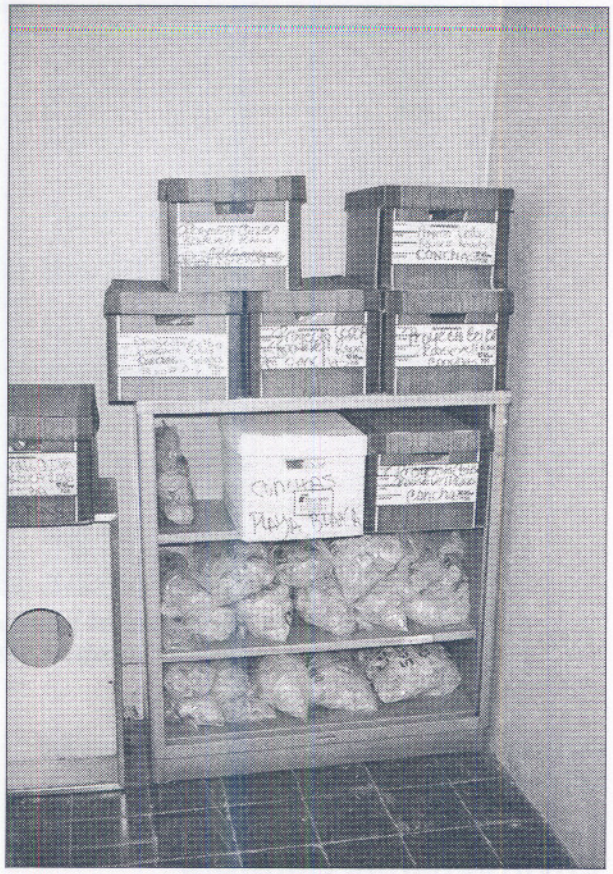

Figure 24. Smaller of the two storage units, showing secondary containers loose on shelves.

Fire Detection and Suppression

No fire-detection systems are in place at the museum. Several fire extinguishers, located throughout the repository, constitute the fire-suppression system. This is inadequate protection.

Artifact Storage

Storage Units

Two sets of open, enameled-metal shelving units of different sizes serve as storage units for NAVSTA Roosevelt Roads archaeological material. One unit measures approximately 3 × 5 × 1 foot (w × h × d; Figure 23), while the other measures 3.1 × 3.5 × 1.3 feet (w × h × d; Figure 24). The shelving units are not labeled, and rust is present on several shelves of the taller unit. Boxes are stacked one high on the shelves.

Primary Containers

Most (67%) primary containers consist of acidic-cardboard boxes with telescoping lids and volumes that range from 0.2 to 4 ft^3. Thirty percent of the primary containers consist of the smaller of the two metal shelving units (see Figure 24), on which secondary containers are stored loose. The remaining primary containers include small, 0.3-ft^3, plastic tubs with lids (Figure 25). Only the acidic-cardboard boxes have labels. Directly labeled information includes facility name, provenience, and box contents. The acidic-cardboard boxes are deteriorating rapidly because of the tropical environment and lack of temperature and humidity controls. Boxes have lost their firmness and been weakened; they are unable to provide adequate protection to the artifacts they house.

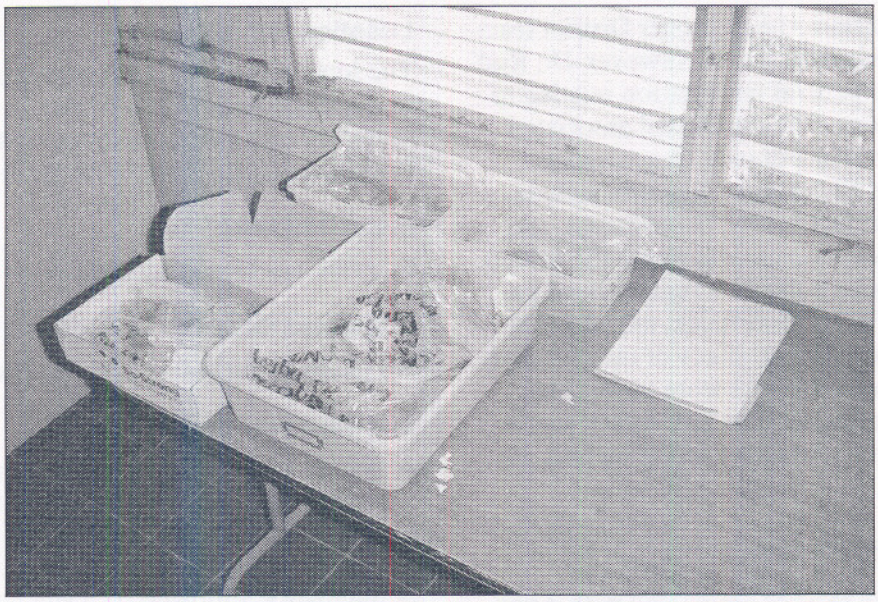

Figure 25. Primary containers housing diagnostic artifacts.

Secondary Containers

The St. Louis District team observed three types of secondary containers. Most (93%) artifacts are stored in 2-mil, zip-lock, plastic bags. Only soil samples are stored in cloth bags (6%), and human skeletal remains (long bones) were observed loose in a box (1%). There are smaller zip-lock, plastic bags containing artifacts within the secondary containers. Exterior, plastic bags are directly labeled with marker, including provenience information. The smaller, interior, plastic bags contain acidic-paper note cards with provenience information written in marker. The St. Louis District team noticed that several types of zip-lock, plastic bags were used, none of which appear to be of archival quality.

Laboratory Processing and Labeling

All artifacts from NAVSTA Roosevelt Roads have been cleaned and sorted by material class, but only 15 percent have been labeled. The labeled artifacts, those considered diagnostic, are stored in the plastic tubs (see Figure 25). These have been directly labeled with india ink over a base of white correction fluid; label information includes site number, provenience, and artifact number.

Human Skeletal Remains

The human skeletal remains of at least eight individuals recovered from NAVSTA Roosevelt Roads are curated at Turabo. Aside from the long bones, most are fragmented and in fair to poor condition. Several of the long bones and crania have been refitted, but none of the human skeletal remains has been labeled.

Records Storage

Paper Records

The St. Louis District team examined several sheets of records associated with the collections from NAVSTA Roosevelt Roads. These consist of artifact inventories. The majority were housed loose on the table in the collections storage area, the remainder being in an acidic-paper folder. The acidic folder was not labeled. Paper clips were the only contaminants present observed by the St. Louis District team. The artifact inventories were quite damp, owing to the humidity. This condition threatens the preservation of the inventories.

An additional 2 linear feet of duplicated associated records are stored at the residence of Dr. Rodriguez. Because of temporal and

logistical constraints, the St. Louis District team was unable to examine these. However, Dr. Rodriguez provided general information relating to these by telephone. The duplicated associated records are stored in a drawer of a standard, enameled-metal file cabinet. Records include correspondence, field notes, photographs, and maps. All are housed in acidic-paper file folders. Records have been copied on regular bond paper. According to Dr. Rodriguez, the SHPO is supposed to curate the originals of these records. When the St. Louis District team visited the SHPO, we were shown only site forms, so it is unclear where the remainder of the records are located.

Photographic Records

No photographic records associated with Atlantic Navy facilities were observed by the St. Louis District team during the site visit. However, photographs are included in the 2 linear feet of duplicated associated records at the Dr. Rodriguez residence. These are stored in acidic-paper file folders within a drawer of a standard, enameled-metal file cabinet.

Maps and Oversized Documents

No maps or oversized documents associated with Atlantic Navy facilities were observed by the St. Louis District team during the site visit. However, maps are included in the 2 linear feet of duplicated associated records at the Rodriguez residence. These are stored in acidic-paper file folders within a drawer of a standard, enameled-metal file cabinet.

Project Reports

No project reports associated with Atlantic Navy facilities were observed by the St. Louis District team during the site visit.

Collections-Management Standards

Registration Procedures

Accession Files

Only the diagnostic artifacts were accessioned upon receipt.

Location Identification

The locations of the collections are not specified in any document. If one wishes to locate archaeological collections, one must first contact Dr. Rodriguez or the director of the museum.

Cross-Indexed Files

Files are not cross-indexed.

Published Guide to Collections

No guide to the collections has been published.

Site-Record Administration

A system similar to the Smithsonian trinomial site-numbering system is used, but it is unique to Puerto Rico. There is a number standing for Puerto Rico, followed by an abbreviation for municipality, followed by a site number (e.g., 21-LO-51).

Computerized Database Management

No computerized database-management system is present.

Written Policies and Procedures

Minimum Standards for Acceptance

No minimum standards for the acceptance of archaeological collections have been created.

Curation Policy

No curation policy is in place.

Records-Management Policy

No records-management policy is in place.

Field-Curation Procedures

No field-curation guidelines have been produced.

Loan Policy

No loan policy is in place.

Deaccessioning Policy

No deaccessioning policy is in place.

Inventory Policy

No inventory policy is in place.

Latest Collection Inventory

The collections were last inventoried in 1989.

Curation Personnel

There is currently no full-time curator for the archaeological collections. Museum staff consists of a director, a secretary, and various part-time student employees. The majority of Dr. Miguel Rodriguez's time is involved with his duties as the chair of the humanities department. Dr. Rodriguez earned a Master's degree in Puerto Rican studies with a specialization in archaeology, and is working on his Ph.D. through the Center for Advanced Studies of Puerto Rico and the Carribean, San Juan, Puerto Rico.

Curation Financing

Curation activities are financed through funds made available by the university, as well as by archaeological projects that the university becomes involved in. Staff feel it is important to compare older collections with their inventories to ensure that they correlate, and to catalog all materials, not solely the diagnostics. Current funding is felt inadequate to accomplish these goals.

Future Plans

Staff accord the recovery of archaeological collections a higher priority than the adequate curation of existing collections. This is because the concept of "curation" is relatively new to Puerto Rico, only being recognized within the last 10–15 years. Use of the collections for educational purposes is viewed as the primary responsibility associated with the collections. There are plans to build a modern museum with areas for curation, exhibits, and a laboratory. Staff hope to undertake a self-study report funded by the National Endowment for the Humanities that will, when completed, allow them to make purpose-specific requests for funding.

Comments

1. Adequate environmental monitoring and controlling devices are not present in the collections storage area. High humidity has already compromised the structural adequacy of the primary containers, and the louvered windows provide no protection against this.

2. No fire-detection system is in place, and the fire-suppression equipment present (fire extinguishers) is inadequate protection for archaeological collections.

3. No integrated pest-management program is in place, but contracted exterminators fumigate the repository on a monthly basis to prevent rat and roach infestations. The St. Louis District team observed evidence of termite infestation around the windows in the collections storage area (see Figure 22).

4. Key locks on exterior doors, and the iron gate securing access from the first to the second floor, provide minimal security. The cut-out area in the door of the collections storage area poses a security risk to the collections.

5. All artifacts, 85 percent of which are unlabeled, are stored in acidic containers.

6. The duplicates of associated documentation stored at the Rodriguez residence have not been archivally processed.

Recommendations

1. Install glass panes in the collections storage area windows, and seal them to provide a moisture barrier against humidity. Install a central or window air-conditioning system in the upper level of the repository. Install a sling psychrometer or hygrothermograph to monitor temperature and humidity, and install a dehumidifier to control humidity.

2. Install smoke alarms and a sprinkler system throughout the repository.

3. Implement a pest-management program that includes monitoring and controlling. Replace the termite-damaged wood surrounding the window frames.

4. If possible, install a security system that includes motion detectors and infrared sensors. If this is infeasible, install iron bars over the

exteriors of all windows and install dead bolt locks on all exterior doors.

5. Inventory the collections. Replace all acidic-cardboard boxes with standard-size, acid-free containers. Replace secondary containers with 4-mil, zip-lock, polyethylene bags, and label these 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.

6. Copy associated records onto acid-free paper or microfilm and store the copies at a separate, fire-proof, secure location. Attempt to locate the copy that is supposedly stored at the SHPO's office. If it cannot be found, another should be generated and filed there.

7. The associated records that are currently stored at the Rodriguez residence should be duplicated onto acid-free paper, and a copy stored at the university. This will make research on the collections easier.

8. Label the remaining 85 percent of the collections.

10

University of North Carolina, Wilmington

Repository Summary

Volume of Artifact Collections: 55.4 ft^3

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

Linear Feet of Records: ~3.6 linear feet (43.25 linear inches)

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

Human Skeletal Remains: Staff estimate, based on anatomical singularity, that the human skeletal remains of at least 38 individuals (and possibly 68) have been recovered from an ossuary at MCB Camp Lejeune.

Status of Curation Funding: No money is currently allocated for curation activities. Staff feel that $10,000 per year would allow curatorial responsibilities to be adequately met.

Dates of Visits: August 26–27, 1994

Points of Contact: Dr. Thomas Loftfield; Dr. Dale McCall

Approximately 55.4 ft^3 of prehistoric and historical-period artifacts (including 18.9 ft^3 of human skeletal remains) and approximately 3.6 linear feet (43.25 linear inches) of records associated with archaeological projects at MCB Camp Lejeune are currently stored in the social and behavioral sciences building at the UNCW. Table 19 summarizes the material classes observed by the St. Louis District team during the site visit.

Assessment

This two-story, multiclassroom building located on the UNCW campus encompasses approximately 35,000 ft^2 (Figure 26). Collections are housed in four storage areas within the social and behavioral sciences building. Artifact collections and the paper records, maps, and reports associated with them are kept in Room 100B, the 912-ft^2 artifact and records storage area (Collections Storage Area 1; Figure 27). Human skeletal remains are curated in a 154-ft^2 storage area off the physical anthropology laboratory on the second floor (Collections Storage Area 2; Figure 28). Color slides and black-and-white

Table 19.
Summary of Material Classes Present in Atlantic Navy Collections at UNCW, by Percentage

Material Class	%
Prehistoric	
Ceramics	11
Lithics	3
Human remains	36
Faunal remains	7
Shell	34
Flotation	4
^{14}C	< 1
Historical-period	
Ceramics	< 1
Glass	< 1
Metal	1
Brick	3
Total	100

negatives are stored in Rooms 100C (Collections Storage Area 3; 150 ft^2) and 100E (Collections Storage Area 4; 120 ft^2), respectively. Activity areas within the repository include a receiving and loading dock, artifact washing, processing, conservation, and storage areas, a hazardous-materials storage area, photographic storage, offices, and a mechanical and utility room.

Structural Adequacy

The social and behavioral sciences building was constructed in 1981 to function as a classroom, laboratory, and office space. It has a concrete foundation, a shingled roof, and brick exterior walls. The interior walls are constructed of concrete blocks and plasterboard. The floor in the artifact and records storage area (Room 100B) consists of poured-and-sealed concrete, whereas that in the rest of the building is concrete overlain with tile. Although there are multiple windows in the building, none is present in the collections storage areas. The St. Louis District team entered the building through the loading dock by means of an exterior, double, metal-panel door. Within the repository, there is a double, wood-panel door in the south wall of the artifact and records storage area (Room 100B), whereas single-panel, wooden doors allow access to the slide and photograph storage areas (Rooms 100C and 100E, respectively). Plumbing, heating, and electrical systems are original to the building. Construction of interior walls for additional rooms and hallways constitute the

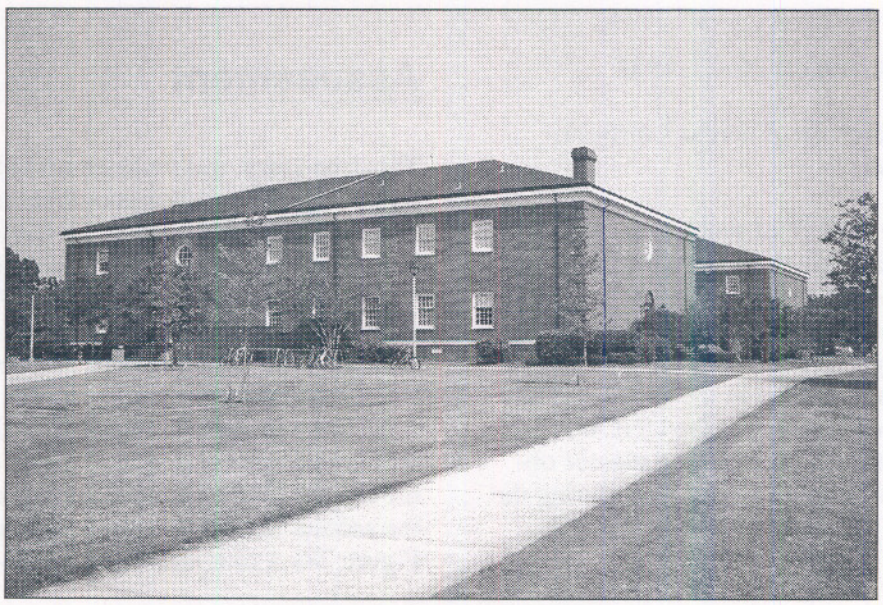

Figure 26. Exterior view of the UNCW repository.

Figure 27. The filled-to-capacity Collections Storage Area 1 (Room 100B) at UNCW. Note artifact containers stacked two and three high.

Figure 28. Containers housing human skeletal remains are stored on the floor in Collections Storage Area 2 at UNCW.

only alteration to the building. All artifact and records storage areas are filled to 100-percent capacity. The building is structurally sound and serves well as office, laboratory, and temporary collections storage space. However, if the building is to function as a long-term collections repository, rehabilitative measures should be taken.

Environmental Controls

Although the repository is equipped with an HVAC system to control temperature and humidity, it appears that the authority to set and control temperature and humidity ranges is at the university-wide level rather than the collections storage area level. Dust filters are present in the HVAC system, but the St. Louis District team observed dirt and dust on artifact-box lids. Fluorescent tubes with nonultraviolet, plastic shields provide light in the collections storage areas. University physical-plant staff are responsible for daily cleaning of the repository. Maintenance of the collections storage areas is the responsibility of Department of Sociology and Anthropology staff.

Pest Management

UNCW does not have an integrated pest-management program that includes monitoring and controlling. According to staff, spraying insecticide is the method used to control insect infestations, and dead insects are observed when this occurs. It is not clear whether spraying is regular. The St. Louis District team observed live silverfish in a box containing artifacts and associated records. Additionally, the edges of labels on the acidic-paper box are frayed, suggesting an insect problem.

Security

Key and dead bolt locks on exterior and interior doors, simple locks on office and classroom windows, and regular patrols by campus security constitute the security measures in place at UNCW.

Fire Detection and Suppression

The fire-detection system for the repository consists of smoke detectors, heat sensors, and manual fire alarms wired into the local fire department. Fire extinguishers and fire doors at the ends of the hallways constitute the fire-suppression system. No fire-detection or -suppression equipment is present in the collections storage areas.

Artifact Storage

Storage Units

Collections Storage Area 1

Painted, wooden shelving units measuring 2.6 × 6.0 × 2.0 feet (w × h × d) function as storage units for the Atlantic Navy artifact collections. Each shelving unit contains five shelves; boxes are stacked two high on the lowest shelf, three high on the top shelf, and one high on the three shelves between these. The shelving units are not labeled, but a specimen-catalog list serves as a finding aid. Collections are grouped by project, and are arranged by specimen number within each project. The specimen number is an arbitrary number assigned by UNCW that consists of three parts (e.g., 117p1). The first number specifies the project, the letter designates the material class (in this case pottery), and the second number refers to the provenience of the material class within a given project-specimen number group that is identified in a computer-database printout.

Collections Storage Area 2

Primary containers housing human skeletal remains are stored on a concrete floor overlain with tile.

Primary Containers

Collections Storage Area 1

Atlantic Navy artifact collections are housed in acidic-cardboard boxes with flap lids and volumes ranging from 0.8 to 1.2 ft^3. Approximately 25 percent of the primary containers are sealed with packing tape; the other containers simply

Table 20.
Summary of Secondary Containers Used for Atlantic Navy Collections at UNCW, by Percentage

Container Type	%
Acidic-paper bags	75
Newspaper	13
Bubble wrap	5
Tied plastic bags	5
Archival, zip-lock plastic bags	1
Loose in box	1
Total	100

have folded flaps on the tops and bottoms of the boxes. Most (75%) of the containers are directly labeled with marker or pen and have acidic-paper tags taped to the boxes. Adhesive mailing labels are attached to the remaining containers. Direct label information includes specimen number. Acidic-paper labels serve as cursory inventory lists and bear site and specimen numbers, date, and occasionally contents information. Several boxes exhibit compression damage, many are torn, and one has been punctured. All box lids bear excessive amounts of dust and dirt.

Collections Storage Area 2

Human skeletal remains are stored in acidic, flap-lid boxes, each with a volume of 1.1 ft^3. Most of the boxes have been sealed on the bottom with masking tape. Box label information is applied directly to all primary containers with marker, and includes site number, provenience, and box contents information (i.e., skeletal elements included in each box).

Secondary Containers

A variety of secondary containers are used to store the Atlantic Navy collections at UNCW. Refer to Table 20 for a complete listing.

Collections Storage Area 1

Secondary containers observed in Collections Storage Area 1 consist of plastic bags (secured with flagging tape) and acidic-paper bags. Some of these secondary containers are cushioned within the primary container by packing "peanuts," newspaper, or both. Paper bags are either directly labeled or contain preprinted, stamped labels with site number, date, and provenience written in ink. The flagging tape is directly labeled in marker with contents, provenience, and date. Paper bags are folded or open, providing minimal security for the artifacts.

Collections Storage Area 2

Acidic-paper bags; archival, zip-lock, plastic bags; plastic sandwich bags; newspaper; bubble wrap; and material loose in boxes serve as secondary containers for the human skeletal remains (Figure 29). Only the acidic-paper bags are labeled directly in marker, with site number and provenience. Acidic-paper tags with provenience written in marker have been included with the majority of the human skeletal remains contained in plastic bags, newspaper, and bubble wrap.

Laboratory Processing and Labeling

Most (85 %) of the artifacts have been cleaned, and all have been sorted by material class. However, only 13 percent have been labeled with catalog numbers; india ink on a base of white correction fluid is used for this.

Human Skeletal Remains

Staff estimate that the human skeletal remains of at least 38 (based on anatomical singularity), and possibly 68, individuals recovered from an ossuary on MCB Camp Lejeune are currently curated at UNCW. Most human skeletal elements appear to be represented, although all are fragmented and in poor states of preservation. None of the human skeletal remains observed by the St. Louis District team was labeled. Dr. McCall is analyzing the human skeletal remains to determine the minimum number of individuals and possible pathologies present.

Records Storage

Approximately 3.6 linear feet (43.25 linear inches) of records associated with archaeological work at MCB Camp Lejeune are stored in Collections Storage Areas 1, 3, and 4 in the

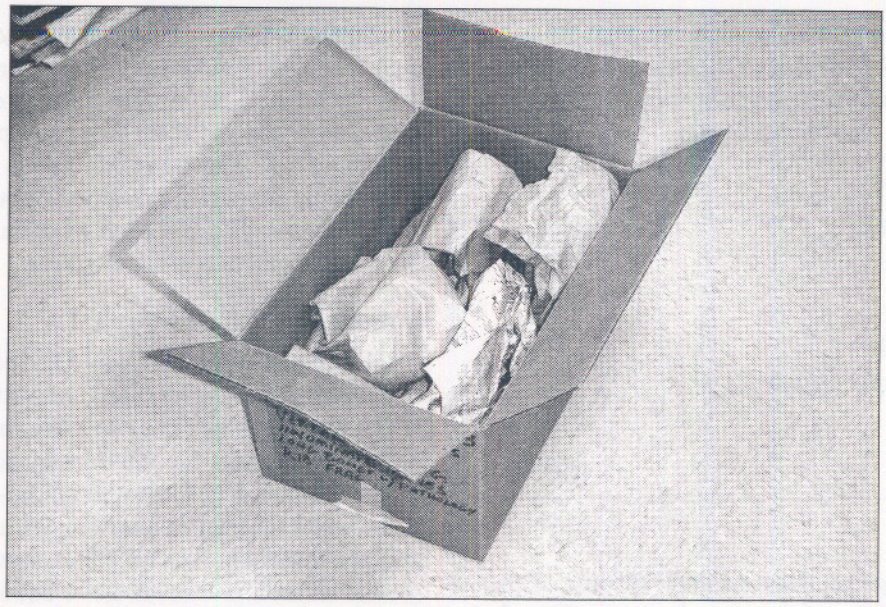

Figure 29. A variety of unsuitable secondary containers house human skeletal remains at UNCW.

Table 21.
Summary of Atlantic Navy Documentation at UNCW, by Storage Area

Documentation Class	Collections Storage Area 1	Collections Storage Area 3	Collections Storage Area 4	Total
Paper records	9.25	—	—	9.25
Photographs	2.50	10.5	3.5	16.50
Maps/documents	1.75	—	—	1.75
Reports	15.75	—	—	15.75
Total	29.25	10.5	3.5	43.25

Note: All measurements are in linear inches.

UNCW social and behavioral sciences building. Refer to Table 21 for a summary of the major classes of documentation housed in each storage area.

Paper Records

Collections Storage Area 1

The 9.25 linear inches of paper records are housed in 1.1-ft^3 and 0.5-ft^3 acidic-cardboard boxes with flap lids. The boxes are stored on wooden shelving units with the artifact collections. No organization of documents within the boxes is apparent, but records are boxed by project and facility. The boxes are directly labeled with pen; label information includes project and facility name, box contents, site number, and date. Secondary containers consist of nonlabeled, acidic-paper file folders; some records are stored loose in the boxes. Many of the paper records exhibit tears and discoloration; contaminants are present (e.g., paper clips, staples, and rubber bands). Types of paper documents present include administrative records, field notes, survey and excavation records, computer printouts, and background records. Although multiple copies of the records have been published, no duplicates have been produced on acid-free

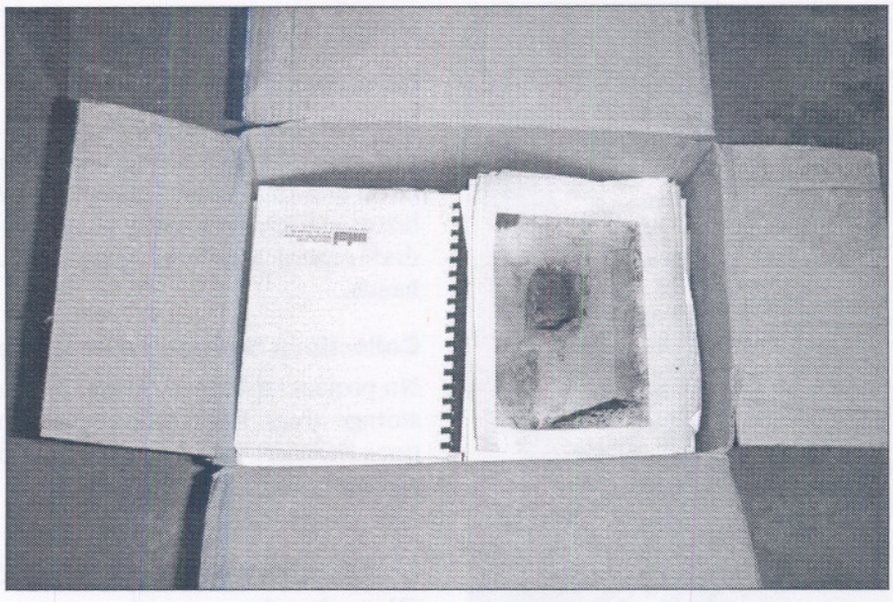

Figure 30. Photographs and reports stored loose in the same acidic container is not archival storage practice.

paper or microfilm and stored at a separate, fireproof, secure location.

Collections Storage Areas 2, 3, and 4

No paper records associated with Atlantic Navy facilities are stored in these collections storage areas. Refer to the section on Collections Storage Area 1, above, for a discussion of paper-records storage at UNCW.

Photographic Records

Collections Storage Area 1

Photographic records housed in this collections storage area are stored in the boxes containing paper records. Photographic records present consist of 8.5-×-11-inch black-and-white prints, color slides, and black-and-white contact sheets. Prints and contact sheets are stored loose in the boxes (Figure 30); color slides are stored in an acidic-cardboard slide box. The color slides have been labeled with roll number in marker; the prints and black-and-white contact sheets are not labeled.

Collections Storage Area 2

No photographic records associated with Atlantic Navy facilities are stored in this collections storage area. Refer to the sections on Collections Storage Area 1, above, and 3 and 4, below, for discussions of photographic-records storage at UNCW.

Collections Storage Area 3

The 10.5 linear inches of color slides present in this collections storage area are stored in a locked, metal slide cabinet measuring 1.3 × 2 × 2 feet (w × h × d; Figure 31). All slides are directly labeled with file number in pen or marker. A finding aid is available that details field number, file number, subject, date, and direction of view.

Collections Storage Area 4

Six enameled-metal drawer units measuring approximately 7.5 × 5 × 16 inches (w × h × d) serve as storage units for the 3-×-5-inch, black-and-white negatives. The drawers are stacked three high in two stacks next to each other. Originals are stored in one stack of drawers, and duplicates are stored in the other. Negatives are arranged by project and file number. Each drawer has a metal label holder with a typed, acidic-paper label listing the file numbers stored within. Secondary containers consist of acidic-paper envelopes with preprinted labels bearing typed site number, file number, and provenience. The negatives are not directly labeled.

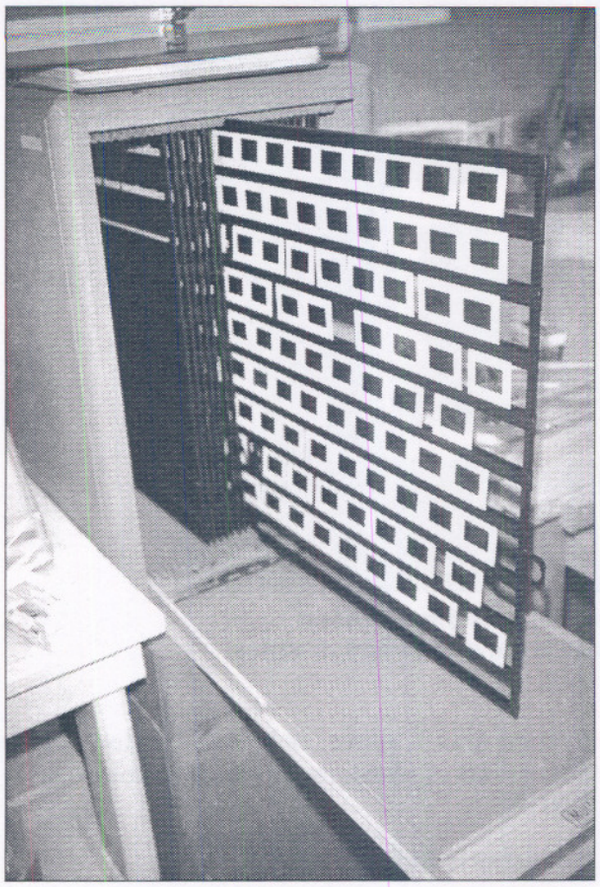

Figure 31. Slides at UNCW are archivally stored in hard plastic sleeves within a metal cabinet.

Maps and Oversized Documents

Collections Storage Area 1

Approximately 1.75 linear inches of large- and small-scale maps are stored in the boxes containing paper records. Included are duplicates of topographic maps with sites plotted, blue-line maps, and small-scale site maps drawn in pencil. All maps are folded, and some are secured by rubber bands that have become brittle.

Collections Storage Areas 2, 3, and 4

No maps or oversized documents are stored in these collections storage areas. Refer to the section on Collections Storage Area 1, above, for a discussion of map storage at UNCW.

Project Reports

Collections Storage Area 1

Project reports make up the largest documentation class stored in Collections Storage Area 1. Draft and final copies of reports are stored in the boxes containing other types of records. Most draft reports are stored loose or bound by rubber bands.

Collections Storage Areas 2, 3, and 4

No project reports are stored in these collections storage areas. Refer to the section on Collections Storage Area 1, above, for a discussion of project report storage at UNCW.

Collections-Management Standards

Registration Procedures

Accession Files

A three-part number is assigned to provenience-specific groups of artifacts (e.g., 117p31, where 117 is the accession number, p is the material class, and 31 is the specimen number).

Location Identification

The locations of items are not specified in any document.

Cross-Indexed Files

Records are cross-indexed in a computer by site number, photograph number, and specimen number. Paper copies of files are printed-out on an as-needed basis.

Published Guide to Collections

No guide to the collections has been published.

Site-Record Administration

The Smithsonian trinomial site-numbering system is used.

Computerized Database Management

UNCW is currently using the WordStar word-processing program for their collections inventories. The Rediscovery Company has been

contracted to produce a program designed for managing museum databases. Back-up copies are created each time the system is used, but these are not stored off-site.

Written Policies and Procedures

Minimum Standards for Acceptance

No minimum standards for the acceptance of archaeological collections have been produced.

Curation Policy

No formal curation policy has been produced. The information is available, but has not been compiled in a written document.

Records-Management Policy

No records-management policy is in place.

Field-Curation Procedures

No field-curation procedures have been created.

Loan Policy

UNCW uses a standard loan form stating the restrictions placed on collections being loaned.

Deaccessioning Policy

No deaccessioning policy is in place.

Inventory Policy

No inventory policy is in place.

Latest Collection Inventory

The collections were last inventoried in 1989.

Curation Personnel

Collections staff consists of Dr. Thomas Loftfield and one laboratory assistant funded by the university. Dr. Loftfield is responsible for collections care, but is not a full-time curator; he also has teaching responsibilities. Dr. Loftfield received his formal training in archaeology; he earned a Bachelor's degree at the College of William and Mary and a Master's degree and Ph.D. at the University of North Carolina, Chapel Hill. The laboratory assistants are undergraduate anthropology majors.

Curation Financing

No monies are currently allocated for curation activities. Staff feel that $10,000 per year would allow such curatorial responsibilities as washing, cataloging, accessioning, and curating collections to be satisfactorily met.

Access to Collections

Access to collections stored at UNCW is controlled by Dr. Loftfield. Individuals wishing to use them must first contact him. Prior notice is requested should outside researchers wish access to collections, and the visit is supervised. Dr. Loftfield views the collections as open to the public, but will not provide site locations to the general public.

Future Plans

Dr. Loftfield views research and education as the primary aims associated with the archaeological collections. There are no plans at this time for upgrading the curation program.

Comments

1. Collections Storage Area 1 (Room 100B) is filled to 100-percent capacity.

2. Dust is present on all box lids, suggesting that the dust filters are ineffective.

3. An HVAC system is present in the repository, but it does not appear that temperature and humidity levels can be set and controlled at the collections storage area level.

4. The presence of live silverfish and the noticeable fraying of the edges of box labels indicates that a pest-infestation problem exists.

5. No intrusion alarms are present on the exterior doors to the repository.

6. No fire-detection or -suppression equipment is present in the collections storage areas.

7. All primary containers consist of acidic-cardboard boxes, and only 1 percent of the secondary containers are of archival quality.

8. Slides are the only archivally stored records.

9. None of the records has been duplicated and stored at a separate, fire-proof, secure location.

Recommendations

1. In order to gain more storage space in Collections Storage Area 1, remove one of the long laboratory tables; install enameled-metal shelving units in its place. If the painted, wooden shelving units have been sealed with latex or polyurethane, reseal them with an oil- or alkyd-based varnish to prevent outgassing.

2. Check and more frequently replaced dust filters to prevent the build-up of dust on boxes in Collections Storage Area 1.

3. Although an HVAC system is present in the repository, the authority to set and control temperature and humidity levels should be at the collections storage area level rather than the repository level. If this is infeasible, monitor temperature and humidity using a hygrothermograph; if need be, humidity in the collections storage areas can be controlled by a dehumidifier.

4. Immediately implement an integrated pest-management program that includes monitoring and controlling. Desiccant packets can be purchased and placed on the shelves to temporarily control the silverfish infestation.

5. Install intrusion alarms on the exterior doors of the repository to protect against unauthorized entry.

6. If collections are to remain at UNCW, install fire-detection and -suppression systems in the collections storage areas. Include smoke alarms, fire alarms wired into the local fire department, fire extinguishers, and a sprinkler system. The fire alarms and extinguishers located in the hallways are inadequate protection.

7. Rebox and rebag all artifacts and documents in 4-mil, zip-lock, polyethylene bags; acid-free boxes; acid-free folders; and negative, slide, and photograph polyethylene sleeves. Acquire and use more boxes; remove some artifacts from overpacked boxes, place these in the new boxes, and label the artifacts. Interior labels made from spun-bonded, polyethylene paper (e.g., Nalgene polypaper) should be labeled in indelible ink and inserted into the polyethylene bags.

8. Duplicate associated records, photographs, slides, and negatives. Store the copies in a separate, fire-proof, secure location.

11

Virginia Commonwealth University Archaeological Research Center

Richmond

Repository Summary

Volume of Artifact Collections: 56 ft^3

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

Linear Feet of Records: ~1.8 linear feet (22 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 curation of artifacts and associated documentation, and that a substantial increase in curation monies would be beneficial.

Date of Visit: July 28, 1994

Points of Contact: Dr. Dan Mouer, Codirector and Research Archaeologist; Beverly Binns, Laboratory Director and Curator

VCUARC is an archaeological consulting division of the Department of Sociology and Anthropology, Virginia Commonwealth University (VCU), Richmond, Virginia. VCUARC currently curates 56 ft^3 of artifacts and approximately 1.8 linear feet (22 linear inches) of associated documentation from NWS Yorktown. Table 22 summarizes the percentages of material classes represent in the archaeological collections assessed by the St. Louis District team at VCUARC.

Assessment

VCUARC is located in downtown Richmond, Virginia, away from the main VCU campus. The building encompasses approximately 39,750 ft^2 of floor space, of which VCUARC occupies 13,250 ft^2 (Figure 32). Activity areas present at VCUARC include offices, a garage, and storage areas for materials and supplies, records, and artifacts. Artifact-receiving, -holding, -washing, and -processing areas are also present. The collections storage area encompasses approximately 1,225 ft^2.

Table 22.
Summary of Material Classes Present in Atlantic Navy Collections at VCUARC, by Percentage

Material Class	%
Prehistoric	
Lithics	1
Historical-period	
Ceramics	17
Glass	23
Faunal remains	1
Shell	6
Metal	30
Brick	22
Total	100

Structural Adequacy

The building housing VCUARC was constructed in the early 1900s. It functioned as the Richmond Coliseum Auction House prior to VCUARC moving there in 1994. The three-floor structure has a concrete foundation and exterior walls of brick over concrete. The built-up asphalt roof is original to the building. There have been extensive interior renovations in the office sections of the building, including the addition of central heating and air-conditioning. Plumbing, electrical, and environmental utilities were upgraded throughout the repository, but it is not clear when this occurred. The repository has multiple windows on its southwest and northeast sides. One exterior door is present in the rear (southwest) of the repository, and one exterior, wood-framed, glass door and an overhead, metal garage door are present at the front (northeast) of the repository.

The offices section of the repository is separated from the garage and the collections storage area by an interior, southeast-facing, metal-panel door. The collections storage area is secured from the rest of the repository by a northwest-facing, rolling, metal-mesh gate that extends from the floor to the ceiling (Figure 33). There are eight windows in the collections storage area, all overlooking the rear (southwest) of the repository, and one exterior, metal-panel door that also faces southwest. Two of the windows have wooden frames and six of the windows have metal frames. Metal-mesh grating is present on the exteriors of all windows. The windows are not equipped with shades, but approximately 75 percent of them are opaque (Figure 34). The ceiling in the collections storage

Figure 32. VCUARC occupies space behind the first-floor garage door and the two glassed-in areas toward the right of the photograph.

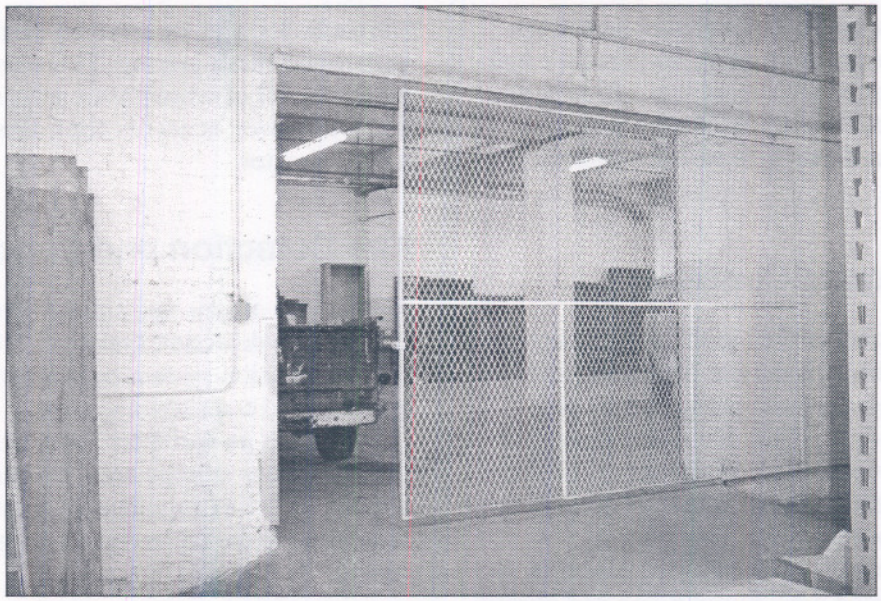

Figure 33. Sliding, metal-mesh grate at VCUARC separates the collections storage area from the remainder of the repository.

Figure 34. Exterior windows in the collections storage area; some panes are missing, and others are cracked. Note the metal-mesh grate on the exterior.

area consists of metal girders overlain by concrete.

Multiple overhead water pipes, under which collections are stored, are present in the collections storage area; paint on the pipes is peeling, and most pipes are rusted. Dirt and leaves are present throughout the collections storage area, especially in front of the rear, exterior door. A thick layer of dust covers the collections. Several windowpanes are broken. An uncertain impact on the collections is the effect of vehicle exhaust emanating from the garage adjacent to the collections storage area. No solid wall or other form of environmental protection for the

collections is present. The collections storage area is filled to approximately 50-percent capacity. The building functions well as office and laboratory space, but rehabilitative measures should be taken if this is to be a long-term curation repository.

Environmental Controls

Temperature is controlled in the offices section of VCUARC through the use of heating and air-conditioning systems; both systems are equipped with dust filters. Humidity is neither monitored nor controlled. Maintenance of the repository is performed on a biweekly basis by a contracted company.

No environmental controls are present in the collections storage area; temperature and humidity are neither monitored nor controlled. Lighting is accomplished by flourescent tubes covered with nonultraviolet, plastic shields. The collections storage area is maintained by the curatorial staff of VCUARC on an as-needed basis.

Pest Management

No integrated pest-management program is in place at VCUARC. The services of a contracted pest-management company are used when necessary. Staff state that roaches are sometimes a problem at the repository, but the St. Louis District team did not observe any signs of pest infestations during the site visit.

Security

Security measures at VCUARC consist of key locks and dead bolt locks on exterior doors and locks on windows. The area is regularly patrolled by VCU police officers. The front of the repository includes large glass windows and a wood-framed door with a glass panel. There is a large amount of glass, but no moving window parts. The exterior garage door is equipped with locks and is opened and closed from the interior.

The sliding, metal-mesh gate to the collections storage area is secured with a padlock. The exterior door to the collections storage area is secured with key and dead bolt locks. Windows in the collections storage area are latched with simple locks, and are covered on the exterior with metal-mesh grating. There are 15 staff members, all of whom have access to the collections; however, access is controlled by the laboratory director.

Fire Detection and Suppression

Manual fire alarms and smoke detectors constitute the fire-detection system at VCUARC. The fire-suppression system consists of fire extinguishers and a sprinkler system.

Although no sprinkler system is present in the collections storage area, there is a fire hose present. A fire extinguisher is located immediately outside the collections storage area, in the garage.

Artifact Storage

Storage Units

Storage units for artifact primary containers consist of enameled-metal uprights with sheets of 0.5-inch-thick plywood used as shelves. The storage units each measure 8.2 × 8.8 × 4 feet (w × h × d; Figure 35) and are seven-shelves high. One artifact primary container is stored on the floor, under a window, next to the southwest wall.

Primary Containers

There are 39 primary containers housing collections from NWS Yorktown; all are acidic-cardboard boxes. Thirty-seven of the boxes measure 1.4 ft^3 and have telescoping lids. One box measures 0.3 ft^3 and has a folded-flap lid; this box is tied with twine, and stored upside down on a shelf. The one box stored on the floor measures 5.0 ft^3 and has flaps folded into the box. This box is overfilled, and artifacts are held in place by plastic wrap and tape (Figure 36).

Primary-container labeling is most often directly on the sides or the top of the container in marker. Label information consists of county and site number. The box measuring 0.3 ft^3 is labeled with an acidic-paper tag tied to the box with twine; label information is written in pen and consists of site number, provenience, and catalog number. The 5.0-ft^3 box is labeled with a

Figure 35. Artifact primary containers are stored on enameled-metal uprights with unsealed plywood shelves. This is not a recommended curation practice because of plywood outgassing.

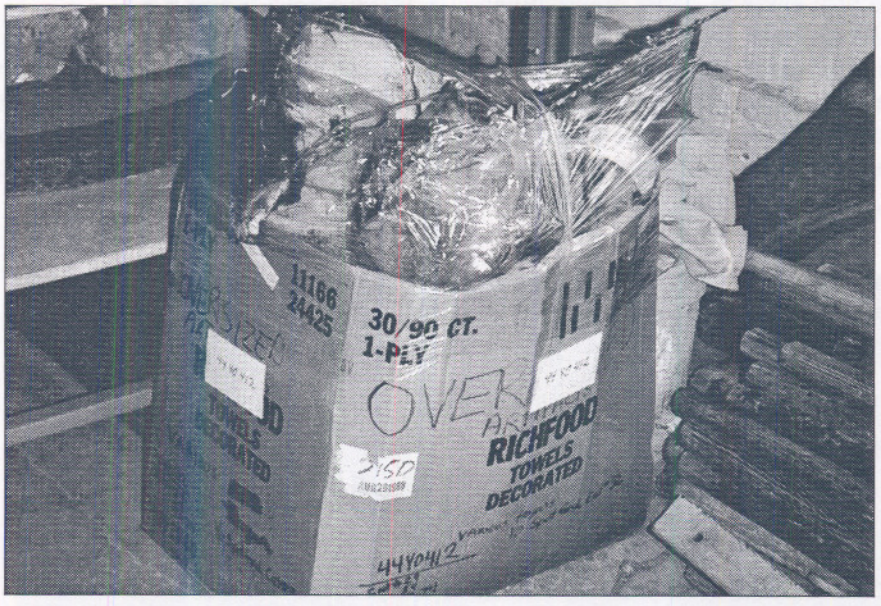

Figure 36. Poor storage of oversized, metal artifacts at VCUARC.

piece of yellow, adhesive, acidic paper, with county and site number written in marker.

Many of the primary containers are compressed to some degree, and all bear a considerable layer of dust. The 5.0-ft^3 box is overfilled, causing extensive bulging and tearing. This box, stored under windows with several panes missing and uncovered, is filled with historical-period metal artifacts that are susceptible to further rusting caused by rain.

Table 23.
Summary of Secondary Containers Used for Atlantic Navy Collections at VCUARC, by Percentage

Container Type	%
Nonarchival, zip-lock plastic bags	85
Loose	9
Acidic-paper bags	6
Total	100

Secondary Containers

The majority of secondary containers present consist of nonarchival, zip-lock, plastic bags (Table 23). Acidic-paper bags are also prevalent, as are loose artifacts (Figure 37); the 5.0-ft^3 box is almost entirely filled with loose metal artifacts (see Figure 36).

Nonarchival, zip-lock bags are labeled directly with marker; label information consists of site number and provenience. Most nonarchival, zip-lock bags also contain preprinted, acidic-paper tags with label information written in pencil; label information generally includes project, site number, and provenience. Acidic-paper bags are labeled in marker; label information consists of provenience, catalog number, and contents. Loose artifacts are either not labeled or have acidic-paper tags tied to them, with the tags labeled in marker with provenience information.

Laboratory Processing and Labeling

Approximately 90 percent of the artifacts have been cleaned, but only 25 percent have been labeled. Label information on artifacts consists of site number and catalog number written on them in black marker. All artifacts are sorted by provenience and by material class within provenience. Multiple material classes within a single provenience are separated either by multiple tertiary containers or by separate secondary containers.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at VCUARC.

Records Storage

VCUARC maintains a total of approximately 1.8 linear feet (22 linear inches) of documentation from NWS Yorktown. Storage units for the documentation are the metal shelves that the

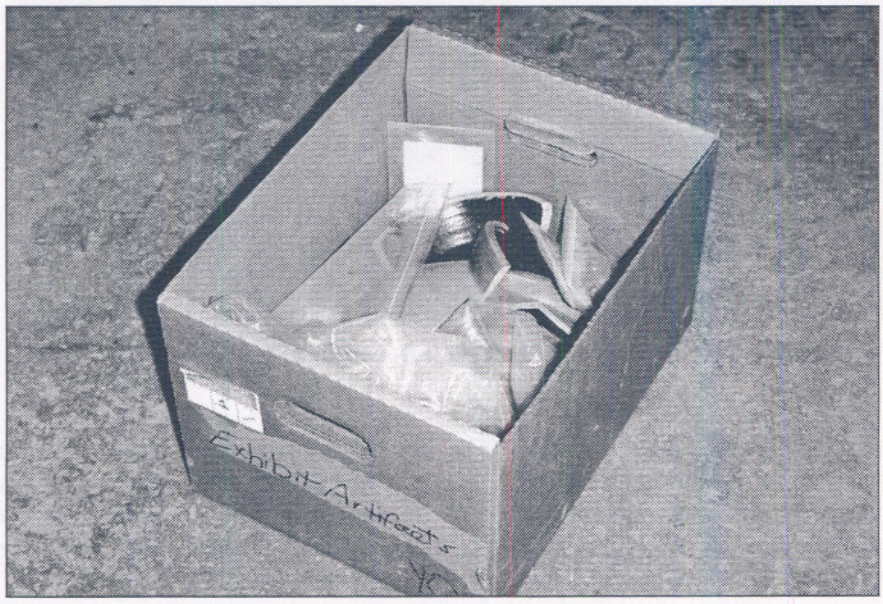

Figure 37. Secondary containers are predominantly nonarchival, zip-lock bags. Note artifacts loose in the box.

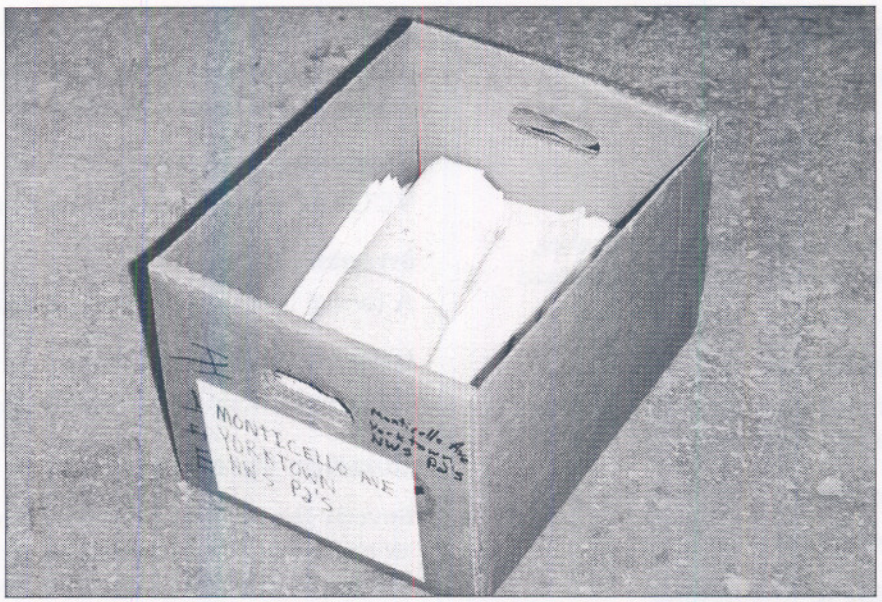

Figure 38. Documentation is stored loose or in acidic folders within an acidic-cardboard box.

artifact primary containers are stored on. Records are organized by project.

Paper Records

Approximately 11.5 linear inches of paper records from NWS Yorktown are stored at VCUARC. The paper records are stored in one primary container, an acidic-cardboard box measuring 1.4 ft^3. The box has a telescoping lid and is labeled with an acidic-paper tag stapled to its end (Figure 38). Label information is written in marker, and consists of the name of the naval facility.

Secondary containers for the paper records are acidic-paper folders. Most of the folders are directly labeled in pen with contents, site number, or both. Many of the records are stored loose in the box and are not labeled, and there is no organization other than by facility. A finding aid is available, but this is only a record of artifacts removed for conservation. Discoloration of the paper is common, as are the presence of contaminants (e.g., staples and paper clips).

Maps and Oversized Documents

Approximately 5 linear inches of maps from NWS Yorktown are stored at VCUARC; these are stored in two primary containers, one of which is the container that paper records are stored in. The other primary container is another acidic-cardboard box with a telescoping lid, this one measuring 1.4 ft^3. The box is labeled with an acidic-paper tag stapled to the side of the box. Label information consists of facility name written in marker.

Large and small maps are stored in the primary container that houses paper records. These are stored loose or rolled (see Figure 38), and none is labeled. Map materials in the second primary container consist of large maps and blueprints, folded and stored loose in the box. If labeled, information on the maps consists of site number directly written in pen. Maps are organized by facility. Many of the maps are discolored and torn.

Project Reports

Approximately 5.5 linear inches of reports from NWS Yorktown are stored at VCUARC. Approximately 0.5 linear inches of draft reports are stored in the primary container that houses paper records. The remaining 5 linear inches of reports are stored in a reports library. These reports are stored on open, wooden shelves measuring 4.5 × 6 × 1.5 feet (w × h × d). Reports are bound and are labeled with adhesive tags listing their titles.

Collections-Management Standards

Registration Procedures

Accession Files

Partial accession files are present; however, all artifacts receive a catalog number and are inventoried.

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.

Computerized Database Management

The Macintosh Excel program is used for database management; no network is used. Back-up copies of computer records are created on a bimonthly basis and stored on disks. All copies are stored on-site.

Written Policies and Procedures

Minimum Standards for Acceptance

No formal minimum standards for the acceptance of archaeological collections are in place.

Curation Policy

No formal, comprehensive plan for curation has been produced by VCUARC. However, state standards for curation are followed.

Records-Management Policy

No records-management policy has been produced.

Field-Curation Procedures

No field-curation guidelines have been produced.

Loan Policy

No formal loan policy has been produced, but loan agreements are documented.

Deaccessioning Policy

VCUARC does not deaccession materials.

Inventory Policy

A formal inventory policy is in place.

Latest Collection Inventory

Collections were last inventoried in May 1994.

Curation Personnel

Beverly Binns is the full-time laboratory director and curator of the archaeological collections. She has a Bachelor's degree in city planning, with an emphasis on historic resources, from VCU. Dr. Dan Mouer is codirector of, and research archaeologist for, VCUARC. He earned a Ph.D. from the University of Pittsburgh.

Curation Financing

Curation is financed through overhead costs written into archaeological consulting contracts.

Access to Collections

Staff members and outside researchers have access to the collections, but must first contact Binns, the laboratory director. A formal agreement is necessary if researchers are to borrow materials.

Future Plans

Plans include reboxing all records in acid-free containers. In addition, VCUARC plans to store computer disks and a list of records off-site.

Comments

1. Artifacts are stored in acidic-cardboard primary containers; one of these is overfilled, damaging the box.

2. No artifact secondary containers are archival quality; all consist of acidic-paper bags or non-archival, zip-lock bags.

3. Metal artifacts constitute the largest percentage of artifacts stored loose in primary containers, and are one of the artifact classes most likely to be damaged by nonarchival storage.

4. Documentation is stored in acidic primary containers. Secondary containers are acidic-paper envelopes, but much documentation is stored loose in the primary container. A large percentage of the documentation has discolored.

5. No integrated pest-management program is in place. Pest infestations are controlled by a contracted company on an as-needed basis.

6. No environmental controls such as heating, air-conditioning, or humidity monitoring or controlling devices are present in the collections storage area.

7. No fire-detection system is present in the collections storage area. Within the collections storage area there is a water fire hose, and immediately outside of the storage area is one fire extinguisher. No sprinkler system is present in the collections storage area.

8. The sliding, metal-mesh gate to the collections storage area is secured by a padlock. The exterior door in the collections storage area is secured by a padlock and a dead bolt lock. The repository is not equipped with an electronic security system. The front offices are vulnerable to break-ins, as they have large glass windows and only key locks on the doors.

9. Overhead water pipes are present in the collections storage area, and the collections are stored under them. Paint is peeling from most of the pipes, and the pipes are rusting.

10. Several panes of glass are missing from the exterior windows in the collections storage area. Although this is not a real security risk, because of the metal mesh outside the windows, it presents an environmental problem. Metal artifacts (5.01 ft^3) are stored in proximity to the windows.

Recommendations

1. Inventory the collections. Replace acidic-cardboard boxes containing artifacts and documentation with standard-sized, acid-free cardboard boxes. Replace secondary artifact containers with 4-mil, zip-lock, polyethylene bags, and label these 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 copied onto acid-free paper and is free of contaminants (e.g., staples and paper clips). Small-scale maps can be stored with the paper records, but large-scale maps should be stored flat in a map case.

3. Rebox all metal artifacts according to the aforementioned standards, and place on shelving away from the windows. Large metal artifacts should be wrapped in acid-free paper and placed loose on the storage shelves. An acid-free paper tag indicating site number, project, and provenience should be tied to each artifact.

4. Replace broken windowpanes in the collections storage area.

5. Install a sprinkler system in the collections storage area. Install fire alarms and wire them into the local fire department to ensure 24-hour monitoring and protection. Place fire extinguishers in the collections storage area.

6. Install a metal, overhead garage door to the exterior of the sliding, metal-mesh gate located outside the collections storage area. The door should have key and dead bolt locks. In addition, install an electronic security system that is wired into the police department.

7. Install an HVAC system. If this is infeasible, install central air-conditioning and heating systems. Monitor humidity with a sling psychrometer or hygrothermograph, and install a dehumidifier.

8. Implement a regular pest-management program that includes monitoring and controlling.

9. Remove the plywood shelves in the collections storage area. Replace these with enameled-metal shelving. If this is infeasible, seal the plywood shelves with oil- or alkyd-based paint or varnish. For sealant, avoid latex or polyurethane because of the potential for outgassing.

10. Reorganize shelves in the collections storage area so that they run parallel to the water and sewer pipes in the ceiling. Ensure that shelves are not directly under pipes, and that pipes are present only over aisles.

12

Virginia Department of Historic Resources

Richmond

Repository Summary

Volume of Artifact Collections: 15 ft^3

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

Linear Feet of Records: ~0.8 linear feet (9.75 linear inches)

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

Human Skeletal Remains: None

Status of Curation Funding: Curation is financed in several ways. Contractors are charged a one-time curation fee, financing is obtained through general state funds, and funding is acquired through conservation contracts. Funding, however, is inadequate.

Date of Visit: July 20, 1994

Points of Contact: Beth Acuff, Curator for Archaeological Collections; Keith Egloff, Assistant Curator

VDHR curates approximately 15 ft^3 of prehistoric and historical-period artifacts from AFETA Camp Peary, Fleet and Industrial Supply Center (FISC) Cheatham Annex, NWS Yorktown, and NAVSHIPYD Norfolk. Table 24 lists the facilities and summarizes the material volume per facility. Additionally, 0.8 linear feet (9.75 linear inches) of associated records from AFETA Camp Peary, FISC Cheatham Annex, NWS Yorktown, NAVSHIPYD Norfolk, NALF Fentress, and NAS Oceana are stored here. Table 25 summarizes the material classes encountered during the St. Louis District site visit.

Atlantic Navy artifact collections are curated in a building (Storage Location 1) located approximately three miles south of the VDHR offices. Associated records are housed in two buildings (Storage Locations 2 and 3) in the VDHR office complex. The assessment of each will be described separately.

Assessment of Storage Location 1

Storage Location 1, also known as the Extra Attic building on Tobacco Row, is a three-story, 90,000-ft^2 building. It includes an 8,000-ft^2 artifact collections storage area located on the second floor. The main artifact storage area is

Table 24.
Summary of Artifact Collections, by Atlantic Navy Facility, at VDHR

Facility	Volume (ft^3)
AFETA Camp Peary	1.2
NWS Yorktown	11.8
FISC Cheatham Annex	1.0
NAVSHIPYD Norfolk	1.0
Total	15.0

Table 25.
Summary of Material Classes Present in Atlantic Navy Collections at VDHR, by Percentage

Material Class	%
Prehistoric	
Ceramics	13
Lithics	20
Faunal remains	< 1
Shell	21
Flotation	1
^{14}C	1
Historical-period	
Ceramics	17
Glass	9
Metal	8
Brick	2
Mixed	7
Total	~100

separated from a smaller area, which houses field equipment and supplies, by a double-wide door. The structure also contains a receiving and loading dock, a field-equipment storage area, exhibit storage, offices, rest rooms, and a freight elevator.

Structural Adequacy

Originally constructed in 1899 as part of the tobacco industry, this three-story building is currently used as a state storage facility. It is located approximately 3 miles south of the VDHR offices in what is known locally as Tobacco Row (Figure 39). It has a concrete foundation, brick exterior walls, and a built-up tar-and-asphalt roof. The collections storage area is located on the second floor of the building. Interior walls are constructed of brick, and the ceiling is composed of closely spaced 4-x-12-inch wooden beams (Figure 40). The floors on the second and third stories are wooden, and have a maximum load capacity of 200 pounds per ft^2. There are multiple windows in the building, all of which have been covered with plywood on the interior and metal shutters on the exterior.

The St. Louis District team entered the building by one of the two large, metal, rolling, overhead garage doors on the south side of the building. Two interior doors, both on the southeast wall, lead to the collections storage area. One is a single, metal-panel door, and the other is a standard-size, metal, rolling, overhead garage door. A double-wide door separates the main collections storage area from a smaller area housing field equipment and supplies.

Very little renovation has occurred in the building. However, the interior of the building was renovated in 1986–1987, when walls were constructed to form offices and partitions for individual storage areas. Additionally, the electrical system was upgraded and plumbing was updated to include a sprinkler system.

The overhead pipes for the sprinkler system are not directly over the collections; they extend along the centerlines of aisles. Additionally, the sprinkler system is of the dry-pipe variety and, therefore, poses little threat in terms of water leakage. The collections storage area is currently filled to approximately 70-percent capacity. Staff feel that adequate space is currently available for storage of presently curated artifact collections, but note that the trend is toward receiving more collections from contracting firms and colleges that no longer have the space to store them.

This building is structurally sound and certainly has ample floor space to serve as a collections storage location. However, several rehabilitation measures should be taken if it is to remain a long-term-curation repository.

Figure 39. Exterior view of the Extra Attic storage location, VDHR.

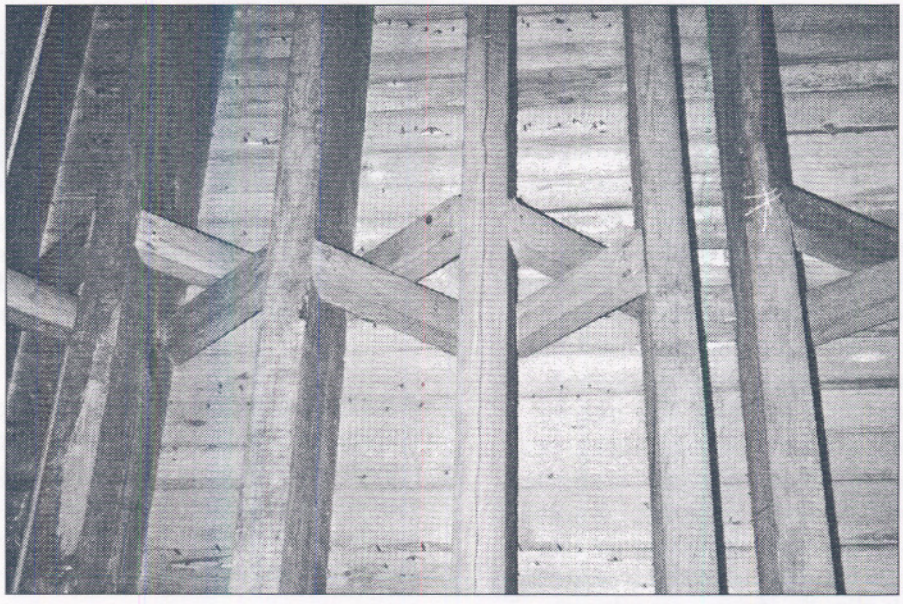

Figure 40. Close-up view of the ceiling supports in the Extra Attic storage location.

Environmental Controls

Temperature is controlled in some parts of this storage location (e.g., office space) by a central air-conditioning system. However, there are no temperature controls in the artifact collections storage area, and staff say that the temperature fluctuates approximately 45° F yearly. Humidity is not controlled in the storage location as a whole, but is monitored in the collections storage area by a hygrothermograph. Staff maintain that there is minimal daily fluctuation in humidity, and that humidity usually remains between 50 and 60 percent. There are no dust filters for the air-conditioning system, and dust is evident on box lids. Lighting is provided by uncovered

fluorescent tubes, and the lack of windows in the collections storage area protects collections from the sun's ultraviolet light.

Pest Management

No integrated pest-management program is in place at this storage location. However, bait boxes are randomly placed throughout the building, most frequently in the common hallway. The St. Louis District team was informed that insect infestation has never been a problem in the collections storage area.

Security

A building manager is stationed at this structure eight hours per day, five days per week, to oversee activities. If staff wish to enter the building during off hours they must enter their code on an electronic keypad that records who enters and exits and the times these events take place. Each client using the repository is provided with a different number. Additionally, surveillance cameras are placed in strategic positions throughout the storage location; one is located in the stairwell outside the collections storage area. Exterior doors to this storage location have both key and dead bolt locks. The two exterior, overhead, rolling garage doors located at the first-floor loading dock are secured by means of electric motors, and these doors can only be opened from the interior of the building. The interior, metal-panel door to the collections storage area is secured with a key lock, whereas the smaller, interior, overhead, rolling garage door is secured with a padlock. The walls containing the interior, overhead garage doors and those separating portions of each client's storage area do not fully extend to the ceiling, and thus pose a security risk. Approximately 4 feet of space exists between the tops of these walls and the ceiling. This space is covered with wire mesh (Figure 41), which is inadequate for the prevention of unauthorized access.

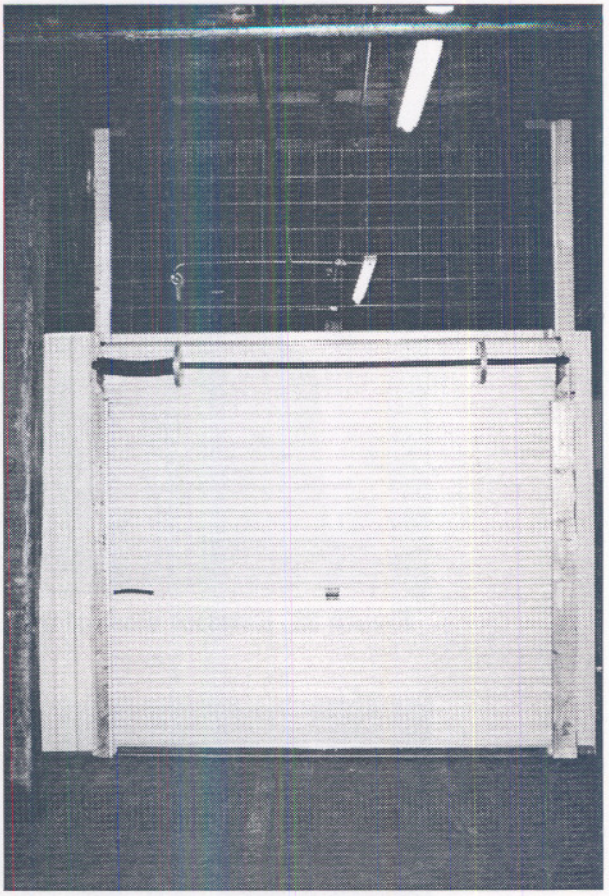

Figure 41. Metal mesh extends from the top of an overhead door to the ceiling, compromising security within the artifact collections area.

Fire Detection and Suppression

Manual fire alarms located throughout this storage location constitute the fire-detection system, while fire extinguishers (four per floor) and a dry-pipe sprinkler system are available for fire suppression. There is one fire extinguisher located in the doorway separating the collections storage area from the smaller area housing field equipment and supplies.

Artifact Storage

Storage Units

Artifact storage units present in this repository are open, enameled-metal shelving units that measure 3.5 × 7 × 1.5 feet (w × h × d) (Figure 42). Shelving units are numbered consecutively with adhesive tags that are attached to the top shelf of each unit. Artifact boxes are stacked two high on the shelves (see Figure 42).

Figure 42. Artifact primary containers are stacked two high on enameled-metal shelving units at the Extra Attic storage location.

Primary Containers

Acid-free boxes with telescoping lids and a volume of 1 ft^3 serve as primary containers for Atlantic Navy collections housed at VDHR. Box labels consist of directly labeled paper tags stapled to the fronts of the containers. Information is written in marker, and includes site number, provenience, box number, and, occasionally, a date. Collections are arranged alphabetically, by county.

Secondary Containers

Two types of secondary containers house Atlantic Navy artifact collections. Most (80%) are zip-lock, polyethylene bags; the remainder (20%) are acidic-paper bags. Some of the acidic-paper bags are folded; others have been taped shut with masking tape, making inspection of the artifacts difficult. Additionally, the inspection team noticed that a number of the zip-lock bags were not zip-locked shut; provenience information could be lost if artifacts fall out of the bags. All secondary containers have been directly labeled with marker. Label information on the acidic-paper bags most often consisted only of site number, while catalog number, site number, site name, provenience, date of recovery, and name of recorder were included on the zip-lock, polyethylene bags.

Laboratory Processing and Labeling

Most (60%) of the artifacts have been cleaned. Only 13 percent of the artifacts have been directly labeled with site numbers in india ink, and only 20 percent have been sorted by provenience or material class within provenience.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at this storage location.

Records Storage

Associated documentation is not stored in this repository. Refer to the assessments of Storage Locations 2 and 3, below, for a discussion of records storage at VDHR.

Assessment of Storage Location 2

Storage Location 2, also known as the Morrison Row offices, is a multistory, 8,000-ft^2 building. It is equipped with offices, records-study and -storage areas, rest rooms, and elevators. There are three floors aboveground and one below, including the 216-ft^2 records-study and -storage area that contains site files and field records.

Structural Adequacy

These VDHR offices were constructed in the 1850s as private townhouses used by individuals

Figure 43. Exterior view of the Morrison Row storage location, VDHR.

involved in politics and the government (Figure 43). The records storage area containing documentation associated with Atlantic Navy projects is located in the basement of one of these former townhouses. There are three floors aboveground, and one below. Internal renovations took place four years ago, when ceilings were lowered, several new walls were added, an elevator was installed, and the plumbing and electrical systems were upgraded. The foundation is brick, the floor in the records storage area is concrete covered with carpet, and the roof is composed of built-up asphalt that has been replaced on an as-needed basis. There is a suspended, acoustical ceiling in the records storage area. Exterior walls are constructed of brick covered with stucco. Interior walls in the records storage area consist both of plaster and plasterboard; the newer walls are those of plasterboard. There are two windows, measuring approximately 4 × 6 feet (w × h), located on the southeast wall of the records storage area. Both windows are equipped with venetian blinds.

The St. Louis District team entered this storage location through a wood-framed door, with an etched-glass panel, located in the front (northwest) wall of the building. There are two interior, wood-panel doors to the records storage area; these are located in the northwest and southeast walls. Both lead into interior hallways.

The records storage area is presently at approximately 60-percent storage capacity. Additional storage space could be acquired by changing the current floor plan of the room.

Environmental Controls

Central air-conditioning and forced-air heat serve as temperature controls in this storage location. Humidity is neither monitored nor controlled, but staff state that temperatures range between 68° and 72° F, and humidity stays near 40 percent. Standard furnace filters serve as dust filters. Fluorescent tubes covered with nonultraviolet, plastic shields, in addition to natural light from the windows, provide illumination for the records storage area. The building, including the records storage area, is cleaned daily by a state janitorial service; physical building maintenance is under the jurisdiction of the grounds crew.

Pest Management

There is no integrated pest-management program in place at this storage location; precautions are taken on an as-needed basis. No evidence of pest infestation was observed by the St. Louis District team during the site visit.

Table 26.
Summary of Atlantic Navy Documentation at VDHR, by Storage Location

Documentation Class	Aluminum Building	Morrison Row Offices	Total
Paper records	1.5	7.5	9.0
Photographic records	—	< 0.05	< 0.05
Maps/documents	—	0.5	0.5
Reports	—	0.25	0.25
Total	1.5	~8.25	~9.75

Note: All measurements are in linear inches.

Security

Security measures for the Morrison Row offices include motion detectors, window locks, controlled access, and key locks on exterior doors and the interior doors of the records storage area.

Fire Detection and Suppression

The fire-detection system in this storage location consists of manual fire alarms and an electrical control panel that monitors sensors throughout the building. Fire-suppression equipment includes fire extinguishers and a sprinkler system located throughout the building. No fire extinguishers are present in the records storage area, but there is one located in the hallway outside of it.

Artifact Storage

No artifacts associated with Atlantic Navy facilities are stored here. Refer to the assessment of Storage Location 1, above, for a discussion of artifact storage at VDHR.

Laboratory Processing and Labeling

No artifacts associated with Atlantic Navy facilities are stored here. Refer to the assessment of Storage Location 1, above, for a discussion of laboratory processing and labeling of artifacts at VDHR.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated here.

Records Storage

Approximately 0.8 linear feet (9.75 linear inches) of records associated with Atlantic Navy collections are curated by VDHR. The majority (8.25 linear inches) are housed in this storage location, and 1.5 linear inches are housed in Storage Location 3. Refer to Table 26 for a summary of the documentation associated with Atlantic Navy collections housed in each storage location. This storage location contains the field notes files, state site files, and project reports library (Figure 44).

Records at VDHR are arranged by three filing systems: field notes files, York County survey notebook, and county files. The field notes files contain records deposited by researchers upon completion of fieldwork. The York County survey notebook contains records generated by a VDHR survey project. The county files include artifact inventories generated by VDHR for sites that have artifacts curated by VDHR. Table 27 is a summary of paper records by facility and type of filing system. All photographic records, maps and oversized documents, and draft reports are housed with the paper records that are stored in the field notes files.

In addition to these records, VDHR maintains the site files for the State of Virginia and

Figure 44. Metal file cabinets in the Morrison Row storage location contain state site files and project notes, all stored in acidic folders.

Table 27. Summary of Paper Records, by Facility, at VDHR

Facility	Field Note Files	York Co. Survey	County Files
AFETA Camp Peary	—	x	x
NWS Yorktown	x	—	x
FISC Cheatham Annex	—	x	x
NAVSHIPYD Norfolk	x	—	x
NALF Fentress	—	—	x
NAS Oceana	—	—	x

the reports generated by all archaeological work in the state. Site forms for all recorded sites located on Atlantic Navy facilities in Virginia are in these files. The site files are stored in the records storage area of this storage location. Additionally, all archaeological work performed under contract to Atlantic Navy in the State of Virginia is described in the numerous reports located in VDHR's report library.

Paper Records

A total of 7.5 linear inches of paper records are stored here. Approximately 4.5 linear inches are contained in the field notes files, while the remaining 3 linear inches are included in the state site files. All are stored in enameled-metal, legal-sized filing cabinets measuring 1.5 × 5.1 × 2.2 feet (w × h × d). All paper records are organized by site number within county. File drawers contain acidic-paper labels in metal tag holders. Label information is typed, and includes file system name (e.g., field notes files or state site files) and the names of the counties whose records are contained within the specific drawer. Secondary containers housing field notes files consist of acidic-paper file folders that are directly labeled with pen and marker; label information includes county name and site number. Acidic, expandable file folders house the state site files. These secondary containers include typed, adhesive labels; label information includes county and site number. Paper records stored here include administrative records, excavation and survey records, field notes, analysis records, state site forms, small-scale site maps, and draft reports. None has been systematically duplicated, and contaminants (e.g., staples and paperclips) are evident.

Photographic Records

There is less than 0.05 inches of photographic records from NWS Yorktown (site no. 44YO417). They are stored in the same cabinets and acidic-

paper file folders as the paper records in the field notes files. Included are color slides, negatives, contact-print sheets, and photograph logs. The photograph logs are written in pencil, but none of the slides or contact-print sheets is labeled.

Maps and Oversized Documents

Miscellaneous original and duplicates of site maps exist for sites 44YO405, 44YO413, 44YO416, and 44YO417 on NWS Yorktown. All are housed in the same file cabinets and acidic-paper file folders as the paper records. None appears to be labeled.

Project Reports

Final project reports are stored in the report library, in nonarchival magazine holders on enameled-metal shelving units. Each measures approximately 2 × 7.5 × 1.5 feet (w × h × d).

Assessment of Storage Location 3

Storage Location 3, also known as the "aluminum building," is a three-story structure (two aboveground and one partially below). It encompasses approximately 10,800 ft^2, and includes offices, rest rooms, and a 216-ft^2 records storage and artifact processing laboratory. County files and York County survey records are stored here.

Structural Adequacy

This storage location is part of the VDHR office complex, and is located adjacent to and connected with the offices contained in the former townhouses. The building was constructed in 1910, and has been used as a state office building for many years (Figure 45). The St. Louis District team was told that, because of the aluminum shell, this is a collapsible building. The building was moved from another location in Richmond in the 1930s or 1940s. Numerous internal renovations have occurred through the years, mainly to office spaces. Two floors are aboveground, and one partially below. The records storage and artifact processing area is located on the middle floor. The building has a concrete foundation and a flat, built-up, asphalt roof. The floor in the records storage area is concrete covered with carpet, and the ceiling is constructed of suspended, acoustical tiles. Interior and exterior walls on the lower floor are constructed of concrete. The exterior walls of the two upper floors are made of aluminum, and the interior walls are acoustical tiles.

Figure 45. Exterior view of the aluminum building, VDHR.

Many windows exist in this multistory building, but only six are located in the records storage area. These wood-framed windows are located on the south wall, measure approximately 3 × 4 feet (w × h), and are equipped with blinds; the blinds were not in use at the time of the site visit. Two interior, wood-panel doors are present, one exiting into a hallway along the north wall, the other exiting to an office through the west wall.

Environmental Controls

The temperature in this building is controlled by a central air-conditioning and heating system. Supplemental window air conditioners and baseboard heating regulate temperature in the records storage and artifact processing area. Humidity is neither monitored nor controlled. Standard filters on the heating and air-conditioning systems serve as dust filters for this storage location. Natural light from the windows and fluorescent tubes covered with nonultraviolet, plastic shields furnish light. Building maintenance is provided by the grounds crew on an as-needed basis, but daily cleaning of the building is carried out by a state janitorial service.

Pest Management

No integrated pest-management program is present at this storage location. Precautions are taken on an as-needed basis. No evidence of pest infestation was observed by the St. Louis District team during the site visit.

Security

Dead bolt locks on exterior doors, key locks on interior doors, and window locks (most windows are also painted shut), are the security measures in place for this storage location. There have been thefts of purses in the past. However, it is unclear whether these thefts involved unauthorized entry into the repository.

Fire Detection and Suppression

Smoke detectors are the only means of fire detection present. No fire-suppression equipment is present.

Artifact Storage

No artifacts associated with Atlantic Navy facilities are stored here. Refer to the assessment of Storage Location 1, above, for a discussion of artifact storage at VDHR.

Laboratory Processing and Labeling

No artifacts associated with Atlantic Navy facilities are stored at this repository. Refer to the assessment of Storage Location 1, above, for a discussion of laboratory processing and labeling of artifacts at VDHR.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at VDHR.

Records Storage

There are approximately 0.8 linear feet (9.75 linear inches) of records associated with Atlantic Navy collections at VDHR. The majority (8.25 linear inches) are housed in Storage Location 2 (refer to the assessment above), whereas only 1.5 linear inches are housed in Storage Location 3. Refer to Table 26 for a summary of the major types of documentation associated with Atlantic Navy collections at each VDHR storage location. A portion of the county site files and York County survey records are housed in this storage location, while the remainder are in Storage Location 2 (refer to the above assessment).

Paper Records

Paper records include county site files and York County survey records. The county site files include artifact inventories generated by VDHR for sites that have artifacts curated by VDHR. The York County survey notebook contains

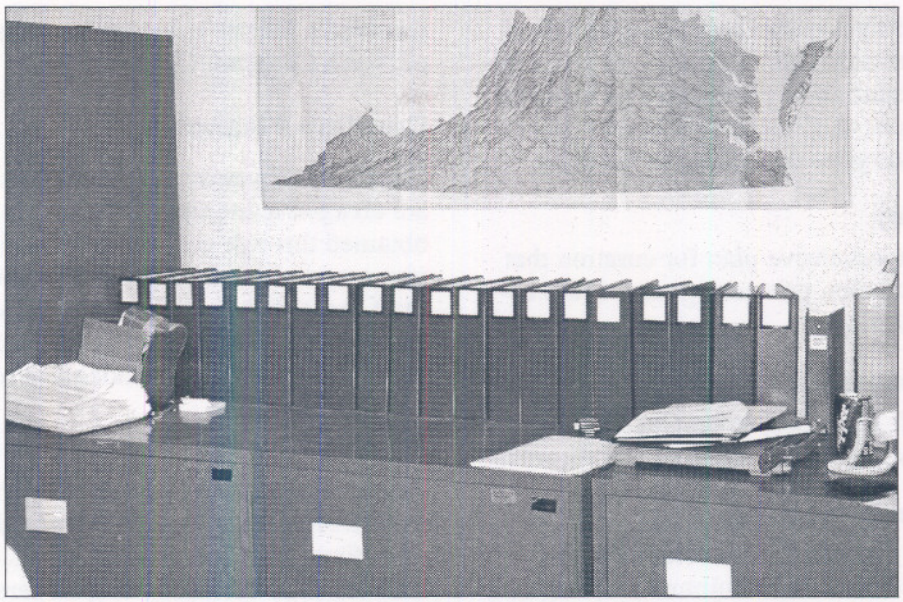

Figure 46. Metal-ring plastic binders in the aluminum building contain county site files.

records generated by a VDHR survey project. All are housed in vinyl three-ring binders measuring 12 × 13 × 3.5 inches (w × h × d) (Figure 46). These binders are stored on top of several standard-size, enameled-metal cases located against the north wall of the records storage and artifact processing room. The binder labels are contained in metal label holders glued to the spines of the binders. Label information for the county site files is typed, and includes county name. There may be several counties represented within a single binder. County site-file binders are divided by acidic, yellow dividers with plastic label tabs. Divider label information consists of county name.

Assessment of Storage Locations 1–3

Collections-Management Standards

Registration Procedures

Accession Files

Materials are not accessioned upon receipt.

Location Identification

Locations of the collections at VDHR are not identified in any paper files, but the locations are identified within a dBASE inventory program for the boxed collections.

Cross-Indexed Files

Files are not cross-indexed.

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

A dBASE collections-inventory system is used. Back-up copies are recorded on disks each time the system is used. However, back-up copies are not stored in a separate, secure location; they are stored in a different location within the office complex.

Written Policies and Procedures

Minimum Standards for Acceptance

VDHR requires that all incoming artifacts be processed, and packaged in acid-free boxes

and zip-lock, polyethylene bags. Additionally, VDHR recommends that a duplicate of any associated documentation be produced and included with the artifacts; this suggestion has not been followed by everyone depositing collections.

Curation Policy

There is a comprehensive plan for curation that addresses the receipt, processing, use, and preservation of materials.

Records-Management Policy

The archivist follows department-wide guidelines for the management of associated records.

Field-Curation Procedures

Field-curation guidelines are included in the document that details the minimum standards for the acceptance of collections.

Loan Policy

Loans are made to qualified institutions. A standard loan form must be completed. If a loan is made it is possible to obtain an extension of the term, depending upon the situation.

Deaccessioning Policy

No deaccessioning policy is in place.

Inventory Policy

An inventory policy is in place.

Latest Collection Inventory

The collections were last inventoried approximately 3–4 months ago. As collections arrive at VDHR, a form is filled out containing information that will eventually be entered into the collections-inventory database program.

Curation Personnel

Beth Acuff is the full-time curator for archaeological collections. Acuff employs two salaried assistants, Keith Egloff and Melba Meyers. Additionally, two hourly employees, one contracted employee, and various work-study students, interns, and volunteers aid in the curation of archaeological collections. Acuff received her formal training at American University, Washington, D.C., where she earned a Master's degree. Egloff pursued his undergraduate degree at the University of Wisconsin, Madison, and received a Master's degree from the University of North Carolina, Chapel Hill.

Curation Financing

Curation is financed in several ways: contractors are charged a one-time curation fee, money is obtained through general state funds, and monies are acquired through conservation contracts. Staff feel that it is important to attack the backlog of inadequately cataloged collections, and that current funding is inadequate to allow this.

Access to Collections

Access to collections is controlled by Acuff and Egloff. Anyone wishing to view collections must first contact these individuals. Access to collections at VDHR by researchers is allowed, and is usually supervised.

Future Plans

Curatorial staff feel that curation of existing collections has a higher priority than the recovery of archaeological collections. Maintenance of the collections and use of them for educational purposes are viewed as the primary responsibilities associated with the collections. The governor of Virginia created a "strike force" to request position papers from different state agencies detailing their needs. VDHR submitted position papers for the underwater archaeology program, archives management, and artifact collections management. If the position papers for archives and artifact collections management are accepted, VDHR will receive additional funding and will be better able to address their curation needs.

Comments

1. None of the storage locations has adequate environmental controls.

2. There are ground-floor windows in the records storage area located in Storage Location 2, which create a risk for security as well as preservation; ultraviolet rays are allowed to enter, and could damage associated records.

3. The floor-load capacity in the collections storage area of Storage Location 1 is 200-lbs. per ft^2; the building is well equipped to house archaeological collections.

4. Although no pest infestation was observed in the storage locations by the St. Louis District team, no integrated pest-management programs are in place.

5. There is no adequate fire-detection and -suppression system in Storage Location 3.

6. Artifact primary containers, and most secondary containers, are archival.

7. The filing systems for associated documentation are confusing.

8. None of the associated records has been systematically duplicated.

9. Most (87%) of the artifacts have not been labeled.

Recommendations

1. Install an HVAC system in the artifact-storage area of Storage Location 1. If that is infeasible, install central air-conditioning, a dust-filtration system, and a dehumidifier. Temperature and humidity should be monitored in Storage Locations 2 and 3. Sling psychrometers or hygrothermographs should be installed for this purpose.

2. The windows in the Storage Location 2 records-storage area are at ground level, presenting a security risk. These windows should be sealed shut or metal bars should be installed on them to prevent unauthorized access.

3. An integrated pest-management program, including both monitoring and controlling, should be implemented at each storage location.

4. The fire-detection and -suppression system in Storage Location 3 should be upgraded to include manual fire alarms and multiple fire extinguishers on each floor. If feasible, a sprinkler system should be installed.

5. The filing systems for associated documentation should be consolidated. A finding aid should be generated and made available to anyone wishing to use the records.

6. Associated records should be duplicated on acid-free paper or microfilm, stored in acid-free folders, and a copy should be stored at a separate, fire-proof, secure location.

7. All unlabeled artifacts should be labeled with india ink to prevent loss of provenience information.

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William and Mary Center for Archaeological Research

Williamsburg, Virginia

Repository Summary

Volume of Artifact Collections: 3.9 ft^3

Compliance Status: Collections are archivally curated in zip-lock, plastic bags within acid-free boxes. However, the wooden shelves used as storage units should be replaced with enameled-metal shelves.

Linear Feet of Records: ~1.9 linear feet (22.75 linear inches)

Compliance Status: The photographic records that compose approximately two-thirds of the associated records have been archivally curated. Approximately one-third of the records require complete rehabilitation to comply with current federal guidelines and modern archival-preservation standards.

Human Skeletal Remains: None

Status of Curation Funding: Curation is financed through cultural resource management contracts. Staff feel that financing is adequate.

Date of Visit: July 21, 1994

Points of Contact: Don Linebaugh, Codirector; Dennis Blanton, Codirector

Approximately 3.9 ft^3 of historical-period archaeological artifacts and 1.9 linear feet of associated documentation from NAVHOS Portsmouth are currently stored at WMCAR, Williamsburg, Virginia. Table 28 shows a summary of material classes encountered. This repository does not view itself as a long-term collections repository, but rather as a temporary holding place until collections can be transferred to the VDHR.

The offices of WMCAR are contained within a two-story former home located directly across the street from the College of William and Mary. The collections and associated documentation

Table 28.
Summary of Material Classes Present in Atlantic Navy Collections at WMCAR, by Percentage

Material Class	%
Historical-period	
Ceramics	10
Glass	10
Faunal remains	12
Shell	18
Metal	17
Brick	33
Total	100

Figure 47. The Bryan Dormitory complex: the laboratory and storage areas of WMCAR.

are housed in the basement of a four-and-one-half-story dormitory building on the college's campus (Figure 47). The basement repository includes six major areas that encompass approximately 10,000 ft^2, three of which contain collections or records pertinent to the NAVHOS Portsmouth. There is a separate field equipment storage room, a drafting and report publication area, an archives-storage area, an artifact collections storage area, a photograph processing and large-scale-map storage area, and a laboratory and collections-processing area. Of interest to the St. Louis District team was the archives-storage area (Room 51, ~200 ft^2 [Collections Storage Area 1]), the photograph processing and oversized-map storage area (Room 50, ~100 ft^2 [Collections Storage Area 2]), and the collections storage area (Room 54, ~600 ft^2 [Collections Storage Area 3]).

Assessment

Structural Adequacy

This building was built in the late 1930s as a dormitory, and the three aboveground floors still serve in that capacity. The building has a concrete foundation (covered with tile in the storage areas), concrete-block walls belowground, and concrete-block walls with a brick facade aboveground. The roof is constructed of slate tiles and is original to the building. Interior walls in the basement are concrete block, and the ceiling is of poured concrete. The plumbing and electrical systems have been updated in the past, and the heating system has been renovated within the last year. There are overhead pipes close to fluorescent lights in all rooms, but no leakage problems have been reported. The only differences in structural adequacy among the three storage areas are the number of doors and windows in the rooms.

Collections Storage Area 1 is at approximately 30-percent capacity in terms of records storage. Collections Storage Area 2 has room for more collections; it is filled to only about 5-percent capacity. Collections Storage Area 3 is filled to approximately 80-percent capacity. Although this building is sound and functions well as a temporary collections and archives storage facility, it will need further work if it is to continue to house archaeological collections.

Collections Storage Area 1

The archives storage area contains one east-facing window at ground level, measuring approximately 2 × 3 feet, which has a wooden frame and is covered with plywood on the interior.

Two interior, wood-panel doors are present. The west-facing door exits to the hallway, and the south-facing door separates the photograph and paper-records storage areas.

Collections Storage Area 2

There is one interior, west-facing, wood-panel door to the photograph-processing and oversized-map storage area (Room 50). It exits to the hallway. There are no windows in this room.

Collections Storage Area 3

Two interior, east-facing, wood-panel doors are present, both exiting into the hallway. Four wood-framed windows measuring approximately 3.0 × 3.5 feet are present in the west wall of the room. All are at ground level, and none is equipped with shades.

Environmental Controls

Environmental conditions and controls are the same in each of the three storage areas. Central air-conditioning and a gas-fired, hot-water boiler control the temperature. A digital "Thermo-Hygro" reader monitors humidity in Collections Storage Area 3, and a commercial dehumidifier attempts to control it; this was the only collections storage area where paint was observed peeling off the ceiling because of humidity fluctuations. Current temperature and humidity readings in Collections Storage Area 3 are 73° F and 62 percent, respectively. Light is provided by fluorescent tubes in Collections Storage Areas 1 and 3, whereas incandescent bulbs illuminate Collections Storage Area 2. Standard heating and air-conditioning filters are the only preventative measures against dust. The collections storage areas are cleaned on a daily basis by college janitorial staff.

Pest Management

No integrated pest-management program is in place at this repository. However, a company contracted by the college performs an annual inspection and provides control if needed. No evidence of pest infestation was observed by the St. Louis District team during the site visit.

Security

The exterior door to the building is secured by both key and dead bolt locks. Access to the basement, where the collections storage areas are located, is controlled. Although the three floors above WMCAR function as dormitories, there is no interior access to the basement area from the floors above. The single window in Collections Storage Area 1 has a lock and is covered with plywood on the interior. Doors separating the three collections storage areas from the hallway are all equipped with key locks. The four double-hung, wood-sash windows in Collections Storage Area 3 are half below ground level and half above. They are multipaned, are equipped with locks, and appear to be painted shut; however, no interior or exterior security bars are present. Collections are stored in proximity to these windows, posing a security risk (Figure 48). Unauthorized entry occurred in 1990 or 1991, when a window air-conditioning unit in the collections-processing area was removed and computer equipment was stolen. When the heating and cooling systems in the repository were renovated a few years ago, all of the window air-conditioning units were removed for increased security.

Fire Detection and Suppression

Smoke detectors wired into the local fire department and manual fire alarms located in the hallway outside the collections storage areas are the only fire-detection equipment present in the repository. The St. Louis District team noticed one fire extinguisher in the hall outside the collections storage areas; fire-suppression equipment present is inadequate.

Artifact Storage

Artifacts curated at this repository are stored in Collections Storage Area 3. The following sections addressing artifact storage do not apply to Collections Storage Areas 1 or 2.

Storage Units

Boxed artifact collections are stored on unlabeled, varnished, wooden shelving units, each

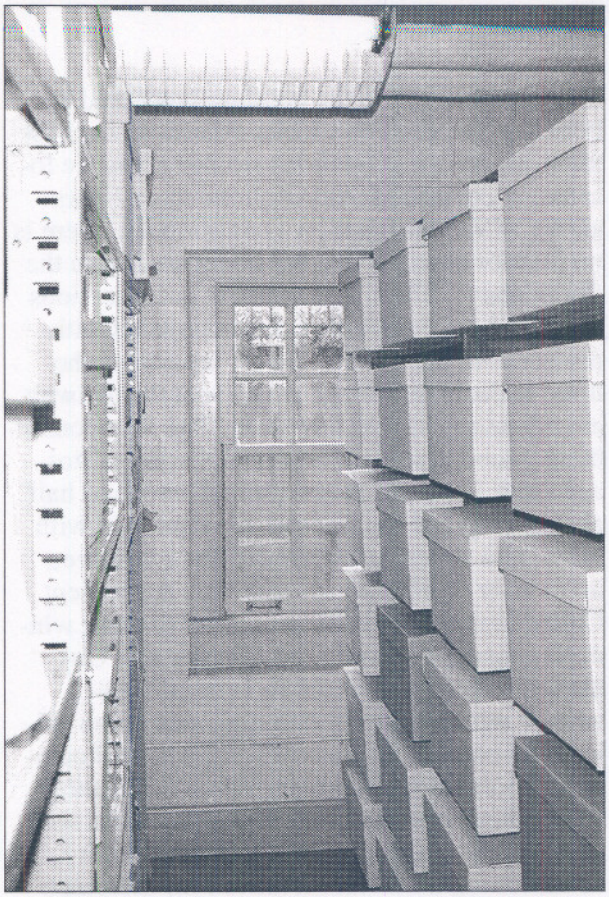

Figure 48. The proximity of collections to exterior basement windows poses a security risk at WMCAR.

measuring approximately 4 × 6.7 × 0.8 feet (w × h × d). There are six shelves per unit, and usually two boxes per shelf. Boxes can only be stacked one high; no signs of overstacking were observed. Several of the shelves tend to lean, and should be braced.

Primary Containers

Primary containers present are acid-free, Hollinger boxes with a 1.3-ft^3 storage capacity (Figure 49). The boxes are constructed by folding, with one corner glued. They have telescoping lids and built-in handles. Labels are computer-printed on acid-free paper and taped to the fronts of the boxes. Label information includes project name, box contents, site number, date, and box number.

Secondary Containers

All of the artifacts are curated in small, 2-mil, zip-lock, polyethylene bags nested within larger bags (see Figure 49). The larger (exterior) bags are not labeled, but preprinted labels on acid-free paper have been inserted into the smaller (interior) bags. Label information is written in marker and consists of project name, site number, bag number, provenience, date, comments, and excavator's initials.

Figure 49. Artifacts are stored in archival-quality, zip-lock plastic bags and acid-free cardboard boxes.

Laboratory Processing and Labeling

Fifty percent of the artifacts have been cleaned, and 50 percent have been sorted by material class or material class within provenience, but none has been labeled.

Human Skeletal Remains

No human skeletal remains associated with Atlantic Navy facilities are curated at this repository.

Records Storage

Approximately 1.9 linear feet of documentation associated with site number PM46, the Company Quarters, NAVHOS Portsmouth, are stored by WMCAR. Most records are stored in Collections Storage Area 1, and the remainder are stored in Collections Storage Area 2. Refer to Table 29 for a summary of the major classes of documentation related to NAVHOS Portsmouth curated in each area.

Collections Storage Area 1

Paper Records

Original paper records, which are arranged by project number within year, are stored in several unlocked, letter-sized, enameled-metal file cabinets located against the north wall of the archives-storage room. The dimensions of one file cabinet are 1.2 × 4.7 × 2.3 feet (w × h × d). Paper tags with computer-printed labels are contained in metal label holders on the fronts of the file drawers. Label information consists of the project numbers included in specific drawers. A three-ring binder located on top of one of the file cabinets contains the "archives index." Records are cross referenced in this index by three methods: (a) by project number and name, (b) by city and county, and (c) by agency and client names. Acidic-paper file folders with adhesive labels serve as secondary containers for paper records. Label information is typed and includes project number and name. Each project folder contains a sheet listing the contents of the specific folder. The records are in good shape, but contain contaminants (e.g., staples). Types of paper records here include administrative, background, survey, excavation, and analyses records. None of these records has been duplicated.

Photographic Records

The 17.25 linear inches of photographic records from NAVHOS Portsmouth are stored in a small room (~4 × 6 feet) off the south end of Collections Storage Area 1. Included are black-and-white (3.5 × 5 inch) prints, slides, and negatives. Photographic records are arranged by year and identification number. A photographic-record index is available that lists the types of photographic records available for each project and the identification numbers for these records.

Prints are housed in six enameled-metal file drawer units stacked on top of each other. Each drawer unit measures 1.6 × 0.6 × 1.3 feet (w × h × d), making the total height of the unit 3.6 feet. Each drawer bears a computer-generated label, within a metal label holder, listing the photograph numbers it contains. The photographs are curated in 5 × 5.5-inch (w × h), acid-free folders with adhesive labels. Label information is typed,

Table 29.
Summary of Atlantic Navy Documentation at WMCAR, by Storage Area

Documentation Class	Archives/Room 51	Large Map/Room 50	Total
Paper records	3.0	—	3.0
Photographic records	17.25	—	17.25
Maps/oversized records	—	0.25	0.25
Reports	2.25	—	2.25
Total	22.5	0.25	22.75

Note: All measurements are in linear inches.

Figure 50. Slides are stored in nonarchival, cardboard slide boxes within enameled-metal cabinets at WMCAR.

and includes project name, year, and photo numbers included within the specific folders (e.g., 92-1042 to 1044). Photographs are directly labeled in pen on their backs with photograph numbers.

Slides are stored in 10 enameled-metal file-drawer units stacked on top of each other (Figure 50). Each drawer unit measures 1.3 × 0.4 × 1 foot (w × h × d), making the total height of the unit 4 feet. Drawers have metal label holders containing computer-generated paper labels that list the range of slide numbers in each drawer. Slides relating to NAVHOS Portsmouth are stored in the original cardboard slide boxes within the drawers. The boxes bear adhesive labels stating slide numbers. There is movement toward transferring slides to archival sleeves within three-ring binders to facilitate viewing. Slides are directly labeled in pen with slide number.

Negatives are stored in archival sleeves within plastic, three-ring binders on painted shelves built against the east wall of the room. The exterior of each plastic binder bears a vinyl, adhesive label produced using a hand-held label maker. Binder-label information includes year. Each negative sleeve is directly labeled in marker with date, project name, and project number.

Project Reports

Approximately 2.25 linear inches of camera-ready versions of NAVHOS Portsmouth final reports are stored in legal-size filing cabinets in the archives storage room. They are arranged in alphabetical order by project and contained within acidic-paper file folders. File drawers are labeled alphabetically, and file folders bear adhesive labels with typed project name.

Collections Storage Area 2

Maps and Oversized Documents

The only records stored in Collections Storage Area 2 associated with the NAVHOS Portsmouth are 0.25 linear inches of oversized site maps drafted on Mylar. Additionally, a log exists for these maps that is arranged by year and drawing number. This log also provides a description of each drawing. These oversized maps and drawings are stored in a flat, five-drawer wooden map case measuring 4.5 × 1.3 × 3.5 feet (w × h × d) that is located on top of a large wooden table. A photocopy stand sits on top of the map flat. Individual map drawers are arranged alphabetically. Within the map drawers, the Mylar drawings are contained in large, acid-free paper folders. Adhesive labels with project name written in black marker are glued to the outsides of these folders. All of the maps are in good condition.

Collections-Management Standards

Registration Procedures

Accession Files

When collections or records arrive they are assigned a number that includes the year and project number (e.g., 92-1046).

Location Identification

The general collections storage area location is provided, but not the location of the record or artifact collection within the collection storage area.

Cross-Indexed Files

Files are indexed by project number, and this can be cross-indexed among the project, collection, and photograph files.

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.

Computerized Database Management

The Paradox database-management program is used to manage the artifact and records collections. Back-ups of these records are made each time the program is used or edited. One disk copy is stored in the WMCAR offices, and one is stored in the laboratory.

Written Policies and Procedures

Minimum Standards for Acceptance

WMCAR does not accept collections other than those collected by themselves.

Curation Policy

Curation-policy information is available, but has not been assembled into a single document. Information regarding the procedures undertaken to accession and organize a collection are described in paragraph form in final reports.

Records-Management Policy

Records-management information is available, but has not been assembled into a single document. Information regarding the care of associated records is described in paragraph form in final reports.

Field-Curation Procedures

A document describes how artifacts are supposed to be treated in the field.

Loan Policy

A standardized loan form is used, which includes the length of the loan and how artifacts must be cared for while on loan.

Deaccessioning Policy

No formal deaccessioning policy is in place.

Inventory Policy

An inventory policy is in place.

Latest Collection Inventory

Because WMCAR is not a long-term curation facility, a comprehensive inventory has never been carried out. Collections are processed, inventoried, and then sent to a repository that will provide long-term curation.

Curation Personnel

The full-time curatorial staff is made up of two individuals. Debbie Davenport, the senior laboratory technician, is the full-time curator of archaeological collections. Her formal training is in historical preservation, in which she earned a Bachelor's degree from Mary Washington University. David Lewes, senior draftsperson and editor, is responsible for the associated records. Lewes earned a Bachelor's degree in history from the University of Chicago. Don Linebaugh and Dennis Blanton are the codirectors of the center. Linebaugh has a Master's degree and is working on his doctorate, both from the College of William and Mary. Blanton earned a Master's degree in archaeology from Brown University.

Curation Financing

Curation is funded through monies written into cultural resource management contracts.

Access to Collections

Access to collections is controlled by Linebaugh, Blanton, and Davenport. Anyone wishing access is required to contact one of them. Researchers wishing to have access to collections must first submit a written letter of intent. Collections are not to be viewed without the supervision of the senior laboratory technician.

Future Plans

Staff view education, maintenance of collections, and research as the primary responsibilities associated with the collections. There are plans for upgrading the curation program that include replacing the wooden shelving units with steel ones, purchasing new cabinets as needed, and installing temperature and humidity controls. Even with these plans, the staff emphasize that WMCAR is only a temporary home for collections on their way to curation repositories.

Comments

1. WMCAR is located in a basement surrounded on all sides by concrete, and is therefore not as susceptible to fire as many repositories. However, no adequate fire-detection and -suppression system is in place.

2. Although there have been no past episodes of overhead pipes in the collections storage area leaking, the steam release valves are located directly above the fluorescent lights, creating a fire hazard.

3. Humidity is monitored with a digital "Thermo-Hygro" reader, and partially controlled with a dehumidifier. However, paint is peeling off the ceiling in sheets because of humidity fluctuations.

4. Collections are stored in proximity to ground-level windows with no shades and only simple locks, creating a security risk.

5. Artifact collections are curated in acid-free boxes and archival, zip-lock bags. However, they are stored on varnished-wood shelving units that can emit harmful acids through outgassing. Outgassing increases at higher temperatures and at relative humidity above 80 percent.

6. Associated records are well organized, but only the photographic prints and negatives are archivally preserved. None of the records have been duplicated.

7. No integrated pest-management program is in place, but no evidence of pest infestation was observed by the St. Louis District team during the site visit.

Recommendations

1. Upgrade the fire-detection and -suppression system to include smoke alarms and multiple fire extinguishers. If possible, install a sprinkler system.

2. If possible, the electrical lines and light fixtures should be moved from under the steam pipes and release valves as a further fire-prevention measure.

3. If it is not feasible to install an HVAC system to monitor and control temperature and humidity, an additional commercial dehumidifier should be purchased for Collections Storage Area 3.

4. Collections should not be stored directly in front of windows. Window coverings (e.g., commercial shades or plywood) should be purchased for the windows in Collections Storage Area 3 to prevent exposure of collections to ultraviolet rays and fading of box labels. Additionally, bars or some other type of deterrent should be placed over the exteriors of the windows as a security measure.

5. Future plans for the repository include replacing the varnished-wood shelving units with metal ones. This should be a priority before the acids in the wooden shelves destroy the archival containers on them.

6. All paper records should be duplicated on acid-free paper or microfilm, and duplicates of the photographic records should be produced. A copy of these records should be stored at a separate, fire-proof, secure location. The original associated records should accompany the artifact collections to a long-term curation facility, and copies of these records should remain at WMCAR.

7. An integrated pest-management program that includes monitoring and control should be implemented.

8. Apply adhesive, plastic label holders containing acid-free labels to the fronts of artifact boxes (or adhere small, zip-lock, plastic bags). If label information or box contents changes, old labels can be replaced without damaging the box.

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Findings Summary for Atlantic Division Naval Facilities Engineering Command

Fourteen storage locations associated with 12 repositories in three states and one U.S. territory are known to curate Atlantic Navy archaeological collections. Each of these storage locations was visited by the St. Louis District team. The assessment team examined collections at each location and located 98 associated technical reports. The St. Louis District team examined all known Atlantic Navy collections at each location (Table 30). A building evaluation, survey questionnaire, and collections and documentation evaluation were completed at each location.

In sum, the following can be concluded:

1. None of the 14 storage locations housing Atlantic Navy collections meets the standards of 36 CFR Part 79. Several storage locations approach the minimum requirements.

2. To achieve proper care, collections should be brought together into no more than two regional repositories.

3. Nine locations house Atlantic Navy artifact collections. Artifact collections in six (67%) of these require complete rehabilitation.

4. Records care in only one (8%) of the 12 repositories meets the standards for archival preservation. Associated records in six (50%) are in less-than-poor condition and require complete rehabilitation, while records in five (42%) need partial rehabilitation.

5. Management controls and a master collections inventory and database for Atlantic Navy collections do not exist and should be created immediately.

Infrastructure Controls

Buildings housing Atlantic Navy collections can be divided into six general types: one museum, two multistory office buildings, one collections facility, three university classrooms/laboratories, one self-storage unit, and six buildings converted to office/laboratory space. Only two of the 14 storage locations have been designed or adapted to the requirements of a modern curation facility. Universities use whatever space they can acquire from their governing bodies, while contracting agencies, which are only temporary-curation repositories, are inadequately equipped to serve as long-term curation repositories.

Nine of the 14 storage locations (64%) receive maintenance on a regular basis. Thirty-six percent are cleaned on an as-needed basis. This has resulted in dust-covered boxes and shelves and the presence, in some cases, of dead insects and rodent feces. Additionally, 6 (43%) of the storage locations store extraneous items such as

Table 30.
Summary of Collections, by Location

Location	Number of Artifact Boxes	Cubic Feet of Artifacts	Linear Inches of Records	Human Remains (MNI)[a]
ARC	1	0.7	20.25	—
EHA	—	—	42.0	—
JRIA	4	2.9	13.75	—
MAAR	—	—	7.5	—
NCOSA	13	19.0	25.0	1
Goodwin	5	5.3	9.0	—
SHPO, PR	—	—	6.5	—
Turabo	27	40.0	24.0	8
UNCW	48	55.4	43.25	38[b]
VCUARC	42	56.0	22.0	—
VDHR	5	15.0	9.75	—
WMCAR	3	3.9	22.75	—
Total	158	198.2	245.75[c]	47

[a] MNI = Minimum number of individuals.
[b] Individual counts could not be confirmed due to the method in which the remains were packaged. However, the anthropologist who performed the analysis arrived at a MNI of 38.
[c] 20.5 linear feet.

field equipment, hazardous chemicals, or personal items in collections storage areas, an unacceptable practice in professional collections management facilities.

None of the 14 locations is in compliance with the standards set forth in 36 CFR Part 79 for the curation of archaeological collections and associated records. Twelve (86%) storage locations are in partial compliance with the major standards: proper environmental controls, security, pest management, and fire safety. Two (14%) do not comply with any of the standards. These controls, and how well they are met, are discussed briefly and are summarized in Table 31.

A final measure of the care afforded collections can be ascertained by examining the professional staff devoted to collections management. Only five of the 12 repositories employ full-time curators for archaeological collections, and in our sample, one curator is responsible for the archaeological collections and associated records stored in three locations.

Environmental Controls

Environmental monitoring and adequate environmental controlling, most often provided by an HVAC system, do not exist in 13 of the 14 storage locations (see Table 31). Excluding those with HVAC systems, 9 (64%) control temperature through the use of central heating and air-conditioning systems but do not adequately monitor or control humidity fluctuations. Four (29%) locations have no type of temperature or humidity monitoring or controlling systems, which has contributed to, and will continue to contribute to, deterioration of the artifact collections and associated records.

Pest Management

Thirteen (93%) of the 14 locations control for pests on an as-needed basis by spraying and trap baiting. None has a formal pest-management program in place (see Table 31), one that

Table 31.
Presence or Absence of Repository Infrastructure Controls

Location	Environmental Controls		Pest Management	Security	Fire Controls	Full-Time Curator
	HVAC Where Collections Stored?	Temperature Controls				
ARC			as needed			
EHA		x	as needed	x	x	x
JRIA		x	as needed			x
MAAR		x	as needed			
NCOSA		x			detection only	
Goodwin		x	as needed	x	detection only	
SHPO, PR		x	as needed			
Turabo			as needed			
UNCW	x	x	as needed		detection only	
VCUARC			as needed		detection only	x
VDHR						
Storage Location 1			as needed	x	x	x [a]
Storage Location 2		x	as needed		x	x [a]
Storage Location 3		x	as needed			x [a]
WMCAR		x	as needed		detection only	x

[a] The same individual is responsible for the collections in each of these collections storage locations.

monitors and controls for insects and small mammals. One (7%) of the storage locations takes no precautions against pests. Types of chemicals used, their frequencies of use, and the attendant hazard to personnel and collections they present are beyond the scope of this report, but should be investigated.

Security

Three (21%) of the storage locations meet federal standards for the security of archaeological collections (see Table 31); a primary requirement is the presence of intrusion alarms. All of the locations are secured with key and/or dead bolt locks, most provide for limited access, and those with windows include simple window locks. Although no documented cases of unauthorized entry linked with loss of Atlantic Navy collections were reported, the potential for this exists at several of the locations evaluated.

Fire Detection and Suppression

Fire-detection or -suppression devices are not in place at 6 (42%) of the 14 collections storage locations. Although 4 (29%) storage locations provide adequate-to-superb fire detection, only 4 (29%) have adequate fire-detection and -suppression systems where collections are stored, including smoke detectors, fire alarms, fire extinguishers, and sprinkler systems. Adequate fire detection, in most instances, is ineffective without adequate fire suppression.

Artifact Curation

Nine storage locations house Atlantic Navy artifact collections (see Table 30). Only 2 (22%) of these have adequately prepared them for long-term curation. Most collections have not been properly cleaned, labeled, or packaged. Fewer than half of the repositories employ full-time curators for their archaeological collections.

Primary containers tend to be slightly larger than 1 ft^3, acidic-cardboard boxes, with flap or telescoping lids. Many are over packed and coated with dust. On a positive note, all boxes contained some type of label, if only rudimentary.

Table 32.
Summary of Secondary Containers Used for Atlantic Navy Collections, by Percentage

Container Type	%
Archival zip-lock plastic bags	32
Acidic-paper bags	27
Nonarchival zip-lock plastic bags	28
Small acidic-cardboard boxes	< 1
Loose in box	3
Small archival cardboard boxes	< 1
Newspaper	4
Bubble wrap	2
Nonarchival tied plastic bags	2
Total	100

Most (55%) of the secondary containers (Table 32) consist of nonarchival, zip-lock, plastic bags or acidic-paper bags, both of which are unacceptable curation-storage containers that contribute to artifact deterioration. Only 32 percent of the secondary containers observed were archival, polyethylene, zip-lock bags. Most were labeled directly, but adhesive labels were also observed.

Data were also generated regarding the major prehistoric and historical-period material classes observed in each Atlantic Navy collection (Table 33). Shell, human skeletal remains, ceramics, and lithics are most abundant in the prehistoric collections. Principal historical-period materials include metal, brick, glass, and ceramics.

Human Skeletal Remains

Human skeletal remains constitute the second-largest prehistoric material class (see Table 33). A minimum number of 47 individuals (based on anatomical singularity) is included in the Atlantic Navy collections. At present, all known human skeletal remains are being curated at the UNCW, NCOSA (one fragment), and Turabo (eight individuals). Thirty-seven of these

Table 33.
Summary of Material Classes Present in Atlantic Navy Collections, by Percentage

Material Class	%
Prehistoric	
Ceramics	11
Lithics	5
Human remains	13
Faunal remains	3
Shell	23
Botanical	< 1
Soil	2
Flotation	2
^{14}C	< 1
Historical-period	
Ceramics	8
Glass	8
Faunal remains	< 1
Shell	2
Metal	13
Leather	< 1
Coins	< 1
Brick	8
Mixed	< 1
Other	< 1
Total	100

individuals have undergone basic analyses to determine age, sex, and possible pathologies. Complete rehabilitation (e.g., reboxing, rebagging, and labeling) should be carried out in order to stabilize the remains. A complete inventory should be generated in order to comply with NAGPRA.

Records Management

Records associated with Atlantic Navy projects encompass approximately 20.5 linear feet and include paper records, photographic records, maps, and project reports (see Table 30). The St. Louis District team located 98 final project reports (most stored at state repositories) that document archaeological work at Atlantic Navy facilities. Thirteen of the 14 storage locations house Atlantic Navy associated records.

Archives protocols were observed at only one (8%) of these storage locations. 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 drawers. Duplicate sets of associated records were reported to have been sent with artifacts to the state repository in four instances; however, in only one instance did a set of project documentation appear to exist in its entirety at a state repository. Records for many of the collections cannot be located.

Environmental controls for both temperature and humidity that meet the federal standards set forth in 36 CFR Part 79 exist at only one (8%) of the 13 storage locations containing records. Although not yet a major problem, records housed in the remaining 12 storage locations are subject to potentially-damaging temperature and humidity fluctuations. Records readily absorb and release moisture, leading to expansion and contraction; these dimensional changes accelerate deterioration and promote major visible damage such as crinkling paper, flaking ink, warped book covers, and cracked emulsion on photographs.

Collections-Management Standards

Basic policy and procedure statements for artifact curation, inventorying, records management, and deaccessioning are present at four of the 12 repositories, are partially present at two, and are not present at six. Therefore, most of the examined locations entrusted with the care of a portion of our national heritage have no long-term plan for the management of these resources. This responsibility must also be honored by the federal managers and be corrected immediately. Failure to meet elementary curation needs and responsibilities has led to substandard care of many Atlantic Navy collections.

Prior to this curation-needs assessment, the Atlantic Navy was unaware of the extent, locations, or conditions of their archaeological collections. Atlantic Navy personnel should be commended for recognizing this problem and addressing it, but now that specific deficiencies have been identified, steps must be taken to preserve these collections. At a minimum, a plan of action for the long-term management of the Atlantic Navy collections should include the following four items.

1. Inventory all human skeletal remains to comply with NAGPRA.

2. Establish priorities for the collections and their rehabilitation.

3. Inventory and rehabilitate the collections.

4. Develop an archives-management plan.

Implementation of these minimal tasks will contribute greatly to our understanding of the culture history of the eastern United States and North America.

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Recommendations

The following general recommendations are submitted for bringing the collections of the Atlantic Navy into compliance with 36 CFR Part 79 and NAGPRA. To ensure maximum savings in cost to the Atlantic Navy, compliance with 36 CFR Part 79 and NAGPRA should be undertaken simultaneously.

Develop a Plan of Action

A plan of action for archaeological materials must minimally address (1) long-term housing of the collections and records, (2) rehabilitation of artifacts, (3) rehabilitation of the associated records, and (4) management of these data.

Bring Collections Together

A plan of action for the long-term care of collections and associated records must be adopted by the Atlantic Navy. The St. Louis District recommends a cost-effective solution: bringing collections together into one regionally based, federally owned or -leased repository constructed specifically for the long-term curation and management of archaeological collections. Another, less cost-effective, option is to place the collections into existing storage locations in their states of origin, or bring collections together into one regionally based existing storage location, then spend the requisite funds to upgrade these locations to meet federal curation standards and the regional differences in collections and management needs.

If the Atlantic Navy chooses to bring collections together into one already existing storage location, information from this assessment should prove useful. Although not all 36 CFR Part 79 standards are met, the St. Louis District recommends that the collections be brought together at VDHR. VDHR's Tobacco Row building currently has the most space available and requires relatively minor renovations to attain federal standards (e.g., an HVAC system; see Chapter 12).

Develop a Formal Archives-Management Program

A plan of action for the archives must be developed immediately to establish archives-deficiency priorities within the storage locations/repositories that contain Atlantic Navy records. Following the survey, all records must be brought together and rehabilitated to comply with existing federal guidelines and standards for modern archival practices. Archive rehabilitation should precede collection rehabilitation, because the documentation that the St. Louis District team was able to locate is in more immediate danger of being lost. Rehabilitation costs for these collections are estimated to be $14,700 (1994 cost level). Appropriate cost-of-storage furniture is subsumed under the equipment estimate described in the following section. Archives rehabilitation includes eight steps.

1. Develop an archives inventory-management program that uses microcomputer technology.

2. Inventory and catalog all associated records to professional museum standards.

3. Using professional staff, conduct a condition assessment of all records, and implement long-term conservation program for appropriate records.

4. Conserve significant records that are currently at risk.

5. Transfer general records into acid-free folders and appropriate archival storage units.

6. Place photographs, negatives, and slides into archival, polyethylene sleeves, acid-free envelopes, and appropriate storage units.

7. Catalog and curate large-scale maps in metal map cases.

8. Produce duplicate/back-up copies of associated records that will be stored in a separate location.

Inventory and Rehabilitate Existing Artifact Collections

The physical condition of all artifacts should be inspected. A treatment priority should be assigned to all artifacts so that those needing immediate treatment are rehabilitated first. Rehabilitation must include the following.

1. Inventory and catalog all artifact collections to a standard consistent with those of a professional museum.

2. Label and package artifacts to one consistent standard, and place them in archivally stable containers.

3. Using professional curators, conduct a condition assessment of all perishable artifacts.

4. Implement a long-term conservation program.

5. Develop a collections manual to aid in the management of collections.

These steps will result in the stabilization and preservation of existing collections, and will ensure their management in the most cost-efficient manner for the federal taxpayer. Proper management of these collections will allow scholars, students, and the public to access and benefit from the archaeological collections belonging to the Atlantic Navy, which currently do not approach their potential for use. Cost for rehabilitation to the 198 ft^3 of Atlantic Navy archaeological materials is approximately $168,300 (1994 cost level). Contingent upon Atlantic Navy curation decisions, an additional $1 million may be required for equipment needs associated with the collections.

Comply with NAGPRA

NAGPRA compliance includes an examination of Atlantic Navy collections for human skeletal remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony. It is not possible to provide a cost estimate for the task at this time; when a general survey of NAGPRA-related issues is completed, a realistic cost estimate can be produced. To satisfy the requirements for NAGPRA, the following tasks need to be performed at the two known repositories holding Atlantic Navy collections.

1. Conduct a records search of the collections to identify the accession numbers, catalog numbers, and locations of human skeletal remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony.

2. Perform a physical inspection 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

a. a detailed inventory listing elements present, their completeness, and their conditions;

b. measurements of long bones and crania sufficient to provide basic descriptions of physical characteristics, stature, and morphology;

c. estimates of age and gender; and

d. observations of any pathological conditions, cultural modifications, and evidence of life activities and trauma that might provide evidence of cultural affiliation of the remains or the context from which they were recovered.

4. Produce summary and inventory reports for each repository. [*Editors' note:* Atlantic Navy NAGPRA Section 5 inventory was completed by the St. Louis District in 1997.] The summary (from Draft 4 of the NPS's NAGPRA guidelines) should include the following information.

a. Information concerning unassociated funerary objects, sacred objects, and objects of cultural patrimony.

b. An estimate of the number of objects in the collection.

c. A description of the kinds of objects in the collection with, where readily ascertainable, reference to the means and dates of acquisition and locations from which the collections came.

d. If available, information relevant to identifying lineal descendants and cultural affiliation.

The inventory (from Draft 4 of the NPS's NAGPRA guidelines) should contain the following information.

a. Information concerning human skeletal remains and associated funerary objects.

b. An item-by-item list of all human skeletal remains and associated funerary objects that are identified as being culturally affiliated with one or more present-day Native American tribes.

c. A list of all human skeletal remains and associated objects for which no present-day Native American tribe can be determined.

d. Accession and catalog entries of human remains with which funerary objects were associated.

e. If known, information related to the acquisition of each object, including the name of the person and/or organization for whom the object was acquired, the means of acquisition, and the antiquity of the human remains and associated funerary objects.

f. A description of each set of funerary remains and associated funerary objects, including dimensions, materials, and photographic documentation.

Develop Cooperative Agreements

To ensure the professional curation of its archaeological collections, the Atlantic Navy should develop cooperative agreements with repositories for long-term curation.

To defray costs, the Atlantic Navy should develop cooperative agreements with other agencies to share the costs of building construction and collections rehabilitation. Cooperative agreements provide opportunities for joint ventures between and among federal agencies with similar curation requirements. The St. Louis District has long-term experience in this area and, if needed, can assist the Atlantic Navy.

Dedicate Space for Storage of Collections

Following the adoption of a curation strategy, the Atlantic Navy must develop a plan of action that identifies how their curation location will function. Space must be dedicated strictly for curating archaeological collections and associated records. Office, research, and work areas must be separate from storage areas. Space that is used both as storage and work areas is not acceptable. Minimal curation standards must include the following points.

1. Temperature and humidity in storage spaces should be maintained at levels specifically appropriate for the types of objects being curated.

2. The number of exterior walls, windows, and doors in storage spaces should be minimized in order to (a) decrease the chance of condensation on walls and windows during seasonal temperature changes, (b) enhance security, and (c) increase energy efficiency.

3. Water lines associated with fire-suppression systems are the only kind of overhead pipes allowed in a collections storage area. Sewer pipes and all other water pipes should be removed.

4. Electrical junction boxes and gas and electric meters should be outside the collections storage area in order to limit access by noncuratorial staff.

5. Storage areas should be large enough to accommodate existing collections as well as projected growth needs.

Maintain Systems for Security, Fire Protection and Suppression, and Maintenance

A collections facility must maintain systems for the security, fire protection, and maintenance of the collections storage area that minimally incorporate the following.

Security

Entrances to collections storage areas should have metal or solid-core wooden doors. Doors should have dead-bolt and key locks, and the storage area should be protected by an electronic intrusion-detection system. Keys to the storage area must be restricted to repository staff. All cabinets housing archaeological collections should be kept locked, unless items are being used for research. Researchers and visitors should not be allowed access to the collections storage area unless accompanied by curatorial staff. When researchers and/or visitors request to work with objects, it is best that the objects be taken to a separate area outside of the collections storage area.

Fire Detection and Suppression

Fire-detection and -suppression systems must be installed to safeguard collections and staff. Smoke detectors and fire extinguishers matched to the types of materials that might catch fire must be placed in all parts of the collections storage area. In addition, the appropriate types and number of fire extinguishers, in relation to the types of collections and the overall size of the collections storage area, must be properly maintained and placed in clearly marked positions within the collections storage area. Sprinkler systems should be installed throughout the repository and in the collections storage area.

Maintenance of Repository

A scheduled plan for maintenance in the collections storage area should be established that would include routine sweeping, mopping, and dusting by curatorial staff or a bonded janitorial service. In addition, an integrated pest-management program, which includes regular monitoring for signs of pest infestation, must be implemented. Smoking, eating, and drinking should be forbidden in the collections storage area.

Hire a Full-Time Manager for Archaeological Collections

It is imperative that a full-time collections manager, with professional qualifications and prior experience in collections management, be hired to care for the archaeological collections. Collections managers minimally perform the following tasks.

1. Ensure that adequate written policies and procedures are in place and are shared so that staff have appropriate guidance.

2. Ensure that management records are kept up to date, complete, properly monitored, and readily available to researchers.

3. Manage a computerized database.

4. Ensure that artifacts can be located easily.

5. Ensure that objects are properly labeled.

6. Ensure that the artifacts and records are maintained under physically secure conditions, whether in storage, on exhibit, or under study.

7. Perform periodic inventories and inspections of collections and records to ensure their long-term survival.

At a minimum, the St. Louis District recommends that the aforementioned points must be addressed in order to bring the Atlantic Navy collections into compliance with federal standards for archaeological curation.

The Atlantic Navy has been entrusted with important collections of prehistoric and historical-period artifacts. Its facilities occupy areas of great importance in the history of this country. Our knowledge of Native American prehistory and North American history will benefit from the Atlantic Navy collections. Citizens of the United States trust that their national heritage will be preserved for future generations. Atlantic Navy contributions to that heritage are important.

APPENDIX 1

Annotated Bibliography for Atlantic Navy Facilities

North Carolina

MCB Camp Lejeune

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Report Location: Virginia Department of Historic Resources

Otter, Edward
1991 *Phase I Archaeological Survey for Property Rights Acquisition of the Fish and Tull Properties West of Runway 10/28 Wallops Island Flight Facility, Accomac County, Virginia.* Telemarc, Inc., Fairfax, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

Wittkofski, J. Mark
1980 *Review and Compliance Phase I Reconnaissance Summary Naval Surface Weapons Center Structure: Wallops Island.* Virginia Department of Historic Resources, Richmond, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

AFETA Camp Peary

Fesler, Garrett R.
1992 *Phase I Archaeological Survey of Approximately 2.5 Acres within Three Parcels at Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1992 *Phase I Archaeological Survey of 44 Acres within 13 Parcels at Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1992 *Phase I Archaeological Survey of Approximately Four Acres within Three Parcels at Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1992 *Phase I Archaeological Survey of a Proposed 1,200 Foot Pipe Line Right-of-Way, Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of the Proposed Footprint of the Laurel Training Center Building, Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

Fesler, Garrett R., Martha McCartney, and Perry McSherry

1993 *Phase I Archaeological Survey in York County of a 6,100 Ft. Main Feed Waterline Replacement Serving Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of a Proposed 3,500 Ft. Roadway Safety Zone along Target Road in Range 37 Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of a Proposed Building Site on Redwood Lane in Range 21 at the Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of Kennelwood Shoreline Stabilization Zone, a 450 Ft. by 100 Ft. Area behind Kennelwood Road in Range 8 at the Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of Twenty-Three Log Landings in Ranges 15, 17, 21, 23, 26, 29, 30, 31, 36, and 42 at Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

1993 *Phase I Archaeological Survey of Two Borrow Pit Locations in Range 3 on Boundary Road and Range 33 on Ambush Road at Armed Forces Experimental Training Activity, Camp Peary, Williamsburg, Virginia.* James River Institute for Archaeology.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

Fleet Combat Training Center Atlantic, Dam Neck

Dickinson, Martin F., and Lucy B. Wayne
1983 *Appendix B (Nonpublic) of the Draft Environmental Impact Statement (DEIS) for Alternative Location of a Landing Craft Air Cushion (LCAC) Operational Base on the East Coast of the United States.* Water and Air Research, Inc., Gainesville, Florida.

Collection Location: N/A
Documentation Location: N/A
Report Location: Virginia Department of Historic Resources

Water and Air Research, Inc.
1983 *Final Ecological Evaluation for the Fleet Combat Training Center, Atlantic, Dam Neck, Virginia.* EDAW, Inc., and Water and Air Research, Inc., Alexandria, Virginia.

Collection Location: N/A
Documentation Location: N/A
Report Location: Virginia Department of Historic Resources

1984 *Cultural Resources Survey of the Phase I Wetlands Mitigation Site, FCTC, Dam Neck, Virginia.* Water and Air Research, Inc., Gainesville, Florida.

Collection Location: Water & Air Research, Inc., Gainesville, Florida
Documentation Location: Water & Air Research, Inc., Gainesville, Florida
Report Location: Virginia Department of Historic Resources

1984 *Cultural Resources Survey of the Phase II Wetlands Mitigation Site, FCTC, Dam Neck, Virginia.* Water and Air Research, Inc., Gainesville, Florida.

Collection Location: Water & Air Research, Inc., Gainesville, Florida
Documentation Location: Water & Air Research, Inc., Gainesville, Florida
Report Location: Virginia Department of Historic Resources

U.S. Army Corps of Engineers, Mobile District
1987 *A Cultural Resources Survey of a Proposed Wetlands Mitigation Site, U.S. Navy Fleet Combat Training Center Atlantic, Dam Neck, Virginia Beach, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: LANTDIV
Report Location: Virginia Department of Historic Resources

1987 *A Cultural Resources Training Assessment of Two Areas, U.S. Navy Fleet Combat Training Center Atlantic, Dam Neck, Virginia Beach, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: LANTDIV
Report Location: Virginia Department of Historic Resources

NAS Oceana

Cottrell, Marie
1993 *Cultural Resources Assessment for the Proposed Aircraft Fuel Storage Site (D-412), Naval Air Station Oceana, Virginia Beach, Virginia.* Naval Facilities Engineering Command, Atlantic Division, Norfolk, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

Davis, Thomas W., William T. Dodd, and John J. Mintz
1993 *Phase I Archaeological Investigations for Proposed Vegetation Maintenance/Management Areas and a Proposed Wetlands Restoration Project, Naval Air Station Oceana, Virginia Beach, Virginia.* R. Christopher Goodwin & Associates, Inc., Frederick, Maryland.

Collection Location: Goodwin & Associates, Inc.
Documentation Location: Goodwin & Associates, Inc.
Report Location: Virginia Department of Historic Resources

Wittkofski, J. Mark
1980 *A Phase I Archaeological Reconnaissance Survey of the Proposed Improvements to the Entrance to Oceana Naval Air Station, Virginia Beach, Virginia.* Virginia Research Center for Archaeology, Williamsburg, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined

Report Location: Virginia Department of Historic Resources

Naval Amphibious Base, Little Creek

Greenhorne & O'Mara, Inc.
1991 *Historic and Archaeological Resources Protection (HARP) Plan for Naval Amphibious Base, Little Creek, Norfolk, Virginia.* Greenhorne & O'Mara, Inc., Greenbelt, Maryland.

Collection Location: N/A
Documentation Location: N/A
Report Location: Virginia Department of Historic Resources

Naval Amphibious Base Annex, Camp Pendleton

U.S. Army Corps of Engineers, Mobile District
1987 *An Archaeological Survey of the Naval Amphibious Base Annex, Camp Pendleton, Virginia Beach, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: LANTDIV
Report Location: Virginia Department of Historic Resources

Naval Facilities Engineering Command, Atlantic Division

Mouer, L. Daniel
1986 *Planning Services at Various Activities under the Cognizance of the Atlantic Division Naval Facilities Engineering Command.* Archaeological Research Center, Virginia Commonwealth University, Richmond, Virginia.

Collection Location: N/A—Planning Document
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Archaeological Research Center, Virginia Commonwealth University

FISC Cheatham Annex

McCary, Ben C.
1964 Queen Creek Site, Cheatham Annex, York County, Virginia. *Quarterly Bulletin* 19(2). Archaeological Society of Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

McDonald, Bradley M.
1993 *Phase I Archaeological Survey of a Proposed 10,800 Foot Pipe Line Right-of-Way from the York County Amoco Oil Refinery to the U.S. Naval Fuel and Industrial Center, Yorktown, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: Virginia Department of Historic Resources

Weber, Carmen A.
1981 *Phase I Survey, Firemen's Training Facility, Cheatham Annex, Naval Supply Center, York County.* Department of Anthropology, College of William and Mary, Williamsburg, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

U.S. Army Corps of Engineers, Mobile District
1987 *Phase I Cultural Resources Survey, Municipal Sewer Connection, Naval Supply Center (Cheatham Annex) and Camp Peary, Williamsburg, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: Public Works, Cheatham Annex
Note: This collection includes human skeletal remains. Cheatham Annex was contacted by telephone, and reported that no artifacts, human remains, or documentation were in their possession.
Documentation Location: LANTDIV
Report Location: Virginia Department of Historic Resources

NAVHOS Portsmouth

Higgins III, Thomas F., and Charles M. Downing
1991 *Phase III Data Recovery at Site 44PM46 for Proposed Relocation of Commanding Officer's Quarters, Naval Hospital, Portsmouth, Virginia.* Center for Archaeological Research, College of William and Mary, Williamsburg, Virginia.

Collection Location: William and Mary Center for Archaeological Research
Documentation Location: Center for Archaeological Research, College of William and Mary
Report Location: Virginia Department of Historic Resources

Higgins III, Thomas F., Robert R. Hunter, Jr., and Charles M. Downing
1990 *A Phase II Archaeological Evaluation of the Proposed Site for the Relocation of the CO's Qtrs at the Portsmouth Naval Hospital, Portsmouth, Virginia.* Center for Archaeological Research, College of William and Mary, Williamsburg, Virginia.

Collection Location: William and Mary Center for Archaeological Research
Documentation Location: Center for Archaeological Research, College of William and Mary
Report Location: Virginia Department of Historic Resources

Traver, Jerome D.
1990 *Phase I Cultural Resource Survey, Portsmouth Naval Hospital, Portsmouth, Virginia.* Mid-Atlantic Archaeological Research Associates, Inc., Williamsburg, Virginia.

Collection Location: Virginia Department of Historic Resources
Documentation Location: Virginia Department of Historic Resources; Mid-Atlantic Archaeological Research Associates, Inc.
Report Location: Virginia Department of Historic Resources

U.S. Army Corps of Engineers, Mobile District
1990 *Phase I Historic Resource Survey and Preliminary Archaeological Testing of Selected Areas at Portsmouth Naval Hospital, Portsmouth, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: LANTDIV
Report Location: Virginia Department of Historic Resources

NAVSECGRUACT Northwest

Fesler, Garrett R., and Nicholas M. Lucketti
1992 *Phase I Archaeological Survey of the 23 Acre Classic Owl Training Facility and 80 Acres at the Stand 36 Timber Sale, Naval Security Group Activity, Northwest Coast, Chesapeake, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

Greenhorne & O'Mara, Inc.
1991 *Historic and Archaeological Resources Protection Plan (HARP) for Naval Security Group Activity, Northwest Chesapeake, Virginia.* Greenhorne & O'Mara, Inc., Greenbelt, Maryland.

Collection Location: N/A
Documentation Location: N/A
Report Location: Virginia Department of Historic Resources

McCartney, Martha
1992 *Naval Security Group Activity, Northwest, City of Chesapeake, Virginia. Phase I Report of Archival Research.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: N/A
Documentation Location: Undetermined
Report Location: James River Institute for Archaeology

U.S. Army Corps of Engineers, Mobile District
1987 *A Cultural Resources Assessment of Two Areas, U.S. Navy, Naval Security Group Activity, Northwest Chesapeake, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: LANTDIV

Report Location: Virginia Department of Historic Resources

U.S. Department of the Navy
1991 *Final Environmental Assessment for Stand 36 Timber Sale at Naval Security Group Activity, Northwest, Chesapeake, Virginia.*

Collection Location: N/A
Documentation Location: N/A
Report Location: Virginia Department of Historic Resources

NAVSECGRUACT Sabana Seca

Grantz, Denise L., Martin T. Fuess, and Scott F. Corrales
1993 *Phase IA-IB Cultural Resources Study of the Proposed Wetlands Treatment System at Site 7, Naval Security Group Activity Sabana Seca, Puerto Rico.* Baker Environmental, Inc., Coraopolis, Pennsylvania.

Collection Location: Unknown, possibly Baker Environmental, Inc.
Documentation Location: Unknown
Report Location: Puerto Rico Historic Preservation Office

Naval Base, Norfolk

Traver, Jerome D.
1992 *Phase I Cultural Resource Survey of the Jamestown Flag Officers Quarters, U.S. Naval Base, Norfolk, Virginia.* Mid-Atlantic Archaeological Research Associates, Inc., Williamsburg, Virginia.

Collection Location: Virginia Department of Historic Resources
Documentation Location: Virginia Department of Historic Resources; Mid-Atlantic Archaeological Research Associates, Inc.
Report Location: Virginia Department of Historic Resources

NAVSTA Roosevelt Roads

Rodriguez, Miguel, and Virginia Rivera
1988 *Addendum to the Data Recovery Program Preliminary Report for Playa Blanca 5, Ceiba 10 Prehistoric Site, Roosevelt Roads Naval Station, Ceiba, Puerto Rico.* Rodriguez & Rivera Archaeological Associates, Toa Baja, Puerto Rico.

Collection Location: Turabo University
Documentation Location: With authors and at Turabo University
Report Location: Puerto Rico Historic Preservation Office

1989 *Archaeological Data Recovery Program at Playa Blanca 5 Site, Roosevelt Roads, Ceiba, Puerto Rico.* Rodriguez & Rivera Archaeological Associates, Toa Baja, Puerto Rico.

Collection Location: Turabo University
Documentation Location: With authors and at Turabo University
Report Location: Puerto Rico Historic Preservation Office

Sanders, Suzanne L., Jose R. Oliver, Eliza Edwards, John A. Calabrese, and Donald J. Maher
1994 *Phase I Archaeological Survey of 860 Acres at Naval Station Roosevelt Roads, Ceiba, Puerto Rico.* R. Christopher Goodwin & Associates, Inc., Frederick, Maryland.

Collection Location: R. Christopher Goodwin & Associates, Inc.
Documentation Location: R. Christopher Goodwin & Associates, Inc.
Report Location: Puerto Rico Historic Preservation Office

NWS Yorktown

Ecology and Environment, Inc.
1988 *Data Recovery Plan for Sites 44YO415 and 44YO417, Naval Weapons Station, Yorktown, Virginia.* Ecology and Environment, Inc., Lancaster, New York.

Collection Location: N/A
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

1991 *Additional Phase 2 Cultural Resource Investigations at Sites 44YO416, Naval Weapons Station, Yorktown, Virginia.* Ecology and Environment, Inc., Buffalo, New York.

Collection Location: Possibly at Ecology & Environment, Inc.; Virginia Department of Historic Resources

Documentation Location: Possibly at Ecology & Environment, Inc.; Virginia Department of Historic Resources
Report Location: Virginia Department of Historic Resources

Fesler, Garrett R., and Nicholas M. Lucketti
1992 *Phase I Archaeological Survey: 50 Acres within Seven Parcels at the Yorktown Naval Weapons Station, Yorktown, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: James River Institute for Archaeology
Documentation Location: James River Institute for Archaeology
Report Location: James River Institute for Archaeology; Virginia Department of Historic Resources

Green, Paul R.
1983 *Phase I Archaeological Survey of a Proposed Mine Engineering Facility at Yorktown Naval Weapons Station, Yorktown, Virginia.* Environmental and Natural Resources Division, Fort Monroe, Virginia.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

Greenhorne & O'Mara, Inc.
1987 *Final Report: Phase One Archaeological Surveys of Eleven Proposed Construction Project Areas, Naval Weapons Station, Yorktown, Virginia.* Greenhorne & O'Mara, Inc., Greenbelt, Maryland.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

1988 *Phase One Archaeological Surveys of 84 Acres, Naval Weapons Station, Yorktown: Final Report.* Greenhorne & O'Mara, Inc., Greenbelt, Maryland.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

1989 *Archaeological Evaluation at the Yorktown Naval Weapons Station, York County, Virginia, Final Report.* Greenhorne & O'Mara, Greenbelt, Maryland.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

McCartney, Martha
1992 *Yorktown Naval Weapons Station, York County, Virginia.* James River Institute for Archaeology, Williamsburg, Virginia.

Collection Location: N/A
Documentation Location: Undetermined
Report Location: James River Institute for Archaeology

Mouer, L. Daniel, and Robin L. Ryder
1987 *Phase One Archaeological Surveys of Eleven Proposed Construction Project Areas, Naval Weapons Station, Yorktown.* Archaeological Research Center, Virginia Commonwealth University, Richmond.

Collection Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Archaeological Research Center, Virginia Commonwealth University

1988 *Phase One Archaeological Survey of 84 Acres, Naval Weapons Station, Yorktown, Final Report.* Archaeological Research Center, Virginia Commonwealth University, Richmond.

Collection Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Archaeological Research Center, Virginia Commonwealth University

Reid, E. King, and Edward Bottoms
1980 *Report of the Phase I Archaeological/Historical Survey of the Preferred Alternative FY-81 Military Family Housing Site, U.S. Naval Weapons Station, Yorktown, Virginia.* Old Dominion University, Norfolk, Virginia.

Collection Location: Undetermined

Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

Rosenweig, Mark S., and Jerome Traver
1991 *Phase 3 Data Recovery Program at Sites 44YO415 and 44YO417, Naval Weapons Station, Yorktown, Virginia.* Ecology and Environment, Inc., Buffalo, New York.

Collection Location: Possibly Ecology & Environment, Inc.; Virginia Department of Historic Resources
Documentation Location: Mid-Atlantic Archaeological Research Associates, Inc.
Report Location: Virginia Department of Historic Resources

Ryder, Robin L., and L. Daniel Mouer
1986 *Archaeological Evaluation (Phase Two) of 44YO34: Features and Structures Related to a Late Colonial and Federal Period Family Farm on the Yorktown Naval Weapons Station.* Archaeological Research Center, Virginia Commonwealth University, Richmond.

Collection Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources

Thompson, Katharine Beidlman, Charles Hodges, and Katherine Harbury
1988 *Draft Final Report: Archaeological Evaluation of Nine Sites at the Yorktown Naval Weapons Station, York County, Virginia.* Archaeological Research Center, Virginia Commonwealth University, Richmond.

Collection Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Virginia Department of Historic Resources

Traver, Jerome D.
1989 *Archaeological Excavations at Site of P-419 Air Launch Intermediate Maintenance Facility, Naval Weapons Station, Yorktown, Virginia: Sites 44YO415 and 44YO417 Report of Investigations.* Mid-Atlantic Archaeological Research Associates, Inc., Williamsburg, Virginia.

Collection Location: Virginia Department of Historic Resources
Documentation Location: Virginia Department of Historic Resources; Mid-Atlantic Archaeological Research Associates, Inc.
Report Location: Mid-Atlantic Archaeological Research Associates, Inc.; Virginia Department of Historic Resources

U.S. Army Corps of Engineers, Mobile District
1988 *Phase I Cultural Resources Survey of Sixty Acres, Naval Weapons Station, Yorktown, Virginia.* U.S. Army Corps of Engineers, Mobile District.

Collection Location: No collections
Documentation Location: Public Works, Yorktown NWS
Note: Yorktown NWS was contacted by telephone and reported no artifacts or documentation in their possession.
Report Location: Virginia Department of Historic Resources

Virginia Commonwealth University Archaeological Research Center
1989 *Archaeological Evaluations at the Yorktown Naval Weapons Station, York County, Virginia.* Archaeological Research Center, Virginia Commonwealth University, Richmond.

Collection Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Documentation Location: Archaeological Research Center, Virginia Commonwealth University; Virginia Department of Historic Resources
Report Location: Archaeological Research Center, Virginia Commonwealth University

NAVSHIPYD Norfolk

Espey, Huston & Associates
1992 *A Cultural Resources Survey of the St. Juliens Creek Annex/Norfolk Naval Shipyard, Portsmouth, Virginia,* vols. 1 & 2. Espey, Huston & Associates, Williamsburg, Virginia.

Collection Location: Virginia Department of Historic Resources
Documentation Location: Virginia Department of Historic Resources; Espey, Huston & Associates
Report Location: Virginia Department of Historic Resources

U.S. Army Corps of Engineers, Baltimore District
1991 *Archaeological Monitoring: Exhumation of Two Unmarked Graves, Norfolk Naval Shipyard (44PM51).* U.S. Army Corps of Engineers, Baltimore District.

Collection Location: Undetermined
Documentation Location: Undetermined
Report Location: Virginia Department of Historic Resources

APPENDIX 2

Repositories of Atlantic Navy Collections Not Visited Because of Temporal and Budgetary Constraints

Facility/Repository & Location	Facility	Amount of Archaeological Materials	Amount of Documentation
Greenhorn & O'Mara, Greenbelt, MD	AEGIS Wallops Island	1 bag	—
Armed Forces Institute of Pathology, Washington, DC	NAVBASE Norfolk	4 wooden caskets in unmarked graves	—
University of North Carolina, Chapel Hill	MCALF Bogue	0.5 box	—
	MCB Camp Lejeune	0.5 box	—
NAS Cherry Point, NC	NAS Cherry Point	—	5–6 linear inches
Camp Lejeune, NC	MCB Camp Lejeune	—	2 file drawers
USACE Wilmington, NC	MCB Camp Lejeune	—	1 report
	MCAS Cherry Point	—	1 report
Atlantic Navy, Norfolk, VA		2–3 boxes	undetermined
AEGIS Wallops Island, VA	AEGIS Wallops Island	—	< 1 linear foot
Louis Berger & Associates	MCAS Camp Lejeune (ongoing)		
East Orange, NJ		5 ft^3	—
Richmond, VA		—	2 files
Smithfield, NC (with PI)		—	field notes
Naval Medical Center, Portsmouth, VA	NAVHOS Portsmouth	1 box	—
FCTC Dam Neck, VA	FCTC Dam Neck	—	< 1
Cheatham Annex, VA	FISC Cheatham Annex	1 small box	—
NAVSECGRUACT Northwest, VA	NAVSECGRUACT Northwest	—	1 report
NWS Yorktown, VA	NWS Yorktown	6′ × 8′ display case	—
AFETA Camp Peary, VA	AFETA Camp Peary	3′ × 3′ display case	—
Water and Air Research, Gainesville	FCTC Dam Neck	4 ft^3	undetermined
	Camp Pendleton	0.5 ft^3	undetermined
	NAB Little Creek	0.5 ft^3	undetermined
University of Puerto Rico, San Juan	NAVSTA Roosevelt Roads	250 ft^3	undetermined
Ecology and Environment, Buffalo	NAVSTA Roosevelt Roads and Vieques Island NR	3–4 boxes	3–4 linear feet