The Present Status of the Curation Crisis and Deaccessioning in the United States

by

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Abstract

Archaeological collections in the United States were deemed to be in crisis in the 1970s. Federal curation guidelines were issued in 1990 with 36 CFR Part 79, followed by a call for national standards by the Society for American Archaeology. It is not clear if these were successful because the current status of collections is generally unknown. Given this, I surveyed curation practices at 11 major US archaeological repositories, impediments to their implementation of modern curation standards, and their deaccessioning policies. Although many of the individual standards were being met, around one-third of the collections do not meet all the standards. Methods used to meet standards varied across institutions, and the major contributor to collections was heritage resource management. Funding and space were the most often reported impediments. Every institution reported deaccessioning, but not all had policies. Ultimately, collections have improved since the 1970s, but further progress is needed.

Keywords: curation crisis; archaeological collections; curation standards; questionnaire; deaccessioning

Dedication

To my mother, Rebecca, who taught me to have fun, learn lots, and be happy.

To my father, Ken, who I missed every step of this journey.

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List of Acronyms

ARPA	Archaeological Resources Protection Act
CCC	Civilian Conservation Corps
CFR	Code of Federal Regulations
CRM	Cultural Resource Management
CWA	Civil Works Administration
FERA	Federal Emergency Relief Administration
HP and IMLS	Heritage Preservation and the Institute of Museum and Library Services
HRM	Heritage Resource Management
ICOM	International Council of Museums
IM	Intermountain
MW	Midwest
NAGPRA	Native American Graves Protection and Repatriation Act
NE	Northeast
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Parks Service
NYA	National Youth Administration
PW	Pacific West
SE	Southeast
SFU	Simon Fraser University
USACE MCX-CMAC	US Army Corps of Engineers Mandatory Center of Expertise for the Curation and Management of Archaeological Collections
WPA	Works Progress Administration/Work Projects Administration

Glossary

The following specialized terms are used in this document. The majority of the definitions are based on those outlined in a documented titled “Building Common Ground on Collections: An Initial Glossary of Collections-Related Terminology,” which was published by the Archaeological Collections Consortium in 2016. Several other definitions are adapted from 36 CFR Part 79 (Curation of Federally Owned and Administered Archaeological Collections 1990), which is presented in Appendix A.

Accession	The formal, documented process of legally adding an object or group of objects and associated records to a repository collection.
Acquisition	The act of taking physical possession of objects and associated records.
Associated records	The original records (or copies thereof) that are prepared and assembled and document efforts to locate, evaluate, record, study, preserve, or recover a prehistoric or historical resource.
Collection	The objects that are obtained during a survey, excavation, or other study of a prehistoric or historical resource and associated records that are prepared or assembled in connection with the investigation.
Collections Manager	The person who possesses knowledge, experience, and demonstrable competence in museum methods and techniques appropriate to the nature and content of the collection. He or she ensures the proper care and preservation of objects. For this study, Collection Manager will be used to refer to “Chief Curator,” “Curator of Archaeological Collections,” “Head of Collections,” etc.
Curation	The long-term process of managing and preserving objects and associated records according to professional standards.
Deaccession	The formal process used to permanently remove a collection or portion thereof from a repository.
Heritage Resource Management (HRM)	Stewardship of heritage. Many archaeologists use the terms “heritage management,” “cultural resource management,” and “archaeological resource management” more or less interchangeably (McManamon and Hatton 1999:29).

Major archaeological repository	A primary archaeological repository used most often by archaeologists in the region or state at the time the survey was issued. This was determined by email correspondence between the Principal Investigator and archaeologists across the nation (described in section 3.2 Participants).
Modern curation standards	Standards of curation that are achieved by following management of collections as described in 36 CFR Part 79 and common practice guidelines (see 3.5 Curation Standards)
Museum	A permanent collections-based institution with a public outreach mission that employs professional staff to care for, manage, interpret, and exhibit collections.
Repository	A facility or institution such as a museum, archaeological center, laboratory or storage facility that is managed by an educational or scientific institution, a Federal, State or local Government agency or an Indian tribe that can provide professional, systematic and accountable curatorial services on a long-term basis. For the purpose of this paper, a repository is used to a facility or institution which manages archaeological collections.

Chapter 1.

Introduction

Archaeologists believe that data should be saved for future study (Trimble and Marino 2003:99-100). This practice is not only an ethical imperative in and of itself, but also helps meet one of the fundamental tenets of science, namely that results should be reproducible (Trimble and Marino 2003:99-100). It follows from this that the care of archaeological collections is crucial (Trimble and Marino 2003:99). Unfortunately, there has long been a shortage of time, money, and space to adequately look after collections within the United States, and this has led to a problem that is often referred to as the "curation crisis" (Bawaya 2007; Childs 1995; Sullivan and Childs 2003). The curation crisis is the inadequate care, visible deterioration, inaccessibility, lack of security, and collections that lacked context such as associated reports or provenience data, as is defined by Sullivan and Childs (2003:28).

While assessments of individual US collections have been completed in the past, it has been some time since the scale of the curation crisis was assessed as a whole. With this in mind, the primary goal of the study reported here was to shed light on the current status of collections across the US by surveying a representative sample of major archaeological repositories housing federally owned and regulated artifacts. This chapter provides an overview of this aim and several subsidiary objectives.

1.1. The origins of the curation crisis

Throughout US history, archaeological collections of artifacts and their associated records have been acquired by institutions via donation, from field surveys and excavations, and through inheritance from other repositories. The perspective of most museum professionals is that collections should only be acquired if they can be housed and cared for adequately (International Council of Museums [ICOM] 2013:3; Sullivan and Childs 2003:61) though this has not always been the practice. With the multitude of ways to acquire collections, doing so is easy. However, housing and caring for a collection appropriately is complex. The scientific potential of archaeological collections necessitates that adequate ties are maintained between acquisitions and

their associated documents and data, thus providing information on their in-situ context. This, along with the need for collections to be housed in perpetuity, further complicates the curation process. The curation crisis is the result of large amounts of artifacts, inadequate housing, and inadequate care.

In the 19th and early 20th centuries, archaeological and ethnographic artifacts were treated much like natural specimens. They were obtained by antiquarians and housed in personal collections or were obtained by those closely aligned with museums to be housed there (Childs and Corcoran 2000; Trigger 2006). One such museum, the Smithsonian Institution, was one of the first, founded in 1846 (Smithsonian Institution n.d.). The Smithsonian Institution was closely associated with many collectors and archaeological artifacts at the time were housed alongside natural specimens in the institution's National Museum of Natural History (Childs and Corcoran 2000). Later, the Smithsonian Institution aligned with archaeologists and it remains one of the foremost housing institutions for archaeological artifacts (Childs and Corcoran 2000).

In the 20th century, museums transformed from institutions that acquired artifacts to those that exhibited collections as a platform for public education (Childs and Corcoran 2000). This shift to education also occurred in the acquisition process. Collections were accrued more and more by those associated with universities and a disconnect between those collecting and the care of the artifacts developed (Childs and Corcoran 2000).

The shift from museum to university was propelled further by the types of projects that were underway across the US in the 20th century that required trained professional leadership. These projects furthered the disconnect between the act of collecting artifacts and the act of storing them. Many of the collections housed in US repositories today were acquired as a result of fieldwork carried out as part of the "New Deal" federal work programs, which were implemented by President Franklin D. Roosevelt to provide relief during the Great Depression of the 1930s. The goal of the work programs was to put as many people to work as possible, and archaeological survey and excavation projects helped meet that goal. However, these federal work programs did not take into account the curation of the accumulated artifacts, specifically the long-term curation, and the collections later suffered (Sullivan and Childs 2003:12). Nationwide development of roads, along river basins, and pipelines created salvage

archaeology projects (Brew 1961). These projects were vast, with one estimate of more than 9,000 sites and 4,000,000 specimens found from the years 1946-1957 (Brew 1961). This resulted in a compounding impact on the inadequate care of collections.

Another reason for the expansion of collections throughout the US was the implementation of laws and policies concerning heritage resources. Significant heritage-related laws passed from 1906 to 1990, including the Antiquities Act of 1906, the Historic Sites Act of 1935, the National Historic Preservation Act of 1966, and the Archaeological Resources Protection Act of 1979, dictated the circumstances in which cultural resource undertakings should occur. Broadening the conditions for cultural resource protection necessitated more archaeological fieldwork, thus increasing the number of collections.

The rising demand for archaeological fieldwork driven by policies and laws resulted in the creation of private sector archaeology, which is now usually referred to as "Heritage Resource Management" (HRM)[1]. Sullivan and Childs (2003:20) argue that this new approach to archaeology may have contributed to the problems of caring for collections because private companies focus primarily on fieldwork and understandably pay little attention to what happens to the artifacts afterwards. Additionally, private companies are generally not directly associated with museums and therefore lack repository assistance or support (Sullivan and Childs 2003:20).

To aid in the management of archaeological collections, *36 Code of Federal Regulations (CFR) Part 79: Curation of Federally-Owned and Administered Archaeological Collections* (hereinafter *36 CFR Part 79*) was implemented to aid in the management of archaeological collections. These regulations (Appendix A) require federal agencies to follow guidelines to preserve collections of prehistoric and historic material remains and associated records (Curation of Federally Owned and Administered Archaeological Collections 1990). Under *36 CFR Part 79*, federal agencies are also required to inventory and assess current collections they own. However, *36 CFR Part 79* is limited to only applying to federally owned collections, and methods are not required to be standardized across institutions or regions.

1 In this paper, Heritage Resource Management (HRM) will be used to mark the shift from incidental preservation to purposeful preservation (Tunbridge and Ashworth 1996:34-35). This term is supported by both the Forest Service and National Park Service (NPS) as "heritage" is used in place of the term "cultural" for correlating programs (McManamon and Hatton 1999:28).

1.2. Previous studies on the curation crisis

Various aspects of the curation crisis have been analyzed in the past. In 1987, the General Accounting Office of the US federal government issued a report that examined conditions of institutions housing federally-owned collections. Titled *Cultural Resource-Problems Protecting and Preserving Federal Archeological Resources*, this report aimed to determine the extent of site looting, to identify measures that were being taken to prevent looting, and to ascertain whether artifacts were being cared for properly – in a way that prevents deterioration, destruction, or misplacement – once collected (General Accounting Office 1987:18). Significantly for the present purposes, the report determined that the care provided to some of the collections was inadequate and that federal agencies often did not have inventories of their collections (General Accounting Office 1987:2-3).

Inventories of collections heighten awareness of their status and ensure their safety and care. Following the implementation of *36 CFR Part 79*, in 1990, the Curation Task Force of the Society for American Archaeology issued a call for the curation crisis to be addressed (Childs 1995). Both the Curation Task Force and *36 CFR Part 79* stress the need for Federal agencies to maintain inventories of the collections they own. To meet these requirements, an assortment of inventory and assessment reports were produced, mostly by the federal agencies themselves. For example, the US Army Corps of Engineers Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (USACE MCX-CMAC) produced more than 50 reports from the early 1990s to 2011 (USACE MCX-CMAC n.d.).

In 2005, there was another evaluation of the status of collections across the nation. A comprehensive survey of US collections held in public trust by Heritage Preservation (HP), a national nonprofit organization, and the Institute of Museum and Library Services (IMLS), an independent federal agency found archaeological collections were in need of better care (HP and IMLS 2005a:1). According to the report, the status of many of the archaeological collections included in the survey was unknown, suggesting they had not recently been inspected or inventoried by staff (Bawaya 2007; HP and IMLS 2005a:1). Thus, the curation crisis remained a considerable problem at the time of data collection for the 2005 HP and IMLS survey.

Aside from the above-listed studies, theses have been written concerning the curation crisis in the US. Generally, this research has focused on the local level, including individual collections such as the Metropolitan Atlanta Rapid Transit Authority collection (Thompson 2016) and the University of Montana Anthropological Curation Facility (Campbell 2011). Work has been carried out in other countries, such as Canada, with similar problems (e.g., Karrow, 2017). Other theses have examined specific aspects of collection care, such as the handoff of collections from collectors to repository staff and how this interaction impacts collection care (e.g., Buchanan 2016), the relationships between archaeologists and repositories (e.g., Kale 2017), and database management (e.g., Thomson 2014). The cost of curation has been explored in the past (e.g., Childs and Kagan 2008; Childs and Kinsey 2003), but this topic was not included in the scope of the present study. In sum, then, the curation crisis has been analyzed in the past but the amount of time that has since elapsed and the scope of the research limits their applicability to the present.

Beyond the present study, there are gaps in our knowledge with several of the issues surrounding the gathering of collections. It is possible that in-field analysis in place of collection would reduce the number of artifacts and therefore improve the status of collections as a whole, but there are disagreements surrounding whether or not in-field analysis is sufficient (Childs and Benden 2017). This, along with no-collection policies and policies on reburial, is also a topic that would require a set of standards for its implementation to ensure consistency within the discipline.

1.3. Goals of the present study

The purpose of the present study is to assess the status of archaeological collections across the US. The identification and description of the curation crisis is found in publications from the 1990s and early 2000s. One of the major questions is whether or not the identification of the problem, along with the modern curation standards laid out in *36 CFR Part 79* (see section 3.5 Curation Standards for more details), were successful at effecting change in the status of collections. The present study sought to elucidate which methods are used most frequently in improving the status of collections and whether the status of collections and/or the methods in question vary across regions of the US. Furthermore, this study aimed to determine whether HRM or other projects are adding the most to the size of collections.

This study also wished to better understand the perception surround deaccessioning. One of the main arguments against deaccessioning is supported by advances in science where new techniques have generated valuable information from materials that were not previously considered important. As such, we do not know what types of material will be valuable to research in the future and deaccessioning may destroy future research value (Sullivan and Childs 2003:72; Childs and Corcoran 2000). Therefore, in the absence of federal policies or guidelines concerning deaccessioning, one goal was to determine whether or not institutions had implemented their own policies.

The following are the specific questions that the present study addressed:

1. What is the current status of the curation crisis across the US?
2. Have there been improvements in the status of the curation crisis since the 1970s?
3. How are institutions working to solve issues caused by the curation crisis?
4. Are modern curation standards, as presented in 36 CFR Part 79, being met?
5. What percentage of collections are not up to modern curation standards?
6. What methods are being used to bring collections up to modern curation standards?
7. Do the methods vary noticeably among institutions?
8. Are there deaccessioning criteria in place?
9. What percentage of institutions has deaccessioning criteria?
10. What percentage of collections accrues from donations, HRM, academic, research, and other projects?

To answer these questions, a representative sample of 11 major US archaeological repositories were asked to complete a survey. These results were then compiled in an excel file and data was compared across institutions and, where possible, among regions of the US.

Chapter 2.

Background

This chapter outlines the historic context for the curation crisis. It includes a background of archaeological collection in the US, and the New Deal and River Basin Survey archaeology projects, which were the major sources of many of the collections still housed today. A brief history of private sector archaeology, or HRM, is included, as are descriptions of the main laws and policies that have shaped collection and management of artifacts throughout US history. Lastly, the previous studies concerning the curation crisis and its progress are presented.

2.1. History of archaeology and collections in the US

2.1.1. Early history

Archaeology in the US has roots that reach back to the onset of the permanent colonization of North America by Europeans, when explorers first encountered the continent's indigenous people (Trigger 2006:92). The explorer's depictions of American Indians and their lifeways spread across Europe and indigenous cultural materials were collected and circulated as curiosities (Trigger 2006:92). This approach flourished in various parts of the world because it provided the public with what they craved - insight into foreign peoples (Parry 1995). The collected cultural materials exposed differences between the indigenous population and the colonizers which some have argued contributed to cultural imperialism (Tomlinson 1991:3).

With the displacement of source cultures and the appropriation of indigenous lands came a nation covered with abandoned cultural sites and artifacts (McNiven 2014:1908). Initially, little attention was given to the majority of the sites and artifacts. The excavation of artifacts and their collection was rarely pursued before the late 18th century (Trigger 2006:117).

This indifference to artifacts changed with the interest in the "First Americans" shown by Thomas Jefferson (Trigger 2006:17; Friedman 1991; Riding In 1992). Eventually following his lead, researchers became fascinated with the archaeological

record, and they brought with them a variety of perspectives and skill sets from their various occupations that helped create the foundation of archaeological practice in the US (Ferris 2003; Trigger 2006; Barnhart 2015).

As with many professions, it was necessary for up-and-coming archaeologists to have a locus to converge, share ideas, and build a body of knowledge and standards. In the beginning and still today, universities and museums provided such a place. Additionally, universities and museums often support and encourage artifact care and housing within reputable and accessible repositories (Kelly and Thomas 2013). Artifacts no longer belong in the personal collection of the antiquarians but instead are accessible to the public (Kelly and Thomas 2013:11).

2.1.2. New Deal archaeology

The first major influx of collections within repositories occurred during the Great Depression, when collecting artifacts proved an important and viable livelihood for many US citizens (Means 2013). Lasting from 1929 until 1939, the Great Depression was a severe economic downturn for the entire industrialized world (Samuelson 2012). According to Temin (1994:1), the economic decline in the US involved a 37% drop in industrial production, a 33% drop in prices, a 30% drop in real GNP, and a greater than 50% drop in nominal GNP. During this decline, unemployment rose to 25%. The unemployment rate remained above 15% throughout the 1930s (Temin 1994:1).

Not surprisingly, management of unemployment was a significant concern to the US Federal Government. Harry Hopkins, a social worker who worked with New York Governor Franklin Roosevelt, was asked to help with the federal crisis. Hopkins oversaw the Federal Emergency Relief Administration (FERA) with the objective of providing direct relief to those in immediate need and work relief to the remaining unemployed (Hopkins 2011). Along with the FERA, the Civilian Conservation Corps (CCC), Civil Works Administration (CWA), Works Progress Administration/Work Projects Administration (WPA), and the National Youth Administration (NYA) programs were created with the intention of helping to rebuild the nation (Means 2013:4). These programs are summarised in Table 1.

Table 1. New Deal Work Relief Programs (after Means 2013:4).

Agency	Duration	Overview
CCC	April 5, 1933 – July 2, 1942	Young men planted thousands of trees, and built campgrounds, trails, and roads to improve nature accessibility.
FERA	May 9, 1933 – May 1935	Designed to provide work relief programs for a wider spectrum of men and women than allowed under the CCC.
CWA	November 9, 1933 – March 31, 1934	Employed large numbers of workers on a temporary basis during a winter expected to be particularly brutal.
WPA	April 8, 1935 – June 30, 1943	Intended to build the infrastructure of the nation and also celebrate its heritage through its writers' and artists' programs
NYA	June 26, 1935 – January 1, 1944	Gave opportunities to a greater variety of youth than seen under the CCC, including programs for women and for African-Americans. Provided young Americans with work study or vocational training.

The above listed work relief programs were limited, however. They were prevented from competing directly with private enterprise (National Resources Planning Board 1942:246). Therefore, any production, distribution, or sale of goods and services that were already provided by private employers was prohibited (Levine 2010:2). Archaeologists were aware that their projects' fit within these specifications as they did not compete with private enterprise and were instead seen as scientific and educational (Fowler 1986:145; Means 2013:8; Setzler 1943:210; Trigger 1986:197-198). Additionally, many people could be quickly hired and employed for an extended period (Fagette 1996:53; Setzler 1943:207).

A major proponent for getting New Deal Archaeology projects off the ground was the Committee on State Archaeological Surveys, established under the National Research Council in 1920. The committee was founded as a type of quality control and advocate of archaeological research (Means 2013:7). Included in this advocacy was an encouragement of national dialogue among archaeologists and promotion of early salvage archaeology projects (Lyon 1996).

While the number of archaeology projects in the 1920s was minimal, the national coalition of archaeologists took advantage of New Deal monies in the promotion of archaeological projects (Means 2013). Archaeological excavations were comparable to the previous employment of the working class such as farming and mining, and often workers supplied their own tools for the job such as shovels (Means 1998, 2000a). Any additional equipment used for archaeological projects was relatively inexpensive, so the

majority of the work relief money could be spent on labour (Fowler 1986:145; Setzler 1943:210; Setzler and Strong 1936).

The first New Deal archaeology project began in 1933 at the Marksville mound site of Louisiana and was funded by FERA (Lyon 1996:1). The earthwork of this site was first described in 1926 leading to interest in the site as a location for the development of a park and recreation center funded by FERA (Lyon 1996:1). Instead, archaeologists encouraged the city to use the funding for restoration and excavation of the site supervised by FERA agents and the Smithsonian Institution (Potter et al. 2014:188).

The success at the Marksville mound site excavation proved the effectiveness of archaeology as a work relief option (Potter et al. 2014; Means 2013) and led to the initiation of New Deal archaeological projects across the US. (Haag 1985:274; Lyon 1996:4; Means 2013). The workers involved were generally ordinary citizens not formally trained in archaeology, but they were overseen by professionals (Cotter 1993). The professionals were drawn from museums and universities and were tasked with organizing and managing large groups of the untrained individuals (Means 2013:8). To do so in an orderly fashion, standardized procedures were developed, including the widespread use of preprinted data recording forms (Dunnell 1986:28; Means 2013:9).

Quantifying data was a primary focus because it provided a measurement of labour utilization for those funding the work (Fagette 1996:88). One Works Progress Administration project in particular, The Indian Site Survey, in New Jersey, started in March 1936, and located more than 700 sites, completed 58 excavations, and added 35,000 artifacts to the New Jersey State Museum (Lattanzi 2013:25). The addition of 35,000 artifacts and associated data suggest that labour had indeed been utilized.

A major reason for so many artifacts accumulating was the absence of sampling policies, often resulting in 100% collection of artifacts. William Haag, a New Deal archaeologist, explained that: “We didn't use any sampling technique at all. We just collected until our bags were full” (quoted in Haag, et al. 2002:9). Such an approach to collecting, coupled with a large number of active projects, resulted in a large number of collections during the excavation of thousands of sites (Dunnell 1986; Fagette 1996; Lyon 1996; Means 1998; Means 2013:1-2).

The increase in collections resulting from the New Deal archaeological excavations affected repositories across the US. Curation facilities shifted from simply displaying and/or housing artifacts to researching collections along with their display and storage (Means 2013:13). A primary focus in this shift was developing an inventory methodology and a classification system to organize specimens (Fagette 1996:XIX).

The federal projects that are largely responsible for this shift from just collection to collection and research were argued by Potter et al. (2014:188) to have had a profound effect on archaeological fieldwork and curation in the US. The accumulated collections from these projects serve as a reservoir of data for future research. They helped spark new methods, theories, and techniques for the field of archaeology (Sullivan and Childs 2003:11).

New Deal archaeology projects dwindled at the onset of American involvement in World War II when many of the workers joined the war effort (Cotter 1993:34). Unfortunately, the ties between artifacts and associated documents were severed when many of the reports were never finished from the New Deal archaeology projects due to many of those who returned not resuming work in archaeology (Means 2008:3).

2.1.3. River Basin surveys

After World War II, archaeologists developed a new concern—the construction of dams across the US was threatening to innundate archaeological sites (Hawley 2006:487). An Interagency Archaeological Salvage Program that included the National Parks Service (NPS), the Smithsonian Institution, the Bureau of Reclamation, and the Corps of Army Engineers was created in 1945 and lasted until 1969 (Jennings 1985:282; Metcalf 1963:5; Thiessen and Roberts 2009:121).

The River Basin Survey salvage archaeology program followed, employing individuals who were mostly part of the developing field of professional archaeology and occurring most often in the Missouri River basin (Hawley 2006:488; Thiessen 1999; Thiessen and Roberts 2009:121; Means 2013:11). The ethic of conservation in lieu of human development of natural land was not initiated by River Basin Survey projects, but the amount of and scale of the projects caused the conservation ethic to become an even stronger component of archaeological thought (Jennings 1985:282). Initially,

archaeology concerned with conservation during development was described as “salvage” archaeology and, later when that term evolved into a pejorative, as “emergency” archaeology (Jennings 1985:281). The terms “salvage archaeology” and “emergency archaeology” paint a picture of archaeologists hastily scrambling to collect as many artifacts as possible before mechanical equipment destroys them (Jennings 1985:281). The perception is that the objects, not the context of the objects, were of utmost importance and must be saved. Unfortunately, this was often the case (Jennings 1985:281).

River Basin Survey projects resulted in many new artifacts overcrowding repositories across the nation. Although the process of inventorying and classifying artifacts and their associated data had been implemented at the Smithsonian Institution (Fagette 1996:XIX), this was not the case for all artifact housing locations. Many artifacts suffered, lacking sufficient care or long-term data stewardship (Means 2013).

2.1.4. The development of HRM as an industry

This section discusses the industry of archaeology, a major contributor of collections in repositories across the US. Increases in demand for archaeological work following the River Basin Surveys resulted in the establishment of private archaeology companies (Hawley 2006:488; Jennings 1985:281). Most of the first HRM companies still in business today began in the 1970s and 1980s as a response to the National Historic Preservation Act (Dore 2017). There were few barriers to professional HRM at the onset. Most of the projects were generated and funded by the federal government. All that was necessary to compete for the contracts was a typewriter, pickup truck, and a few digging tools (Dore 2017:2).

Private archaeology companies make up the modern HRM industry (Hawley 2006:488). Though only a half-century old, the industry has grown (Means 2013:12). According to a 2013 survey by Cultural Heritage Partners, PLLC, there are today about 1,300 HRM firms in the US, employing approximately 10,000 staff (Majewski 2018:165). The number of firms and the number of archaeologists employed results in many new artifacts collected each year (McManamon 2018).

Initially, this industry was referred to as Cultural Resource Management (CRM), a term that was spurred on at the Cultural Resource Management seminar in Denver, Colorado in 1974 where “big picture” problems within the industry were discussed (McManamon 2018). Attendees of the seminar included those fundamental to the industry’s progress. Major topics included the contrast between conservation and salvage archaeology, the effort to balance conservation and development of the nation, organizing contracts for archaeological fieldwork, standards for archaeological investigations regionally and nationally, how to handle new projects professionally within the scope of new laws and regulations, and the responsibilities associated with artifact conservation (McManamon 2018:17). Data and collections management were also discussed at the seminar. Those attending agreed that it was important to develop and maintain use of a data management system as well as regulations on the curation of artifacts and their storage (McManamon 2018:20). Attendees believed that it was important to do more than simply hand the artifacts to a curation facility with little to no interactions afterward. Instead, they wished to assess collections, establish ownership, care for collections, and ensure the collections are accessible (Trimble and Farmer 2018).

HRM firms did not initially plan for the management of artifacts they accumulated (McManamon 2018). While data and collections management were discussed in the early days of HRM, such as at the 1974 Cultural Resource Management seminar, many artifacts have accrued but not all have been managed appropriately (Majewski 2018).

Archaeological collections in the US have evolved with the projects, the archaeologists, and the laws enacted to accumulate them. The projects, including those propelled by the New Deal and the River Basin Surveys, required many working-class people to participate in the discipline. This demand led to a host of professional archaeologists who were knowledgeable about the newly enforced laws and policies enacted to promote heritage stewardship. Many of these professionals went on to build HRM companies to continue providing clients with services and increased the amount of collections in repositories nationwide as a result.

2.2. Laws and policies

This section provides information about the different laws and policies that have helped shape the discipline throughout those years and still today. The implementation of various laws over the course of US history has affected the demand for archaeological fieldwork. These laws have dictated how, when, why, and by whom cultural resource inventory should occur. Control over these aspects of archaeological fieldwork has impacted how many collections accrue within repositories across the US. The following background of heritage related laws and policies is not an exhaustive list of laws and policies in the US. Rather, those listed concern archaeological collection compilation, ownership, and management. Where necessary, a brief overview will be provided; otherwise only the aspects of these laws concerning the aforementioned topics will be described.

Private property rights in the US limit the protection and preservation of cultural properties on private lands, and therefore protection of sites on private land is generally dependent upon the landowner (Elia 2014:7486). However, approximately 43.4 million acres is federally owned or administered (General Service Administration 2018), and thus falls under the protection of federal laws and policies.

2.2.1. The turn of the century: protecting and preserving sites and artifacts

Preservation in the US began as a patriotic movement to conserve buildings and sites associated with people important to the early history of the nation state (Elia 2014:7487). Pre-contact sites were not initially a focus, but widespread looting in the Southwest in the late 1800s made the protection of such sites a growing concern. The first federal preservation legislation was passed following six years of advocacy by archaeologists for the protection of prehistoric sites in the Southwest (Elia 2014:7486).

The Antiquities Act of 1906 established a permitting process allowing only professional archaeologists to complete archaeological excavations on federal land. The Secretaries of either the Interior, Agriculture, and Army, depending on federal land jurisdiction, grant the permits and any artifacts collected without a permit may be disposed of, housed in a national repository, or treated as otherwise prescribed by the

Secretary (Antiquities Act 1906). The Antiquities Act also implemented punishment for unauthorized excavation (Childs and Corcoran 2000).

The Antiquities Act was the first act to deal with the curation of archaeological collections. It mandates that collection care and management should be determined prior to a permit being granted for archaeological work and stipulates that artifacts and data should be permanently preserved in a public repository (Childs and Corcoran 2000). Though further instruction concerning curation best practice is limited in the Antiquities Act, the accompanying regulations, Preservation of American Antiquities (*43 CFR Part 3*), stipulate that the federal agency with ownership must submit a catalogue of the collection to be curated and any associated field photographs to the Smithsonian Institution. The agency must also indicate whether items in the collection are available for exchange. Collections should be accessible to the public and preserved in the housing facility designated in the permit. Federal collections are protected in the event of housing facility closure as they will then be placed in a national repository (Childs and Corcoran 2000).

Involvement of the Smithsonian Institution was incorporated in this Act due to its eminence as the leading archaeological repository that employed archaeologists, researched archaeological sites, and housed federal collections (McManamon 2014:333). The Smithsonian Institution founded the Smithsonian Institution Archives in 1891 with the intention of managing archaeological records and associated documentation, no longer including them with the natural specimens in the National Museum of Natural History (Childs and Corcoran 2000).

A matter of dispute during the formulation of the Antiquities Act was whether or not the responsibility of archaeological site management should be the Smithsonian Institution or the Department of the Interior (McManamon 2014:333). The Smithsonian Institution had ties to archaeologists, the archaeological fieldwork, and the curation associated with the Act, but the Department of the Interior was already responsible for managing the public lands and the use of resources thereon. The Department of the Interior argued that they were already adept at protecting and preserving archaeological sites, making them the accepted managers of archaeological sites (McManamon 2014:334). However, the Smithsonian Institution was included in the process of

reviewing permit applications and issuing permits due to the insufficient number of staff at the Department of the Interior (Browning 2003).

2.2.2. The Great Depression and post-World War II

As noted above, archaeological projects proved a viable employment opportunity during the Great Depression years. Within this historical context, the passage of the Historic Sites Act of 1935 helped structure many of the programs involved in employing archaeology workers (Childs and Corcoran 2000). The Act declared a national policy to preserve historic sites, buildings, and artifacts deemed significant for the people of the country (Historic Sites Act 1935). It endorsed survey and data collection on both public and private land and was the foundation for the National Historic Landmarks program (Elia 2014:7487). The Act also demanded that drawings, plans, photographs, and other data are safeguarded and preserved (NPS 2006:12). However, the curation of these data is not adequately addressed in the act (Childs and Corcoran 2000).

Following World War II, nationwide development was at an all-time high such as along roads and river basins, increasing the amount of cultural compliance projects and therefore the volume of collections filling museums. The first policy concerning deaccessioning occurred at this time with the Museum Properties Management Act of 1955, which was amended in 1996. This act gave the National Park Service the authority to acquire collections through exchange, loan, purchase, or donation, and also the authority to deaccession collections by exchange or destruction (NPS 2000:A:1). Deaccessioning with regard to destruction is limited in this act to only include collections that do not have historic, cultural, scientific, educational, aesthetic, or monetary value (Childs and Corcoran 2000).

Development in the country also spurred the passage of the Reservoir Salvage Act of 1960. The Reservoir Salvage Act aimed to further the protection of archaeological resources initially enacted by the Historic Sites Act of 1935. The resources located in areas of construction carried out by the federal government agencies or private persons and corporations holding a license issued by a federal agency were protected, but the care and management of collections was not addressed in this act (Childs and Corcoran 2000).

2.2.3. Federal accountability: the 1960s, 1970s, and 1980s

Today, US archaeologists operate predominantly under the National Historic Preservation Act (NHPA) of 1966 (McManamon 2000). The NHPA established a review process for project compliance with federal laws and appointed a State Historic Preservation Officer in each state and several territories to aid in the management of cultural resources (Matthews 2005). The Advisory Council on Historic Preservation was also established by the NHPA. The Council provides advice for federal projects that have adverse effects on cultural properties. Additionally, the act established the National Register of Historic Places, which is an inventory of the nation's significant cultural properties (Elia 2014:7487).

Section 106 of the NHPA requires Federal agencies to take into account the effect of their undertakings on National Register-eligible resources (NPS 2006:60). The NHPA applies not only to federal land but also to federally-assisted projects. Many federally-assisted projects occur partially or entirely on private land, making it applicable to private land without challenging private property rights (Elia 2014:7488).

Sections 101 and 110 of the NHPA led to the development of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation of 1983. These aimed to create a systematic effort to preserve archaeological resources (NPS n.d.). While the standards do not discuss long-term preservation or curation of collections in the project planning process (Childs and Corcoran 2000), they do consider both the collection of artifacts and their curation with regard to archaeological documentation, providing some of the first federal guidelines on collections management (Childs and Corcoran 2000).

The National Environmental Policy Act (NEPA) was enacted in 1969 to protect a broader range of resources including environmental resources and, most significantly for archaeology, historic, cultural, and natural aspects of national heritage (NEPA 1969). This Act requires all federal agencies to conduct environmental assessments and to prepare environment impact statements listing potential effects from the proposed federal work (NEPA 1969). NHPA and NEPA compliance projects have created many archaeological collections since their enactment (Childs and Corcoran 2000).

The Archaeological Historic Preservation Act was passed in 1974 and required federal agencies to provide for the preservation of archaeological artifacts and data that may otherwise be lost or destroyed as the result of federal or federally licensed undertakings (McManamon 2000). This Act called for the care of archaeological collections through the determination of ownership and adequate housing (Childs and Corcoran 2000).

Federal ownership of collections was further solidified with the passage of the Archaeological Resources Protection Act (ARPA) in 1979. This act was essential for the stewardship of archaeological collections because it recognized federal ownership of artifacts found on federal land, called for adequate housing, and prohibited disclosure of archaeological resource location to further protect artifacts and reduce looting of sites (ARPA 1979). ARPA also improved the permitting process for federal projects and created more strict fines and penalties for unauthorized excavation on federal land (Childs and Corcoran 2000). An ARPA permit requires authorization and an agreement between the repository that will house the artifacts and the federal agency that owns them (Childs and Corcoran 2000).

2.2.4. 36 CFR 79 and NAGPRA of 1990

In 1990, the *36 Code of Federal Regulations Part 79* (*36 CFR Part 79*) was passed. This document provides regulations for artifacts recovered under the authority of the Reservoir Salvage Act, Section 110 of the National Historic Preservation Act, and the Archaeological Resources Protection Act. These regulations establish definitions, standards, procedures and guidelines for Federal agencies to preserve collections of prehistoric and historic material remains as well as associated records (Curation of Federally Owned and Administered Archaeological Collections 1990).

The act provides federal agencies with guidelines of how to obtain, fund, and maintain curatorial services, including the conduction of inventories and inspections (Sullivan and Childs 2003:26). The terms and conditions that are necessary to include in contracts, memoranda, and agreements are listed in this act, as are the conditions and restrictions for the use of collections for scientific, education, and religious purposes (Curation of Federally Owned and Administered Archaeological Collections 1990). The act describes repository standards to ensure adequate long-term curatorial services (see

section 3.5 Curation Standards). This act was the first attempt to provide holistic guidelines and regulations for the curation of archaeological collections in the US. Importantly for present purposes, however, there are no deadlines for regulation compliance, no power of enforcement, no formal repository accreditation, and no definitive regulation concerning deaccessioning yet to be issued (Childs and Corcoran 2000).

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 gave Native groups the right to recover and own, often through repatriation, affiliated cultural heritage including human remains, funerary objects, sacred objects, and objects of cultural patrimony (Elia 2014:7489). Before NAGPRA, there were few options available to descendent communities in requesting the return of cultural heritage aside from a lawsuit, and such an action was not an option for heritage found on federal lands (Cryne 2009:102). With the passage of NAGPRA, ownership of heritage on federal lands shifted to, in order of priority, (1) lineal descendants, (2) the territorial tribe from which the heritage was recovered, (3) the tribe with the closest cultural affiliation, or (4) the tribe with ancestral lands where the heritage was recovered (Cryne 2009:103).

Under NAGPRA, collections from federal lands, museums, or other archaeological repositories must be inventoried and ownership and cultural affiliation must be identified (Cryne 2009:103; Childs and Corcoran 2000). This act forced both federal agencies and museums to become aware of what they owned and where artifacts were located through inventories of collections. Additionally, the act contains deadlines for compliance and penalties for non-adherence (Childs and Corcoran 2000), though Cryne (2009:109) argues that there are no provisions in place for penalty enforcement. Another major critique of NAGPRA is the use of limiting language that has resulted in enforcement complications. For example, in the section that concerns inventory, only federal agencies and federally funded museums are held accountable, an aspect of the act that overlooks many collections across the nation (Cryne 2009:109-110).

2.2.5. Summary of laws and policies

The laws and policies concerning collections management and curation have promoted improved heritage stewardship through their enactment. The above-listed laws

built the foundation for the current policies in the field of archaeology in the US. Relevant legal authorities for artifacts include NHPA, ARPA, NAGPRA, and NEPA, as well as agency policies and international treaties (King 2008:5). NAGPRA, in particular, proved relevant to collections management by calling on federal collections managers to provide an inventory of their collections, thus making federal agencies, curation facilities, and archaeologists more aware of collections, their ownership, and the stewardship of said collections (Sullivan and Childs 2003:27). *36 CFR Part 79* guides curation managers and archaeologists in their stewardship of archaeological collections.

2.3. History of the curation crisis and accounts of progress

The practice of archaeology has evolved in the US alongside and directly impacted by the laws and policies that have been implemented through the nation's history. The curation crisis, too, was impacted by the changes in the field of archaeology and the laws implemented that shaped it. These impacts are discussed below.

2.3.1. The curation crisis leading up to 36 CFR Part 79

New Deal, River Basin Survey, and HRM archaeology projects led to a large number of collections being housed in repositories and museums across the US. However, not all were housed appropriately and the quantity of those in need of further care became a long-term problem for the field of archaeology and the agencies responsible for the collections (Trimble and Farmer 2018:213).

Archaeological collections were accepted into facilities with variable curation standards, often without established financial support for the care of the collections, and without consideration given to the duration of artifact housing and management (Childs 1995). With the passing of federal laws that dictated standards, an increasing number of archaeologists became aware of the problems caused by collection practices.

The large number of collections and their poor treatment threatened a fundamental tenet of science, the reproduction of results (Trimble and Marino 2003:100). Fitzhugh (1977:18) argued that without responsible curation and preservation, the collection of artifacts is "ironic." Without appropriate care, many of the artifacts collected were inaccessible to researchers and thus not available for future study with the

likelihood for such trends to continue (Childs and Sullivan 2004:14). A number of archaeologists recognized the problem in the early 1970s and dubbed it the “curation crisis” (Childs 1995; Davis 1972; Lipe 1974; Marquardt et al. 1982).

Lipe (1974) proposed that archaeologists should conserve the non-renewable resource of archaeological sites and artifacts by becoming involved in all aspects of archaeological resource management including curation, not just excavation. He also argued that salvage archaeology should only be completed as the last resort and that a representative sample of data is all that should be collected.

Subsequently, Christenson (1979) emphasized the importance of museums and repositories for the field of archaeology. He countered the notion that collection and excavation were the core of HRM and suggested instead that management and care of collections occurred and would continue to occur in museums. He concluded by stating that there was a need for the evaluation of the status of curation and the composition of guidelines for artifact preservation and acquisition (Christenson 1979:162).

In 1987, the US General Accounting Office issued the first major assessment of the status of collections in the US in a report titled *Cultural Resources: Problems Protecting and Preserving Federal Archeological Resources*. The report was a summation of the results of interviews of state agency representatives and reviews of related documents and reports (General Accounting Office 1987:18). The three issues of concern in this assessment were (1) the extent to which archaeological sites were being looted, (2) the measures that were being taken to protect the archaeological resources, and, most relevant to the present research, (3) the way in which artifacts were being cared for in the repositories in which they were housed (General Accounting Office 1987:18).

With regard to curation, the report concluded that 30% of non-federal repositories had already run out of space for collections and that there were no regulations on artifact acquisition, transfer, or inspection (Childs 1995). Most of the data accrued on BLM land prior to 1968 and on Forest Service land prior to 1975 had been lost, though the source does not indicate how the loss happened (Childs 1995). There were also no criteria available to help these agencies in selecting a repository (Childs 1995).

The General Accounting Office report concluded that efforts to ensure proper preservation of curated artifacts were inadequate, and because of this the collections had deteriorated, were destroyed, or their whereabouts were unknown (General Accounting Office 1987:94). The report also determined that the two major factors leading to this inadequacy were under-funding and staffing constraints (General Accounting Office 1987:94). When the General Accounting Office report was published, regulations on curating federal collections were being drafted (Childs 1995). *36 CFR Part 79* was subsequently issued in 1990 in an attempt to combat the curation crisis.

In 1991, following the General Accounting Office report and the issuance of *36 CFR Part 79*, the Society for American Archaeology created a Curation Task Force. This task force issued a report in 1993 titled *Urgent Preservation Needs for the Nation's Archaeological Collections, Records, and Reports* that called for national standards for curation (cited in Childs 1995). The report asks why more money is devoted to excavation and less to curation, which is known to come with continued cost compared to the one-time cost of an excavation (cited in Childs 1995). A prime example of this is the US Army Corps of Engineers' expenditure of $165 million for archaeological field work from 1975 to 1990, with a negligible amount going toward curation (Childs and Sullivan 2004:7).

2.3.2. Changes in the curation crisis

The status of collections has shown signs of improvement. Initially, things changed for the worse (Bawaya 2007; Childs and Sullivan 2004:14). In Colorado at the turn of the 21st century, the curation crisis was significant enough for the Colorado Council of Professional Archaeologists to do an assessment (Nepstad-Thornberry et al. 2002). In their report, the Council note that only two repositories were accepting collections from the entire state as of January 1, 2001, and that one of these repositories ceased accepting collections early that year. This report concluded that the costs of rehabilitating collections, the cost of curating new collections, and accessioning HRM collections were the most significant factors adding to the crisis (Nepstad-Thornberry et al. 2002).

Another example of the curation crisis changing for the worse was presented in a report prepared by the Governor's Archaeology Advisory Commission Curation

Subcommittee concerning the status of collections in Arizona (Lyons et al. 2006). At the time, Arizona was facing a local crisis of lacking space and funding for curation. This was most clearly demonstrated when the Arizona State Museum stopped accepting collections, even though it was the official state repository and the only repository that accepted collections from all lands, regardless of ownership, in the state (Lyons et al. 2006:3). To understand the status of collections, the Curation Subcommittee issued a questionnaire to the staff at the four major repositories in the state and requested the repository provide a copy of their curation policies (Lyons et al. 2006:10). The 11 questions asked were geared mainly toward local problems. They included questions concerning facility capacity, age, and expansion, how long it would take to reach capacity, data on growth of collections, cost of curation and what the fees include, repository funding and budgetary information, collection ownership percentages, whether or not collections meet *36 CFR Part 79* standards and how much it would cost to meet these standards fully, accessibility and use of collections, deaccessioning policy, and digital media curation policy (Lyons et al. 2006:10). The Curation Subcommittee concluded that space and funding were the most critical issues to address. Though there was a strong consensus against deaccessioning, the Curation Subcommittee explored deaccessioning, non-collection, and in-field analysis as part of the solution (Lyons, et al. 2006:14).

Aside from the above two state examples that highlight the problems surrounding curation in order to stress the need for further improvement, there are several articles and grey literature reports concerning the status of individual collections or entire collections owned by Federal Agencies. USACE MCX-CMAC has written more than 50 reports from 1993 - 2011 (USACE MCX-CMAC n.d.). Separate studies completed by USACE MCX-CMAC (Anderson et al. 2000a, 2000b; Felix et al. 2000a, 2000b) from 1996 - 1999 detailed field inspection and assessments of repositories and collections at facilities across the United States. Summarizes of these reports state they were produced to comply with the federally mandated regulations of inventory found in *36 CFR Part 79* (USACE MCX-CMAC n.d.). However, these reports were not available for this study.

In 2005, the Heritage Preservation organization in partnership with the Institute of Museum and Library Services published *A Public Trust at Risk: The Heritage Health Index Report on the State of America's Collections* that reported results from the first all-

inclusive survey concerning the status and needs of all US collections held in public trust (HP and IMLS 2005a:1). This survey covered a wide range of institutions, including archives, libraries, historical societies, museums, and archaeological repositories/scientific research collections. Categories of collection types delineated for the HP and IMLS study, and the percentage of each type in need from the wide range of institutions, are presented in Table 2. However, because such significant percentages of collections were reported to be in unknown condition, HP and IMLS state that the amount of collections in need of further care is likely to be much higher (HP and IMLS 2005a:1).

Table 2. Collection Types in Need from HP and IMLS (2005a:1).

Collection Types	% in Need
Unbound Sheets, catalogued in items	54%
Historic Objects	28%
Unbound Sheets, catalogued in linear feet	24%
Natural Science Specimens	23%
Art Objects	22%
Archaeological Collections, bulk catalogued in cubic feet	21%
Photographic Collections	21%
Archaeological Collections, individually catalogued	19%
Books/Bound Volumes	16%
Digital Materials	15%
Recorded Sound Collections	14%
Moving Image Collections	12%
Microfilm/Microfiche	7%
Online Files	5%

The results suggest the curation crisis was still getting worse. At the time of the report, more than 4.8 billion artifacts were reported as being held in public trust in over 30,000 institutions (HP and IMLS 2005b:2). The report found that 4.7 million works of art, 13.5 million historic objects (including pre-colonial objects), 153 million photographs, 189 million natural science specimens, and 270 million rare and unique books, periodicals, and scrapbooks were at risk and required further care (HP and IMLS 2005b:3). Additionally, no environmental controls were used in 26% of institutions, light damage had occurred at 59% of institutions, and moisture damage had occurred at 53% of institutions (HP and IMLS 2005b:4). Not large enough storage was used at 59% of institutions and damage due to improper storage had occurred at 65% of institutions (HP

and IMLS 2005b:6). Security measures were reported as inadequate in 26% of institutions (HP and IMLS 2005b:6) and emergency planning was not reported as sufficient at 80% of institutions, resulting in 2.6 billion items not having been protected by an emergency plan (HP and IMLS 2005b:8). Workers were unpaid at 80% of institutions and 71% reported needing additional training and experience for their staff (HP and IMLS 2005b:10). Cataloguing artifacts was backlogged at 39% of institutions and assessments of collection conditions was not up to date in 70% of institutions (HP and IMLS 2005b:10). Funding was not allocated for preservation at 77% of institutions and only 13% of institutions had the security of endowment funding (HP and IMLS 2005b:14).

Though the results from the HP and IMLS study is used in this thesis to compare data across time, the HP and IMLS researchers looked at a broader range of target institutions than the current study. As a result, the Heritage Health Index methods were more involved than is found necessary for the current research.

While the poor state of collections can be distressing, the identification and subsequent approach to the highlighted problems is an improvement in the curation crisis. The publications over the years (such as those listed above) that concern the status collections are in and of themselves showing progress in collection management by improving the understanding of collections, their management, and areas for improvement. Dissemination of information and guidelines concerning the management of collections, such as the Museum Handbook created by the National Park Service that is now available online (Childs 1995; NPS 2016), has also helped improve the status of collections. The Museum Handbook is a guide for staff for managing National Park Service museum collections (NPS 2016).

Contrary to the aforementioned examples of the change for the worse in the curation crisis, some of the literature suggests the status of archaeological collections and their management has shown signs of improvement (Flexner 2016). The quality of space, the use of collections for research, and the condition of collections were reported to have improved across the US in the 1990s and early 2000s (Childs 1995; Childs and Sullivan 2004; Sullivan 1992). Collections were increasingly being used for dissertation research rather than MA and PhD students solely collecting new collections, reducing

the influx of artifacts to repositories, and utilizing the research potential of existing collections (Nelson and Shears 1996).

Many individuals have worked toward local solutions to problems caused by the curation crisis (e.g., Marquardt 1982:411, Odess 2007; Nepstad-Thornberry et al. 2002), but external help has proven the most useful. An example of improvement can be seen in increased funding from federal agencies, such as the funding from Congress for the backlog of cataloguing that was issued to the National Park Service over the course of six years (Childs 1995). Federally funding for new housing institutions has also attributed to improvement (e.g., Archaeological Research Institute at Arizona State University, Gila River Indian Community's Hohokam Heritage Center), state-initiated curation facilities (e.g., Maryland Archaeological Conservation Laboratory), and non-profit curation facility development (e.g., San Diego Archaeological Center) (Lyons et al. 2006:8-9). Additionally, the Colorado Anasazi Heritage Center was built by the Bureau of Land Management and Bureau of Reclamation to preserve and manage Northern San Juan Anasazi archaeological collections (Childs 1995).

The previous research concerning the curation crisis, including the calls for improvement issued by the General Accounting Office (1987) and the Society for American Archaeology Curation Task Force (1993), helped spur the enactment of the Curation of Federally Owned and Administered Archaeological Collections (*36 CFR Part 79*) in 1990. A large-scale assessment of United States collections was completed in 2005 (HP and IMLS 2005a), but these collections included libraries and museums not related to archaeology.

Chapter 3.

Materials and methods

3.1. Research protocol

The goal of this study was to assess the current status of collections housed in, and the curation procedures used by, a representative sample of archaeological repositories in the US. To this end, an easily-accessible, self-paced online survey was created and made available to collections managers.

A cross-sectional survey design was selected because of the ease of implementation and as a means to determine the current status of collections. The survey was issued to multiple institutions with a view to compiling current data from a single point in time rather than following individual repositories through time as other studies have done (see Anderson et al. 2000a, 2000b; Felix et al. 2000a, 2000b). The questions were designed in such a way as to emulate prior study questions and to maintain relevance in the future, ensuring replicability and cross-study comparison. This snapshot of US archaeological repositories can be repeated and compared in the future to assess progress (Lavrakas 2008).

The use of a survey instrument shaped the types of questions asked, the form of data collection, and the steps of data analysis. Unlike interviews, survey questions are predetermined, and subsequent questions cannot be shaped based on a previous response. The majority of questions used in the present survey are referred to as quantitative or structured questions. The responses, while more comparable between respondents, are less individualized by institution. For this reason, qualitative or non-structured questions were incorporated in the survey design with the intention of collecting additional individualized data regarding the survey topics (Driscoll et al. 2007). While most data were collected from structured questions which may have created a disconnect between the researcher and collections manager, it also ensured a relatively unbiased response system (de Vaus 2002).

Collections and associated curation procedures were evaluated in three general categories in the survey. The first was the assessment of the status of collections,

including whether or not modern curation standards (explained in section 3.5 Curation Standards below) are being met; whether or not there is adequate storage and environmental controls in place; whether or not collections are accessible; and what percentage of the collection is not up to modern curation standards. The second group of questions concerned the assessment of the methods implemented for attaining modern curation standards for these collections including those noted in section 3.5 below and in *36 CFR Part 79*. The method of deaccessioning was queried as a possible method to attain modern curation standards. The third group of questions focused on what types of archaeological projects are currently accruing the most collections.

3.2. Participants

To facilitate regional comparisons, the continental US was divided into five regions (Figure 1). These were modeled after the National Park Service Archaeology Program Regional Map (Regional and State Archaeology Resources 2016). The regions are based on general cultural material found, landform variability, and modern-day cultural diversity.

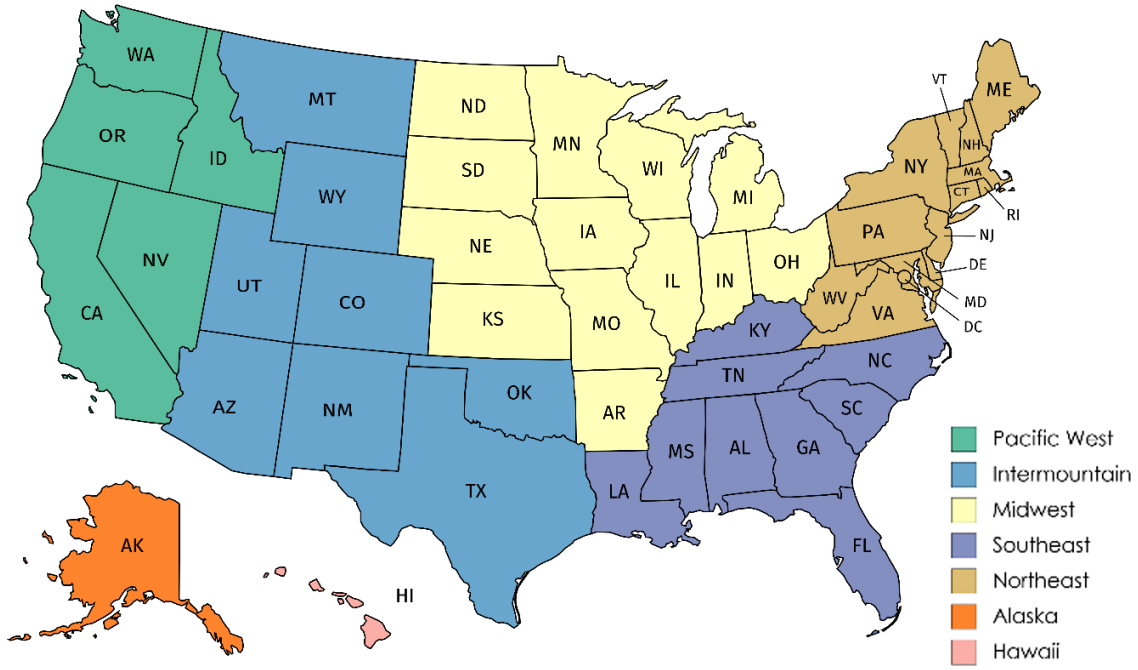

Figure 1. Archaeological regions within the United States.
Photo: Created on mapchart.net

The regions are: 1) Pacific West; 2) Intermountain; 3) Midwest; 4) Southeast; and 5) Northeast. From every region, three major repositories were selected. In addition, the states of Hawaii and Alaska were included in the sample with one major repository selected from each. In total, 17 institutions were asked to complete the survey.

According to the Heritage Health Index Report (HP and IMLS 2005a), which presented data concerning a wide range of collections held in public trust in institutions across the US, housing institutions can be separated into five broad categories: archives, libraries, historical societies, museums, and archaeological repositories/scientific research collections (HP and IMLS 2005a). Of the 15,070 institutions sampled for the Heritage Health Report, 1,992 are classified as archaeological repositories/scientific research collections. Of this number, 35 fell into the first HP and IMLS Target Group, which included the largest and most significant collecting institutions (HP and IMLS 2005a:11). As this number includes both archaeological repositories and a range of more inclusive scientific research collections, it can be assumed that less than 35 major archaeological repositories within the US were surveyed for the Heritage Health Index study. As such, a target sample size of 17 major repositories was considered reasonable for the present study. Responses from all three repositories within a region would have been ideal, but I determined at least one response from a region to be sufficient as a contingency plan. Only institutions that house federal collections were considered for the study. This limitation was imposed to ensure institutions could be compared in a straightforward manner. Additionally, institutions that house federal collections must follow federal standards (*36 CFR Part 79*), providing a baseline to compare the curation standards at each institution.

This study utilized criterion sampling—i.e., selecting cases that meet some predetermined criterion of importance (Patton 2001:238)—to select curation facilities that are major archaeological repositories or are used most often by archaeologists in a given region or state. An informal question was emailed to archaeologists within each state using mailing lists obtained from the relevant State Historic Preservation Office (National Conference of State Historic Preservation Officers 2016) and from the Bureau of Land Management (United States Department of the Interior Bureau of Land Management 2016). Their responses were then separated into regions based on state location aside from Alaska and Hawaii. The email contained the following request: “Please list one or two of the largest archaeological repositories within your state that are

accredited to take federal collections." The goal of this undertaking was to compile a list of institutions within each region or state that are used widely by local professional archaeologists and to minimize personal bias in the selection of repositories. Perhaps unsurprisingly, the repositories most often used were often those that provided the most information online on the repository website.

The list of repositories generated from the aforementioned email had numerous repeats in each region, suggesting that certain repositories are used more frequently than others and should be included in the sample. For regions that did not have repeats, the institutions with the most information online were chosen. Prospective institutions, a total of 17, are listed in Table 3 with those who participated, a total of 11, marked "Yes" in the Participation column. Participants are referred to by the state of location followed by the abbreviated region, where applicable, for this research.

Table 3. List of Prospective Participating Institutions.

Region or State	Name of Institution and State	Participation
Pacific West (PW)	Sacramento State University Archaeological Curation Facility, California	Yes
	Burke Museum of Natural History and Culture, University of Washington	Yes
	The Museum of Natural and Cultural History, University of Oregon	No
Intermountain (IM)	University of Wyoming Archaeological Repository	Yes
	Arizona State Museum (University of Arizona), Tucson	No
	Texas Archaeological Research Laboratory, University of Texas, Austin	Yes
Midwest (MW)	State Historical Society of North Dakota Archaeology Collection	Yes
	University of Missouri Museum of Anthropology	Yes
	Southern Illinois University Center for Archaeological Investigations	Yes
Southeast (SE)	North Carolina Office of State Archaeology Research Center	No
	Louisiana Office of Cultural Development Division of Archaeology Curation	No
	University of Alabama Office of Archaeological Research Curation Facility	Yes
Northeast (NE)	Vermont Archaeology Heritage Center	No
	Maryland Archaeological Conservation Laboratory	Yes
	Virginia Department of Historic Resources Collections	Yes
Hawaii	Bishop Museum	No
Alaska	University of Alaska Museum of the North, Fairbanks	Yes

A comprehensive understanding of the collections housed within the repository, an in-depth knowledge of the protocol used for housing collections, and an understanding of other curation procedures were all necessary for this study. A visiting researcher such as myself could not hope to assess and understand each aspect of a repository's inner workings without months of inquiry. Managers of archaeological repositories are more familiar with the status of their collections than anyone else, making their assessment of their collections more complete and informed. Collections managers were therefore chosen as the target informant. As stated above, the repositories tended to have information available online. Therefore, the email associated with the repository and/or the Collections Manager, Director, Curator, Head of Collections, Museum Director, Lab Manager, etc. was obtained from this online information and a mailing list created.

An email was sent requesting participation in the survey, which I called the "Present State of the Curation Crisis and Deaccessioning in the United States Survey." The survey was made available online using FluidSurveys and also offered in Microsoft Word document format if a participant requested it (Appendix B). Several participants requested to see the Microsoft Word version of the survey before agreeing to participate, but only two surveys were returned in Microsoft Word format.

3.3. Data collection tools

3.3.1. The instrument and treatment of data

The data collection instrument for this study was a questionnaire I developed. Prior to implementation, this survey was reviewed by my committee members, Prof. Mark Collard of the Department of Archaeology, Simon Fraser University, and Dr. Jody Clauter of Alpine Archaeological Consultants, Denver, Colorado. FluidSurveys, a subsidiary company of SurveyMonkey, is a web survey tool provided by Simon Fraser University to assist with research (Simon Fraser University 2015). The website and acquired data are located in Canada at a commercial provider external to Simon Fraser University and is compliant with British Columbia's Freedom of Information and Protection Privacy Act (Simon Fraser University 2015).

Survey responses returned via email are stored in Laramie, Wyoming, and secured on my personal laptop where it will be kept for five years following survey completion. I am the only person with access to the raw data via FluidSurveys, as well as the raw data on my password-protected personal laptop.

Since data collection occurred in the US, the data are subject to the Patriot Act which allows authorities access to the records of internet service provider and therefore to access research participants' information. Storing data outside of Canada may increase the risk of information disclosure because there are varying degrees of personal information protection laws in other countries. Therefore, confidentiality was not guaranteed.

Data collected for this study are presented in the current thesis, which will be available at Simon Fraser University (SFU). Results will also be made available to the participating institutions upon completion.

Following the selection of institutions to approach, the construction of the mailing list, and the development of the survey instrument, a research ethics application was submitted to the SFU Office of Research Ethics. Approval for the project was given on November 15, 2017, and then renewed on September 24, 2018. Ethics review was not requested by any other institution.

This study posed minimal risks to participants and researchers. Federal agencies that fund the collections have access to the status of collections. This study merely collects these data for comparative purposes. Input will help widen the understanding of the status of archaeological collections across the US.

3.3.2. Survey structure

The questionnaire created for the present study is presented in Appendix B. It contains a consent form that explains the scope of the study, a structured question section that includes several demographic questions, a non-structured question section ("Curation Crisis Questions" 1-6), and instruction for the uploading of external documents.

I fashioned the majority of the questions specifically for the present study. The demographic questions, 1-7, were modeled on a survey that preceded a curation workshop held at the Smithsonian Institution in May 1990. The survey was issued to the 24 participants of the curation workshop and results were used to inform the *Guide to the Curation of Archaeozoological Collections* (Henry 1991). Although my study was not solely concerned with archaeozoological collections, I reasoned that the same questions can aid in the characterization of institutions that house archaeological collections. Several of the questions concerning accessioning, curation, storage, and researcher accessibility were also loosely based on the Henry (1991) survey.

Other survey questions were developed to answer research questions. Survey Questions 9-16 concerned the status of collections. Survey Questions 19 and 20 concerned the accessibility of collections for researchers. Survey Questions 8, 17, and 18 were designed to determine whether there are accessioning and deaccessioning policies in place in each institution.

The non-structured questions were designed to allow a more open discourse about the topics of this study. These enabled the participant to include anything that the survey construction may have overlooked in the preceding section of the survey. The non-structured questions also gave the institution a means to provide more detailed feedback if they wished.

3.4. Procedures

A request for participation was sent to the 17 institutions on December 5, 2017. It included a link to the survey at the online portal FluidSurveys. In January 2018, a follow-up reminder email was sent to potential participants who had not responded. Responses were collected from December 2017 through February 2018.

Consent was obtained on the first page of the survey by the participant checking a box to proceed to the survey. For Microsoft Word versions of the survey, consent was determined by the completion and return of the survey with the knowledge that their answers would be used for this research. Participants did not receive any payment for participating in this study. Although no responses were withdrawn, participants had the option to withdraw before the completion of the project by contacting the author.

Of the 17 requested institutions, 11 provided responses. The following responses were received: in the Pacific West region from Sacramento State University Archaeological Curation Facility in California and the Burke Museum of Natural History and Culture in Washington State; in the Intermountain region from the University of Wyoming Archaeological Repository and the Texas Archaeological Research Laboratory at the University of Texas in Austin; in the Midwest region from the State Historical Society of North Dakota Archaeology Collection, the University of Missouri Museum of Anthropology, and Southern Illinois University Center for Archaeological Investigations; in the Southeast region from the University of Alabama Office of Archaeological Research Curation Facility; in the Northeast region from the Maryland Archaeological Conservation Laboratory and the Virginia Department of Historic Resources Collections; and in Alaska from the University of Alaska's Museum of the North, Fairbanks. The Bishop Museum in Hawaii stated they are not an official archaeological repository nor does the state have any, and thus did not participate in the survey. The remaining institutions did not respond to the request to participate.

Survey responses completed through FluidSurveys were exported as PDF data reports and as an Excel file on April 10, 2018. Because of the small sample size, it was determined that the data were most efficiently organized using Microsoft Excel. It was necessary for one participant to email the Non-structured question responses of their survey directly to the author due to a technical error. The entirety of another participant's survey response was received via email. I manually entered both sets of answers into the Microsoft Excel file.

3.5. Curation standards

Implementation of modern curation standards, or a level of quality of care for the collection, is complex to measure. Museum standards are provisional and vary across institutions, though minimum standards are found in the ICOM *Code of Ethics for Museums* (2013). These standards are useful, but they are not exclusively about archaeological institutions or artifacts. The collections relevant to this study achieve modern curation standards by following recommended management of collections indicated by *36 CFR Part 79*. Unfortunately, these standards are limited in enforceability (Childs and Corcoran 2000), but they are considered best practice as they provide managers of archaeological collections with guidelines.

There are more guidelines within *36 CFR Part 79* than are explored by the current study. Furthermore, several of the categories of standards were only partially explored. For example, there are no strict guidelines for cataloguing criteria within *36 CFR Part 79*. Subsequently, it was essential to only query participants on criteria known to be common, quantifiable, and comparable.

For the purpose of this study, only quantifiable curation standards were explicated. The entirety of *36 CFR Part 79*, apart from associated appendices, can be found in Appendix A. My study evaluated seven categories of curation standards: 1) accessioning; 2) cataloguing; 3) labeling and preservation; 4) storage; 5) inventory; 6) deaccessioning; and 7) accessibility. These are described below.

1. *Accessioning.* Accessioning is the addition of artifacts into the repository's housing. This includes the assignment of accession numbers and any other acquisition information (Sullivan and Childs 2003:61). Federal and state collections, even those with an agreement for care in perpetuity, are not owned by the repository unless a title transfer occurs but the repository generally follows the same accessioning procedure (Sullivan and Childs 2003:61). Repositories must have permanent records of accessions that list all objects that are or have been a part of the collections in the institution (Sullivan and Childs 2003:62).

2. *Cataloguing.* Cataloguing is the aggregation of all fundamental information about each artifact in a collection, including associated provenience information (Sullivan and Childs 2003:63). As there are no agreed-upon standards, most repositories have their own guidelines. These guidelines often include the accession and catalogue numbers, the name and description including material type, quantity, measurements, and/or weight, the site name (if available) and number, provenience information including excavation unit information (if applicable), state, county, UTM coordinates, township, range, and section, name of the field personnel, the name of the person filling out these data and the date on which it was completed, where the objects are located in the repository, and any comments about the artifact and its housing (Griset and Kodack 1999; Sullivan and Childs 2003:63; Childs and Corcoran 2000).

3. *Labeling and Preservation.* In preparation for storage, artifacts should be labeled and/or stabilized. Two key elements of maintaining the value of an object are (1) to use non-reactive materials and (2) to maintain the association between the artifact and its documentation (Sullivan and Childs 2003:65).

4. *Storage.* Storage of a collection refers to the condition of the space where collections are housed and their safekeeping (Swain 1998; Department of the Interior 1997; Sullivan and Childs 2003). These conditions and safekeeping measures include environmental controls such as temperature, humidity, level and duration of visible light, ultraviolet radiation, air pollution, and pests (insects, rodents, etc.) (Sullivan and Childs 2003:68). Collection security including mechanical and/or electrical systems for detecting and deterring intruders, policy on access, opening and closing storage and exhibition areas, and control of keys and access to particular areas of the

repository also must be maintained (Sullivan and Childs 2003:68). In the event of a fire emergency, fire protection including fire detectors, fire suppression equipment, fire resistant storage containers, and a fire plan for prevention, detection, and suppression need to be in place (Sullivan and Childs 2003:68). A disaster plan must be in place in the event of a natural or human-inflicted disaster (Sullivan and Childs 2003:68). The regular cleaning of storage and exhibit spaces and regular inventory of collections also improve the safety and storage condition of the collections (Sullivan and Childs 2003:68).

Aside from housing artifacts in a way that protects them through environmental controls from breakage and deterioration, *36 CFR Part 79* does not specify whether artifacts should be placed in bags or boxes and does not list size requirements or other specifications. However, it is generally agreed that bag thickness should exceed two millimeters in thickness and that, generally, objects and records should be housed individually within bags or boxes and then placed in a larger container (e.g., bag, box, cabinet, drawer, etc.) (Sullivan and Childs 2003:69). Box sizes vary by repository though one cubic foot of space is most common (Sullivan and Childs 2003:71). Whichever size of bags and boxes is used, they should be of standard sizes for optimal storage space utilization (Sullivan and Childs 2003).

5. *Inventory.* Guidelines for the inventory and management of artifacts and associated data are outlined in *36 CFR Part 79.11*. This allows Federal Agencies to account for their collections and gives the repository a better understanding of the collections under their care. A firm understanding of the status and count of collections benefit the repository by aiding the discovery of missing objects and enhancing security. It also improves accessibility and therefore the credibility of the repository (Sullivan and Childs 2003:71).

6. *Deaccessioning.* Deaccessioning is the permanent removal of an object from a collection or, in the accidental loss or destruction of an object, the documentation of the loss in the repository's records (Malaro and DeAngelis 2012:48). Deaccessioning archaeological collections is controversial. Most researchers believe that all items would be preserved in perpetuity, but issues of sufficient sample size, storage space, and available staff and funding can influence decisions towards favoring deaccessioning (Whiting-Looze 2010).

   Deaccessioning is not detailed in *36 CFR Part 79*, but a draft of Part 79.12 titled "Procedures to discard material remains," was circulated in 1990 by the Federal Register. This draft was never finalized but recommended that collections may be transferred to Federal agencies or to other repositories, may be repatriated to source communities, and may be used for destructive analyses (Sagebiel et al. 2010:53). However, the document does not state under which circumstances the deaccessioning of parts of collections are warranted (Sagebiel et al. 2010:53).

7. *Accessibility.* Accessibility of collections is the ultimate purpose of managing collections (Sullivan and Childs 2003:73; Childs and Corcoran 2000; Childs and Benden 2017:18). Collections must be accessible for scientific, educational, and religious purposes according to *36 CFR Part 79*, but there are no set regulations on how much accessibility is suitable for the collections (Childs and Corcoran 2000).

3.6. Correlations between research questions, survey questions, and modern curation standards

Maintaining the data in Microsoft Excel allowed for analysis and data display in numerical, tabular, and chart formats. Interpretation of the demographic data accrued from Questions 1-7 was simple categorization, though Questions 5 and 7 are also mentioned below. The data accrued from the remaining questions were more complex to interpret because it was necessary to compare them to the regulations outlined in *36 CFR Part 79*.

Thesis research questions, their corresponding survey questions, and the associated *36 CFR Part 79* standards are presented in Table 4 below. It was necessary for Research Question 2 to be separated into sub-questions. Answers to survey questions 5, 8 through 16, 19, and 20, as well as non-structured "Curation Crisis Questions" 3, 4, and 6, were used to answer the multi-part question 2.

Table 4. Associations Between Research Questions, Survey Questions, and 36 CFR Part 79 Standards.

Research Questions	36 CFR Part 79 Standard	Survey Questions
1. What is the current status of the curation crisis across the nation? Have there been improvements in the status of the curation crisis?		
2. Are modern curation standards as elucidated by 36 CFR Part 79 and explicated in the section above being met?		
a) Are there accessioning criteria in place? Is there accessioning policy information available for those interring collections?	79.9 (a)	8, 11, CCQ 6
b) Are there cataloguing criteria in place?	79.9 (b) (1)	9
c) Are there labeling and preservation criteria in place?	79.9 (a), 79.9 (b) (5)	10
d) Is other testing completed?	not called for in 36 CFR Part 79 beyond 79.10 "preserve . . . research potential"	10

Research Questions	36 CFR Part 79 Standard	Survey Questions
e) Is there adequate storage in place? Including: • Environmental Controls • Security • Fire Protection • Housekeeping • Disaster Planning • Housing	79.9 (b) (2;3;5;6)	12, 13, 14, 15
f) Are there regular inventories?	79.9 (b) (8), 79.9 (d), 79.11	16, CCQ 4
g) Are the collections accessible?	79.9 (b) (9), 79.10	11, 19, 20, CCQ 3
h) Is professional staff used for curation tasks?	79.9 (b) (4)	5
3. What are the methods used to bring collections up to modern curation standards? Are these methods significantly different across institutions?	N/A - specific methods for achieving modern curation standards are not provided in 36 CFR Part 79	CCQ 1
4. How has the institution been working to solve issues caused by the curation crisis?	N/A - specific methods for achieving modern curation standards are not provided in 36 CFR Part 79	CCQ 5
5. What percentage (approximately) of the collection is not up to modern curation standards?	79.3 (all, specifically (e))	CCQ 2
6. Are there deaccessioning criteria in place? What percentage of institutions have deaccessioning criteria?	79.9 (b) (1) (x) is the only mention of deaccessioning, and it concerns maintaining records, not the deaccessioning criteria itself.	17, 18, CCQ 6
7. What percentage of collections accrues from donations, HRM, academic, research, and other projects?	79.3 (all) outlines the applicability of 36 CFR Part 79 and (a) notes that collections generally include "those that are the result of a prehistoric or historic resource survey, excavation or other study conducted in connection with a Federal action, assistance, license or permit"	7

36 CFR Part 79 was required when interpreting results related to Research Question 2b and 2e. For Research Question 2b, *36 CFR Part 79.9* (b, 1, i-vi) does not provide specific cataloguing criteria. As such, it was essential to query participants on criteria known to be common, quantifiable, and comparable. Table 5 presents corresponding records maintenance from *36 CFR Part 79.9* (b, 1, i-vi), the cataloguing criteria presented in *3.5. Curation Standards*, and the criteria choices presented to participants in Survey Question 9. While developing the survey, I overlooked the italicized criteria in the table below, drawing instead on the criteria based on my personal

experience from fieldwork and laboratory experience, much of which aligns with the other two columns.

Table 5. Associations Between 36 CFR Part 79, Cataloguing Criteria Presented in Section 3.5. Curation Standards, and Survey Question 9 Selection Options.

36 CFR Part 79.9 (b, 1, i-vi)	Cataloguing Criteria (see section *3.5. Curation Standards*)	Survey Question 9 Criteria Selection Options
(i) Records on acquisitions	*accession and catalogue numbers*	
(ii) Catalog and artifact inventory lists	*the name and description including material type, quantity, measurements, and/or weight*	
(iii) Descriptive information, including field notes, site forms and reports		Field notes Site report Site form Date of field work Recovery methods Sampling methods
(iv) Photographs, negatives and slides		Photographs
	the site name (if available) and number	Site number Site name
(v) Locational information, including maps;	provenience information including excavation unit information (if applicable), state, county, UTM coordinates, township, range, and section	Location of Site Site provenience data Site map(s)
	name of the field personnel	Name of company Name of discoverer
	the name of the person filling out these data and the date on which it was completed	
	where the objects are located in the repository	
(vi) Information on the condition of the collection, including any completed conservation treatments	*and any comments about the artifact and its housing*	
		Analysis of collection
		Other

Note: Italicized criteria do not have an associated Survey Question 9 criteria selection option.

For Research Question 2e, environmental controls and measures were provided in *36 CFR Part 79* (b) (2, 3, 5, and 6). In summary, they include controls on temperature, humidity, visible light, ultraviolet radiation, pests (insects, rodents, etc.), and air pollutants. Mechanical and/or electrical system for detecting and deterring intruders, policies on access, opening and closing storage and exhibition areas, and keys and

access to particular areas of the repository are also included in *36 CFR Part 79.* Additionally, fire detection and suppression systems including fire resistant storage containers, emergency management planning, clean storage and exhibit spaces, and regular inventory of collections were also noted. All of these controls and measures were investigated. Institution responses to the survey were assessed individually and regionally by total environmental criteria met. These criteria were assessed by looking at total institutions enacting the environmental control or measure based on the survey responses.

Research Question 2e also included housing as a measure of adequate storage. What constitutes adequate housing is not clearly specified by *36 CFR Part 79.9* (b) (3) (v), which only notes that fragile or valuable items should be provided with "additional security such as locking the items in a safe, vault or museum specimen cabinet, as appropriate." For example, storage on wooden shelving is generally no longer considered museum quality storage as it can off-gas harmful acids even when painted (Duyck and Bacharach 2012:12). The following storage methods were therefore presented as an option in Survey Question 13: 1) within non-4-mm plastic bags; 2) within 4-mm plastic bags; 3) within 12x15x10" (30.5x38.1x25.4 cm) boxes; 4) within boxes of a different but consistent size; 5) in miscellaneous-sized boxes; 6) in closed storage drawers or cases; 7) on metal shelving; 8) on wooden shelving; and 9) other. These results were presented by institution; out of those who use the method, averages of the percent of the entire collection within each storage method were noted.

Research Question 2f, concerning regular inventories of collections, required interpretation of *36 CFR Part 79.11* (and also *36 CFR Part 79.9* (b) (8) and (d)). These sections of *36 CFR Part 79* call for inventories of all federally owned collections within a repository. Part 79.9 (b) (3) requires:

> Periodically inspects the physical plant for the purpose of monitoring the physical security and environmental control measures; (4) . . . assessing the condition of the material remains and associated records, . . . monitoring those remains and records for possible deterioration and damage; (5) . . . inventories the collection by accession, lot or catalog record for the purpose of verifying the location of the material remains and associated records.

Additional guidance includes “[m]aterial remains and records of a valuable nature should be inventoried on a more frequent basis than other less valuable remains or records.” While it was not possible to quantify the term “periodically,” how often portions of collection and the entire collection are (re)inventoried was categorized as “never,” “weekly,” “monthly,” “yearly,” “every decade,” and “longer than every decade.” A non-structured question requesting the percentage of entire collection inventoried was also included in the survey.

3.6.1. Assumptions

Instruction on collection accessibility is provided in *36 CFR Part 79.10*: “(a) The Federal Agency Official shall ensure that the Repository Official makes the collection available for scientific, educational and religious uses . . . (b) Scientific and educational uses. A collection shall be made available to qualified professionals.”

Determining collection accessibility was based on the assumption that more accessible collections will be utilized more frequently. However, the popularity of the repository, the size of collections, the type of assemblages, and the number of researchers in the area impact these results. To counter these variables, Question 20 directly asked if researchers have ever been limited in their investigations by the status of collections (e.g., they could not research something because the item or associated records couldn’t be located), as a way to double-check the assumption made when interpreting Question 19.

The use of professional staff for curation tasks was determined by asking the inverse, i.e. whether or not volunteers are used for all, some, or none of the curation tasks. This question assumed there would be institutions that use volunteers for either all or none of their curation tasks, therefore answering if professional staff were being used without directly asking the question.

Research Question 3 was answered by Non-structured Question 1 of the survey. Research Question 4 was answered by Non-structured Question 5. Each of the non-structured questions were open-ended and it is not assumed that respondents provided an exhaustive list of methods to bring collections up to modern curation standards or solutions to issues caused by the curation crisis. However, I assumed that the questions

were interpreted to suggest which methods and solutions are directly implemented to improve the status of collections at each institution. Due to a limited sample size, my comparison of the methods used to bring collections up to modern curation standards focuses on differences and similarities across institutions rather than regions, as presented in the next chapter.

Responses were interpreted in such a way to create easy categories and comparisons. For answers with a sliding scale of categories, “Always,” “Often,” and “Sometimes,” are considered an affirmative answer and “Never” or “N/A” are considered a negative answer. “Other” categories, though seldom selected by participants, were dropped for this comparison. Each method was evaluated and then averaged to determine significance. Less than half of the seven curation standards identified as being met was considered a minority and therefore not a significant difference of standards across institutions. Occasionally, participants would give a percentage range such as 50-60% instead of 55%. The mean of these ranges was used to present results. All results are rounded to the nearest integer.

Deaccessioning was interpreted more qualitatively than the other avenues of this research. Though the Museum Properties Management Act gives authority to deaccession collections, specific federal regulations have yet to be issued (Childs and Corcoran 2000). As such, there was no way to compare results to established standards. The presence of deaccessioning policy, denoting its practice, was explored for this study individually by institution.

Chapter 4.

Results

This chapter outlines the results of the *Present State of the Curation Crisis and Deaccessioning in the US* Survey. I begin with a summary of the demographic data obtained from the survey in Section 4.1. Results are outlined below in Sections 4.2 to 4.8 under subheadings that are particular to their associated research question.

4.1. Demographic results

Eleven of the 17 participants completed the survey. Not all of the 11 respondents provided their title for the "Name and Title" option. Of the seven who did, there were four Collection Managers, one Chief Curator, one Curator of Archaeological Collections, and one Head of Collections.

All surveyed institutions are publicly owned. Institutional affiliation includes University (seven out of 11), Other Federal/State Agency (three out of 11), and Museum (one out of 11). No participants selected Research Institute or Self-Employed affiliation.

Respondents listed the background of their institution as Archaeology (seven out of 11), Anthropology (one out of 11), and Other (three out of 11). In the latter category, there were two cultural and natural history museums and one State Historic Preservation Office. None of the institutions chose the Paleontology, Zoology, or Biology affiliation.

Figure 2 shows the number of curation staff by institution. Seven institutions have 0-3 staff, one institution has 4-7, one institution has 8-11, and two institutions employ 16 or more staff.

Of the ten responses concerning collection composition, all institutions contain prehistoric collections and three of the institutions also contain historic collections. Prehistoric collections range from 50 to 90% of the entire collection or an average of 76%. Historic collections make up 3%, 5%, and 25% of the entire collections of the three institutions that contain them. Notably, one of the institutions did not answer the

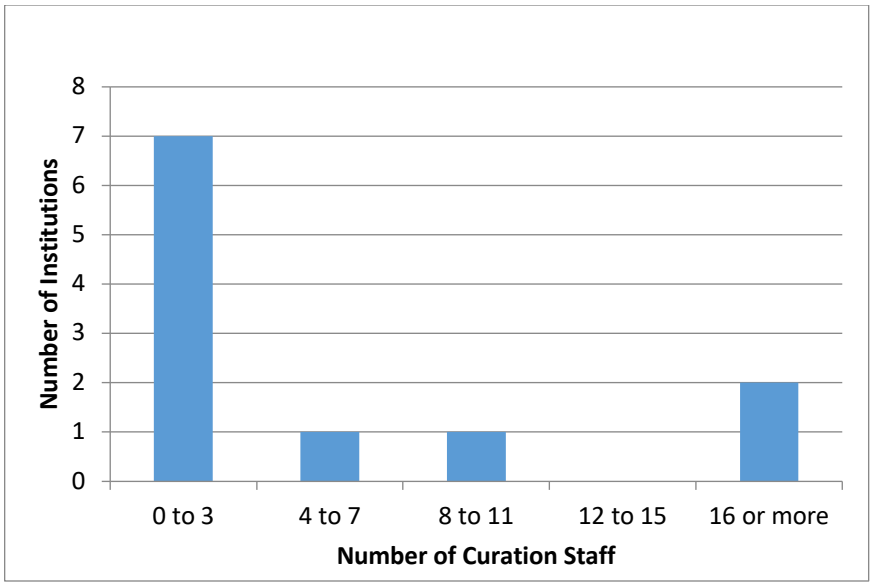

Figure 2. Number of curation staff per institution.

question, instead stating: “This is not something we track. A lot of our collections are Phase I projects identifying multiple sites, and still others are multi-component sites with both prehistoric and historic artifacts. There's too much overlap to try to track the collections in this way.”

Several respondents provided percentages for the “other” category. One institution considers “ethnographic collections distinct from historic (historic being related to archaeological sites)” and responded 25% in the other category. One institution did not provide a percentage in the “other” category, but they did state, “[m]any of our collections include material from both pre- and post-European contact.” One institution contains 3% of “comparative collections” and one institution contains 5% of “modern collections.”

Locations used for collection storage gives insight into the function of the institution. Possible selections included “Repository,” “Lab,” “Exhibition,” and “Other”. All of the institutions use repositories for collection storage. In addition, six institutions use exhibition space, and four use lab space.

4.2. Research Question 1: current status of the curation crisis

An average of 63% (median of 70%) of collections are up to modern curation standards. Regions ranked in order of lowest to highest average percentage of collections up to modern curation standards are as follows: Pacific West (42%), Intermountain (60%), Alaska (60%), Midwest (62%), Northeast (80%), and Southeast (85%).

Research Question 1 also asks "Have there been improvements in the status of the curation crisis. This question is largely overarching and answered by a summation of the results compared to previous investigations. As such, it will be explored in Chapter 5.

4.3. Research Question 2: modern curation standards

The results of this multi-part question are presented by lettered subheadings that correspond with the multi-level question number found in Table 3. Implementation of the modern curation standards is complex to assess. Some of the results presented below include an excerpt from *36 CFR Part 79* to aid in presentation.

a) Are there accessioning criteria in place? Is there accessioning policy information available for those interring collections?

36 CFR Part 79.9 states that: “[t]he Federal Agency Official shall determine that a repository has the capability to provide adequate long-term curatorial services when the repository is able to: (a) Accession… the particular collection . . . using professional museum and archival practices.” However, particular practices are not explicated in the regulation, therefore different types of accessioning mediums were investigated including Ledger, Card file, Computer database, Accession forms, and Other.

All respondents selected “Yes” to having accessioning policy and more than one way of accessioning is used at every institution. Three respondents selected “Card file” and five selected “Ledger.” Computer database and accession forms are most popular with ten respondents selecting this option. The one institution that did not select the computer database and accession form categories chose the “Other” category. It “generally work[s] with the cataloguing system used by the CRM firm or group that submits each collection.” Also noted in the “Other” category was the use of Cloud

storage, Google sheets, networked drive with various files, and Excel or Access digital formats.

Though all respondents selected “Yes” to having accessioning policy, not all uploaded an attachment or emailed their policy (requested in both Survey Question 8 and Curation Crisis Survey Question 6). Six respondents uploaded or emailed their documentation, one institution provided an excerpt of their policy in answer to Curation Crisis Survey Question 6 (suggesting it exists), one noted they are currently working to create these policies, and one explained that the policies are created on a case-by-case basis, which suggests there are no formalized, overarching criteria. The remaining two institutions did not upload or email a policy.

b) Are there cataloguing criteria in place?

The cataloguing criteria that are necessary when an archaeological collection is curated, along with the number of institutions requiring them in parentheses, are name of company (11); name of discoverer (9); site number (11); site name (9); location of site (10); site map(s) (10); site provenience data (11); date of field work (10); recovery methods (8); sampling methods (8); photographs (10); field notes (10); site report (9); site form (7); analysis of collection (7); and other (7). These results are presented in Figure 3. Seven respondents selected “Other”: four noted they require digital records; two noted all of the selections are requested but not all of them are required; and one noted NAGPRA-related information.

c) Are there labeling and preservation criteria in place?

36 CFR Part 79.9 (a) and *79.9 (b)* require institutions to, “[h]andle, store, clean, conserve and, if exhibited, exhibit the collection in a manner that: . . . [p]rotects them from breakage and possible deterioration.”

Labeling and preservation criteria included in this study were sieving, flotation, washing, stabilization, numbering artifacts, and individually bag by provenience. The methods of sieving, flotation, and washing remove particles from a sample that could cause deterioration through chemical reactions or abrasive effects to the artifact. Stabilization of artifacts reduces the risk of breakage. Testing artifacts increases their research potential and preserves data that may be studied in future analysis. The frequency of methods used that could protect artifacts from deterioration and preserve data are

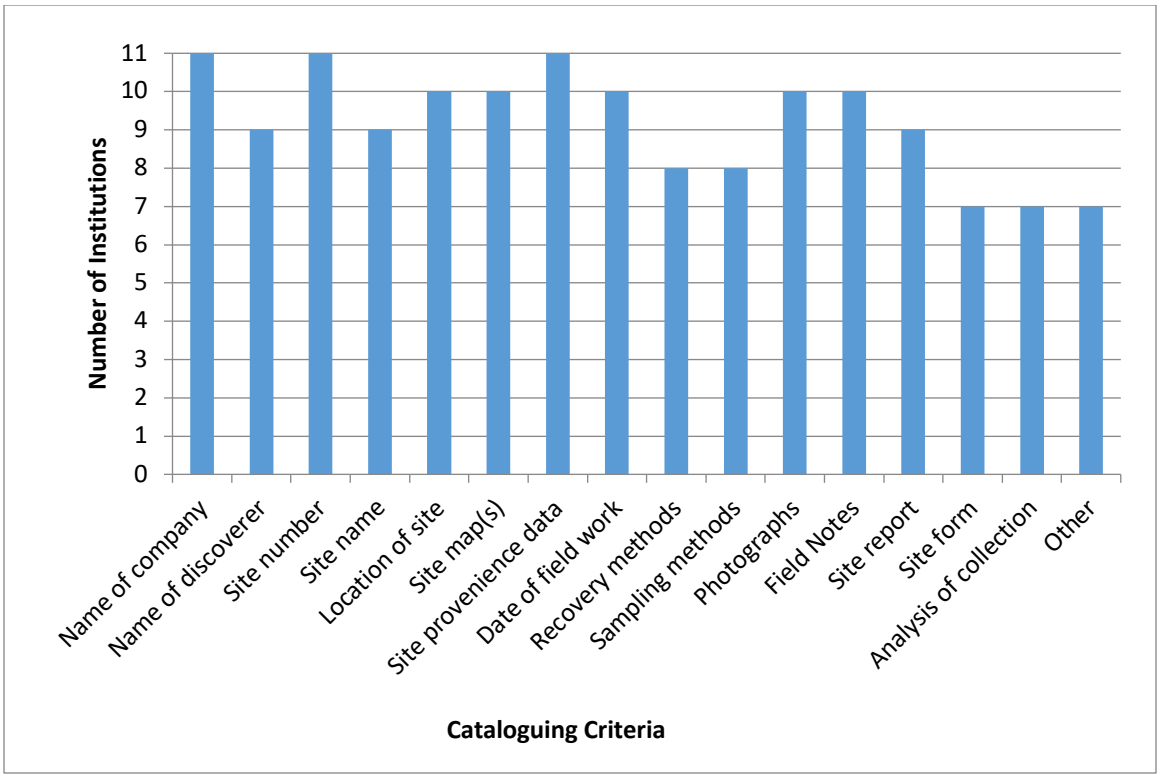

Figure 3. Associated cataloguing criteria required by institution.

detailed in Figure 4. More than half of the institutions employ washing, stabilization, numbering artifacts, and individually bagging artifacts by provenience either sometimes, often, or always. Less than half of institutions report using sieving or flotation.

d) Is other testing completed?

36 CFR Part 79.9 (a) and *79.9 (b)* require institutions to, "[h]andle, store, clean, conserve and, if exhibited, exhibit the collection in a manner that: . . . [p]reserves data that may be studied in future laboratory analyses."

Testing (e.g., blood residue, OSL dating, Radiocarbon dating, etc., either at the institution or sent off for analysis) was included as a processing method used on incoming collections and the frequency of testing is detailed in Figure 4. Less than half of institutions report testing artifacts.

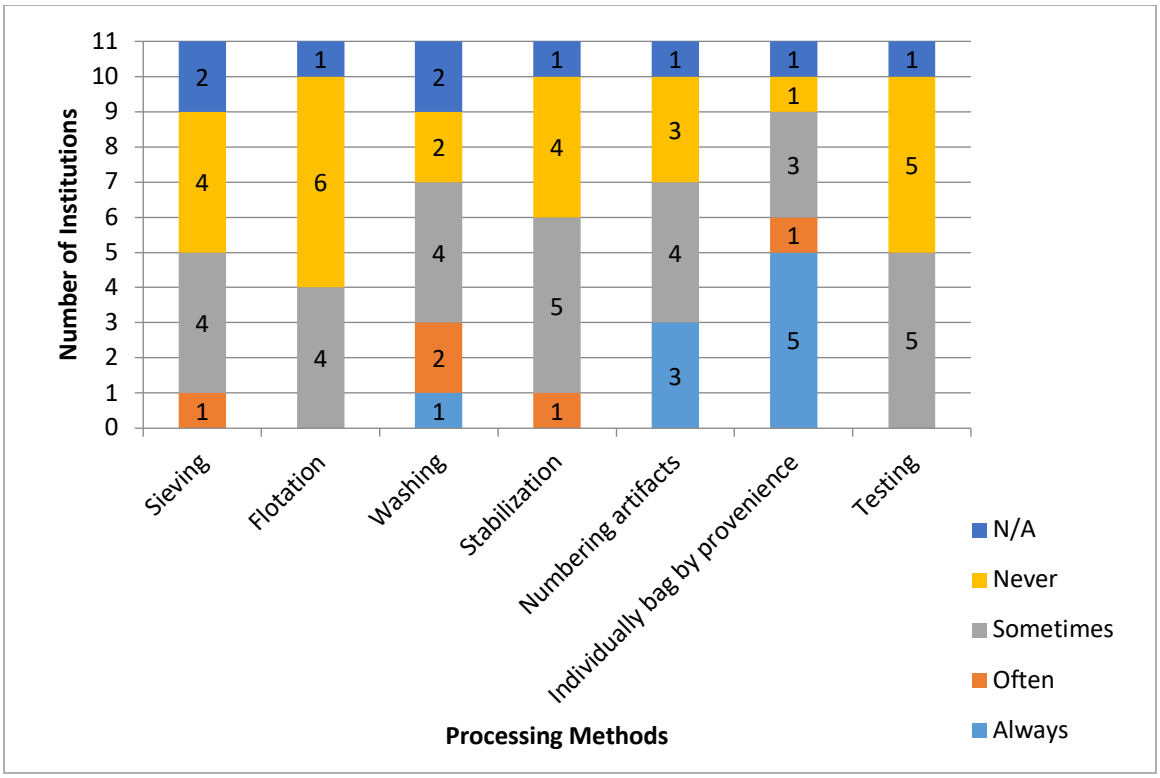

Figure 4. Processing methods used on incoming collections by institution.

e) Is there adequate storage in place? Including: environmental controls, security, fire protection, housekeeping, disaster planning, and housing

Environmental controls queried include temperature, humidity, level and duration of visible light, ultraviolet radiation, pests (insects, rodents, etc.), and air pollutants. Security measures queried include mechanical/electrical system to detect and deter intruders, policy on access, open and close areas, and control of keys/access to particular areas. Options for fire protection include fire detectors, fire suppression equipment, fire resistant storage containers, and fire plan for prevention, detection, and suppression. Housekeeping controls include regular cleaning of storage and exhibit spaces and regular inventory of collections. Disaster planning queries include disaster planning. An "Other" category was included but none of the participants selected it to identify additional environmental controls. This category was therefore removed from consideration and was not included in percentage calculations.

Percentages of adequate storage use including the above listed criteria from highest to lowest are 100% (two institutions), 88% (two institutions), 82%, 76% (two institutions), 71% (two institutions), 59%, and 47%. Results of adequate storage use by region from highest to lowest are: Alaska 100%, Southeast 82%, Intermountain

80%, Northeast 76%, Pacific West 74%, and Midwest 73%. An average of 78% and a median of 76% of all criteria are being met across all surveyed institutions.

More than half of the institutions use most of the criteria listed above for adequate storage. The exceptions are controlling air pollutants and regular inventory of collections, both of which only four institutions responded their use. Further results concerning these environmental controls and measures are presented in Figure 5.

Figure 6 shows the results for artifact housing in different storage containers and shelving, by institution. Housing options include: non-4-mm plastic bags, 4-mm plastic bags, 12x15x10 in. boxes, boxes of a different but consistent size, miscellaneous-sized boxes, closed storage drawers or cases, metal shelving, wooden shelving, and other.

All institutions house 60% or more of their artifacts in consistently sized boxes, whether or not they measure 12x15x10 in. All institutions house at least a portion of their collection in closed storage drawers or cases. Seven of the 11 institutions house at least 50% of their collections in 4-mm plastic bags. All institutions use metal shelving on a range of 4% to 100% of their collection or an average of 55% (median of 65%). Three of the institutions use wooden shelving for varying percentages (1%, 35%, and 95%) of their collection.

Similarities were observed within some regions. All of the Pacific West region institutions use low percentage of closed storage drawers or cases, metal shelving, and wooden shelving. They also have high percentage use (an average of 93%) of 12x15x10” boxes, with a nearly negligible use of boxes of a different standard size. All institutions in the Midwest region showed 100% use of metal shelving. All institutions in the Northeast region use 12x15x10” boxes comparably (an average of 80%) and use metal shelving for 95% of their collection. The institutions in the Intermountain region does not have any noticeable similarities.

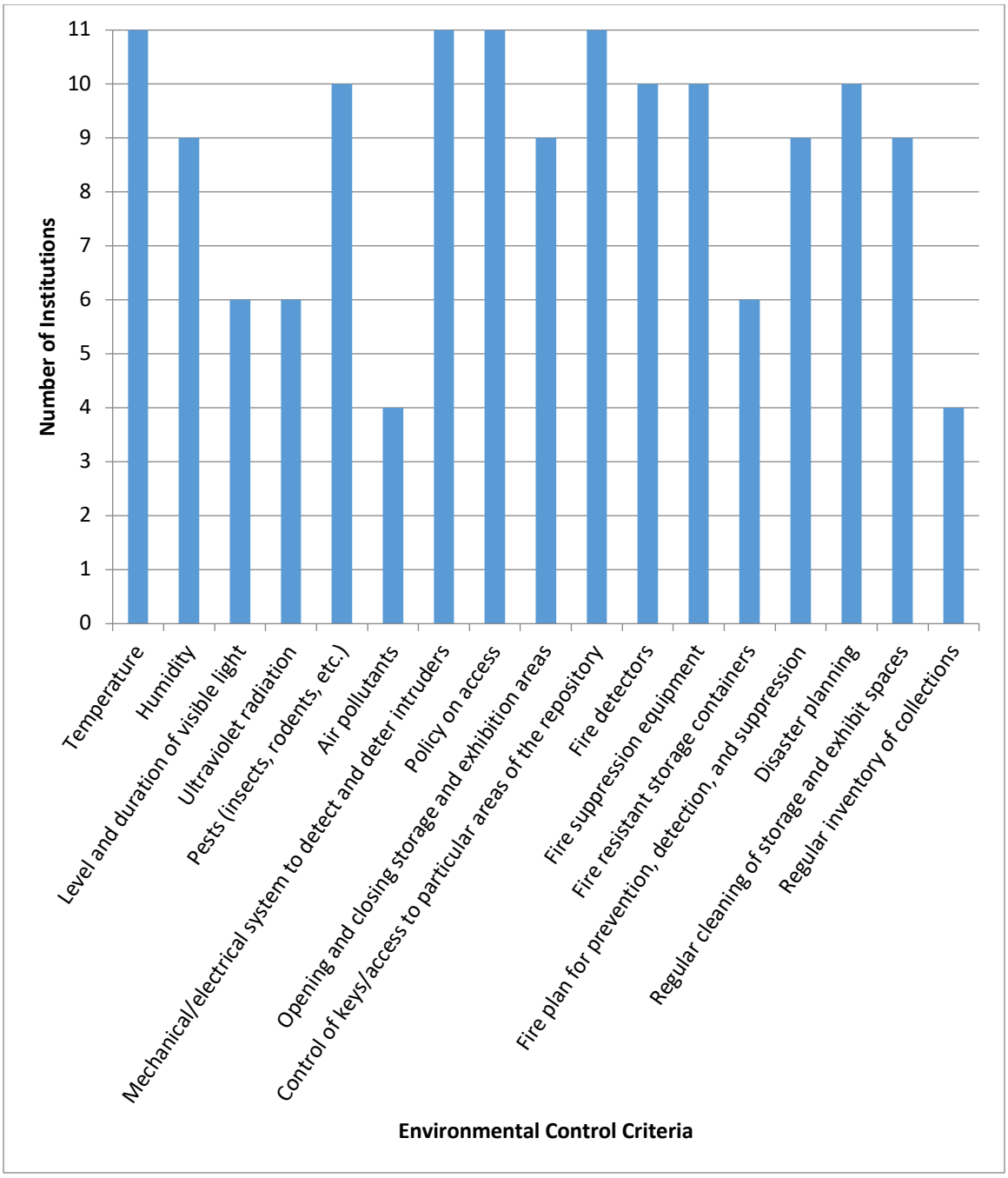

Figure 5. Environmental control criteria used by institution.

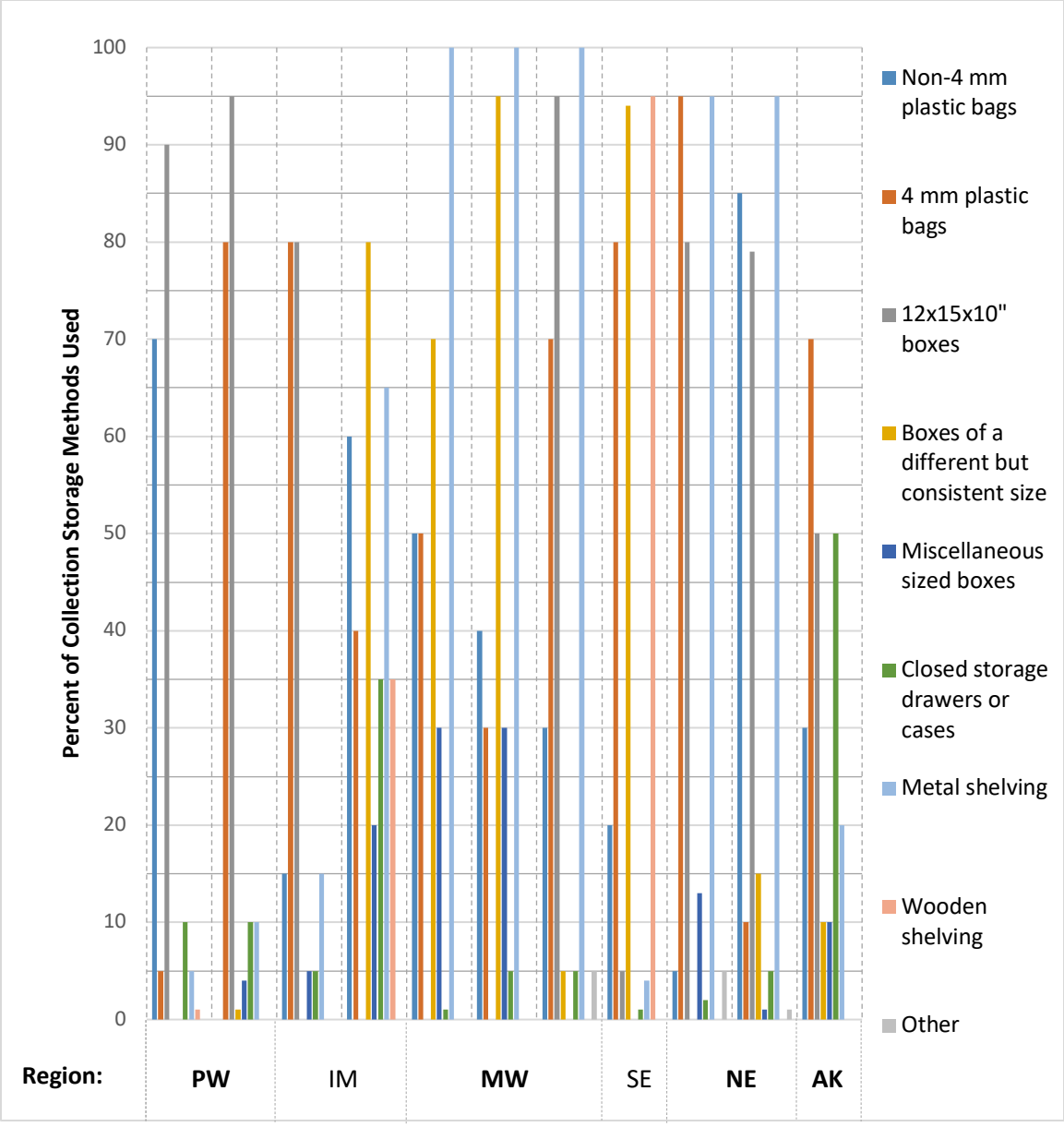

Figure 6. Collection storage methods by institution.

Table 6 shows a summary of housing methods. The columns include the methods (column 1), the number of institutions that use each method (column 2), the average percentage of the entire collection within each method out of those who use it (column 3), and the total percentage of collections within each housing method across all institutions (column 4).

All institutions use 4-mm plastic bags, closed storage drawers or cases, and metal shelving. More than half of the institutions surveyed use all methods of storage aside from wooden shelving. More than half of all collections across all institutions

surveyed are stored within 4-mm plastic bags, within 12x15x10" boxes, and on metal shelving.

Three institutions use other storage methods for an average of 4% of their entire collection. One institution did not fill in which "Other" storage method was used, one listed "map cases and metal file cabinets," and one listed "Ethafoam padded pallets."

Table 6. Housing Method Type and Percentage Use by Institution.

Method	Number of Institutions Using Method	Percentage of Method Use per Institution (if used)	Average Use of Method Across All Institutions
Within non-4-mm plastic bags	10	41%	37%
Within 4-mm plastic bags	11	56%	56%
Within 12x15x10" boxes	8	72%	52%
Within boxes of a different but consistent size	8	46%	34%
In miscellaneous-sized boxes	8	14%	10%
In closed storage drawers or cases	11	12%	12%
On metal shelving	11	55%	55%
On wooden shelving	3	44%	12%
Other	3	4%	1%

f) Are there regular inventories?

Figure 7 shows how often institutions inventory portions of and/or their entire collection. One institution responded every five years for portion of collection inventory, which was subsumed within the "every decade" category for this comparison. More than half of the institutions inventory a portion of their collection yearly. The majority of institutions do not inventory their entire collections every decade. Only one institution has never inventoried their entire collection.

Additionally, a non-structured question asking for the percentage of entire collection inventoried resulted in an average of 74% (median of 85%) of collections inventoried. One institution did not answer, and one gave a range of "20-25" as a response, which was averaged to 23% and included in the above calculations.

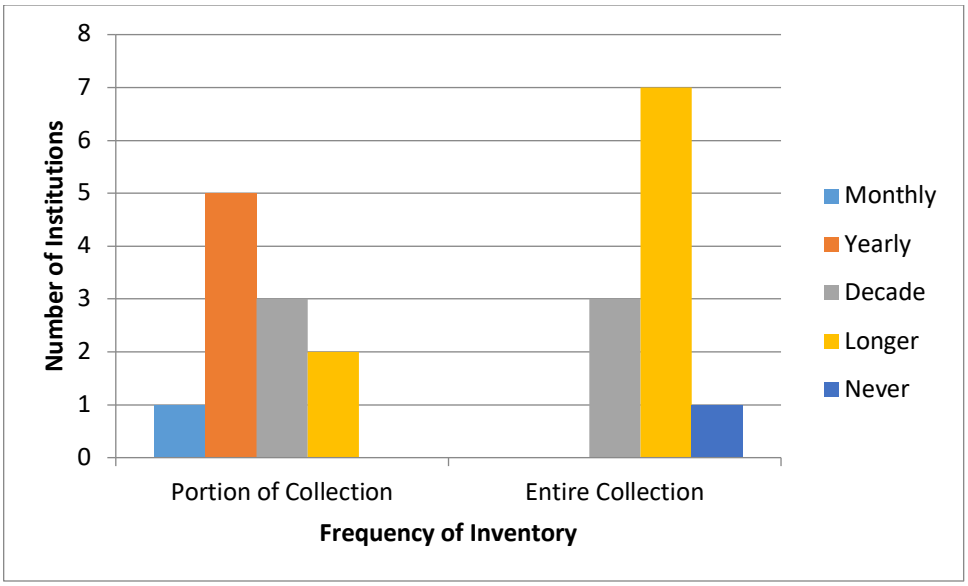

Figure 7. Frequency of inventory per institution.

g) Are the collections accessible?

As mentioned earlier in relation to Question 2 (a), ten institutions are using computer databases. The average percentage of collections in the digital catalogue is 51% (median of 50%) but the results varied greatly from 4% to 100%.

The number of research consultations per year is presented in Figure 8. I left it up to the participants to self-define what they take "research consultation" to mean. The majority of institutions have 31 or more research consultations per year. An accurate

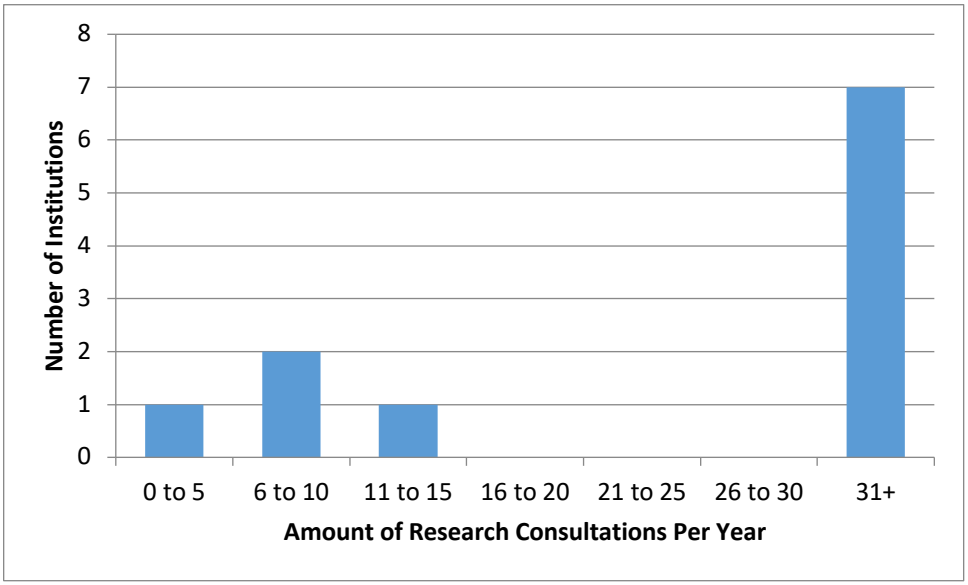

Figure 8. Amount of research consultations per year.

average of research consultations across institutions per year cannot be determined due to expectations at the time of survey construction of fewer research consultations. When asked whether the status of the institution's collections ever limits researchers, only two of the institutions said no. The remaining nine institutions believe the status of their collections could limit researchers.

Every institution uses professional staff for some of the curation tasks. Further information concerning non-professional staff and volunteer use for curation tasks was not included in the research design.

4.4. Research Question 3: methods used to achieve modern curation standards

Non-structured survey question results concerning methods are presented here.

4.4.1. Non-structured survey question response results

Table 7 summarizes the answers to the Structured Curation Crisis Survey Question 1, "What are the methods used to bring collections up to modern curation standards?" This table includes overarching methods and methods directly related to the collection.

Out of 11 responses, more than half of the institutions mention using funding to achieve modern curation standards. Respondents commented that funding is a hindrance to curation and rehousing artifacts. More than half of the respondents seek funding from state and federal agencies to improve the status of collections. Notably, only one institution responded to this Non-structured question as using deaccessioning as a method to bring collections up to modern curation standards. Other methods include using volunteers and students for some curation tasks (used by five and three institutions, respectively), and updating cataloguing methods (digitizing old collections, new cataloguing software, and using barcodes).

Table 7. Methods Used to Bring Collections Up to Modern Curation Standards.

Number of Institutions that Use Each Method	Methods
7 (64%)	Funding
	Rehousing, three of which specify rebagging and reboxing in the rehousing process
6 (55%)	Seeking funding from state and federal agencies
5 (45%)	Using volunteers for non-funded or older collections to reduce the cost of curation
3 (27%)	Hiring students to complete curation tasks
	Ensuring incoming collections follow modern standards, one of which directly mentions creating policies and guidelines for the collection submission
	Digitizing old collections
	Regular inventorying
2 (18%)	New cataloguing software
	Cataloguing
	Re-establishing provenience
1 (9%)	Creating permanent staff positions
	Monitoring environmental conditions
	Deaccessioning
	Managing a new exhibit space
	Reclassifying
	Using barcodes

4.4.2. Structured survey question response results

Table 8 is a summary of Structured Survey Questions 8 through 20 (see Appendix B) depicting institution use of various methods to achieve modern curation standards.

Table 8. Methods Used to Achieve Modern Curation Standards.

Modern Curation Standard	Method	Number of Institutions Using Method
Accessioning	Accessioning	11 (100%)
	Ledger	5* (45%)
	Card file	3* (27%)
	Computer database	10 (91%)
	Accession forms	10 (91%)
Cataloguing	Name of company	11 (100%)
	Name of discoverer	9 (82%)
	Site number	11 (100%)
	Site name	9 (82%)

Modern Curation Standard	Method	Number of Institutions Using Method
	Location of site	10 (91%)
	Site map(s)	10 (91%)
	Site provenience data	11 (100%)
	Date of field work	10 (91%)
	Recovery methods	8 (73%)
	Sampling methods	8 (73%)
	Photographs	10 (91%)
	Field notes	10 (91%)
	Site report	9 (82%)
	Site form	7 (64%)
	Analysis of collection	7 (64%)
Labeling and Preservation	Numbering	7 (64%)
	Stabilization	6 (55%)
Storage (Location)	Lab	4* (36%)
	Repository	11 (100%)
	Exhibition	6 (55%)
Storage (Housing)	Non-4-mm plastic bags	10 (91%)
	4-mm plastic bags	11 (100%)
	12x15x10" boxes	8 (73%)
	Different but consistent size boxes	8 (73%)
	Miscellaneous-sized boxes	8 (73%)
	Storage drawers or cases	11 (100%)
	Metal shelving	11 (100%)
	Wooden shelving	3* (27%)
Environmental Controls	Temperature	11 (100%)
	Humidity	9 (82%)
	Level and duration of visible light	6 (55%)
	Ultraviolet radiation	6 (55%)
	Pests (insects, rodents, etc.)	10 (91%)
	Air pollutants	4* (36%)
	Mechanical/electrical system to deter intruders	11 (100%)
	Access policy	11 (100%)
	Opening and closing storage and exhibition areas	9 (82%)
	Control of keys/access to particular areas of the repository	11 (100%)
	Fire detectors	10 (91%)
	Fire suppression equipment	10 (91%)
	Fire resistant storage containers	6 (55%)
	Fire plan for prevention, detection, and suppression	9 (82%)
	Disaster plan	10 (91%)
	Regular cleaning of storage and exhibit spaces	9 (82%)

Modern Curation Standard	Method	Number of Institutions Using Method
Inventory	Regular inventory of collections	4* (36%)
Deaccessioning	Deaccessioning	11 (100%)
Accessibility	No limitations on researcher consultation	2* (18%)

*Methods that show a significant difference (less than half of the institutions using the method).

Of the curation standards explored for this study, accessioning, storage, environmental controls, and accessibility show a marked difference among institutions with regard to certain method options. The methods with a marked difference by standard are: accessioning – ledgers and card files; storage – in a lab and on wooden shelving; environmental controls – controls on air pollutants and regular inventories of collections; and accessibility – no limitation on researcher consultation. The remaining modern curation standards of cataloguing, labeling and preservation, and deaccessioning do not show marked differences across institutions with regard to individual method use.

4.5. Research Question 4: how curation crisis issues are being solved

To answer Research Question 4, "How has the institution been working to solve issues caused by the curation crisis? Does the institution have policy documentation related to the curation crisis?", results from non-structured survey question were assessed. These answers varied, but from them key concepts were categorized and tallied by institution use. Table 9 summarizes these results.

One response was dropped from the results as it stated, “[n]ot sure what you are asking,” but the remaining ten institution’s responses are shown below. None of the surveyed institutions have policy documentation related to the curation crisis beyond collections policies and standards for processing collections.

None of the actions mentioned were employed by more than half of the participating institutions. Receiving or seeking grants and/or federal or state funding and the expansion of space/storage were the most frequently mentioned (five institutions; 45%). Several of the actions were repeated from the responses to Curation Crisis Survey Question 1 found in Table 7, such as rehousing. However, here the response mentioned by four participants is, more specifically, compact rehousing, or the utilization

of as much space as is possible for the storage of artifacts. Notably, deaccessioning was only listed once as a practical action to improve the status of the curation crisis.

Table 9. Actions Taken to Improve the Status of Collections.

Number of Institutions that Employ Each Action	Action
5 (45%)	Receiving or seeking grants and/or federal or state funding
	Expansion of space/storage
4 (36%)	Compact rehousing
	Inventorying
3 (27%)	Simply "keep working at it"
2 (18%)	University student help
	Cataloguing
1 (9%)	Charging curation fees
	A selective acquisition policy
	Moving to an environmentally and security-controlled space
	Deaccessioning
	Repatriation under NAGPRA
	Implementing collections policies and standards for processing collections
	Thorough documentation of rehabilitation for future projects
	Re-writing agreements for curation (for faculty collections)

4.6. Research Question 5: percentage of collections not up to modern curation standards

An average of 37% of collections were reported to not meet modern curation standards across the surveyed institutions, thus suggesting that more than half of the US collections meet modern curation standards. However, there is an outlier of 90% among the results. The median of these results is 30%. Though my sample size is small, averages by region are: Alaska 40%, Southeast 15%, Midwest 38%, Pacific West 58%, Northeast 20%, and Intermountain 40%. This suggests the Southeast and Northeast regions have the least need for further collection care.

4.7. Research Question 6: deaccessioning policies

All institutions noted that they permit collections to be deaccessioned and have policies in place for deaccessioning. However, only six respondents uploaded or emailed

deaccessioning policy documentation. Of the four respondents that did not provide policy documentation, one institution provided an excerpt of their policy in answer to *Curation Crisis Survey Question 6*, and one noted that they procure deaccessioning criteria on a case-by-case basis. Of the accessioning and deaccessioning documentation that was uploaded or emailed, all six include deaccessioning (referred in one document as "disposition") procedures.

4.8. Research Question 7: percentage of collections by project type

The average percentage of collections that accrues from different projects across participant institutions are: HRM 67%, Research 17%, Donated 9%, Academic 7%, and Other 1%. Median results are: HRM 70%, Research 10%, Donated 5%, and 0% for Academic and Other. One institution's overall project type percentage exceeded 100% by 10%. However, due to limited sample size, these project type percentages were included in the results with the knowledge that this could skew data. One institution was not included in these results as they did not provide data and instead stated that they "do not currently take collections at this time due to lack of space and funds." The "Other" category includes project types defined as "field visit, field check, monitoring, salvage, surface collection, unknown, or N/A." These results show that the majority collections accrued on average each year across surveyed institutions are from HRM projects.

4.9. Summary of results

In summary, HRM plays a major role in creating collections housed in the repositories surveyed. Around a third of collections are not up to modern curation standards. According to the non-structured responses, funding was most often noted as the main hindrance to meeting current standards for curation, while rehousing is most often mentioned as a method in meeting the modern standards of curation. In line with this, the most common actions taken to solve the issues caused by the curation crisis are seeking funding and expanding storage space. Notably, even though all of the institutions claim to deaccession collections, only one noted deaccessioning as a method used to bring collections up to modern curation standards or as an action taken

to solve issues caused by the curation crisis. Not all of the institutions that claim to have a policy on deaccessioning uploaded the policy document.

Artifact housing within different storage containers was compared across institutions and region (Figure 6). Consistently sized boxes, as opposed to the miscellaneously-sized boxes, are used to house 60% or more of each institutions' collections. A portion of each institution's collection is stored in closed drawers or cases. Only three institutions use wooden shelving for collection storage.

Out of the options for curation standards, only cataloguing, labeling and preservation, and deaccessioning showed no marked difference across institutions. For all the others, accessioning, storage (location, housing, and environmental controls), inventory, and accessibility, there were differences in how institutions dealt with them.

An average of 74% (median of 85%) of collections housed in the surveyed institutions were inventoried. Notably, one institution did not respond and was not included in this particular set of results. Reinventory of the entire collection varied from "never" to "every decade," and reinventory of a portion of the collection varies from "monthly" to "longer than every decade."

Chapter 5.

Discussion and conclusions

This chapter begins by discussing the results of the study in light of its goals. To reiterate, the main goal of this thesis was to determine the status of the curation crisis across the US and, where possible, by region. A second goal was to determine if modern curation standards are being met and what percentage of collections is not yet to these standards. My intent is to provide better understanding of the methods being used to bring collections up to modern curation standards, to identify who are the stakeholders in archaeological curation, and to shed light on the topic of deaccessioning in the absence of federal policy.

Following the discussion of the study's findings, this chapter compares the results with previous research. This comparison concerning the curation crisis provides insight into the progression of the issue. Based on the results and comparisons, possible directions for future research are discussed.

5.1. Study findings

5.1.1. Main findings

While determining whether modern curation standards were being met and what percentage of collections are not yet to these standards, other important conclusions were drawn from this study. The main findings of the survey are as follows:

- Around a third of collections are not up to modern curation standards as outlined in 36 CFR Part 79, but many of the individual standards are being met. The methods used across institutions to achieve modern curation standards vary. Although 36 CFR Part 79 provides some guidance on the care of collections, it is flexible, so this variability is not surprising. The method of housing in particular shows variation across institutions and regions.
- The major contributor to collections in the US is HRM projects.
- Funding and space are most often noted as being the hindrances to meeting modern curation standards.

- While every institution responded that they deaccession collections, all of the participants did not upload deaccessioning policy information.

5.1.2. Modern curation standards implementation

1. *Accessioning*. The results of the present study show that all institutions accession collections, though the means used to do so vary.

2. *Cataloguing*. The results suggest that each cataloguing criteria is followed by seven or more institutions. This is not entirely surprising as 12 of these criteria are mentioned, either vaguely or in concrete terms, in *36 CFR Part 79* and are required for federally owned collections. Of the three not mentioned in *36 CFR Part 79*, the "name of company" is required by all respondents, the "name of discoverer" is required by nine respondents, and the "analysis of collection" is required by seven of the respondents, suggesting the best practice methods are somewhat standardized as well.

3. *Labeling and Preservation*. Artifacts must be protected from breakage and possible deterioration which can occur in many ways, not all of which were explored for this study. Survey results indicate that the majority of institutions (66%) meet this modern curation standard aside from the methods of sieving, flotation, and testing of artifacts. Including those methods, only about a third of institutions meet the modern curation standard (36%), suggesting further action is needed.

4. *Storage*. The 17 environmental controls explored in this study are included in *36 CFR Part 79*. The results show four of the controls, temperature, mechanical/electrical system to detect and deter intruders, access policy, and control of keys for particular areas in the repository, are followed by all institutions. More than half of institutions use all but two controls, the control on air pollutants and the regular inventory of collections. However, other regulations such as level and duration of visible light, controls on ultraviolet radiation, and fire-resistant storage containers are only followed by six institutions. This suggests they may need to be further incentivized and/or regulated.

   Further artifact storage, such as container usage and shelving options vary widely across institutions and regions. They are explained in greater detail in the *5.1.3.1 Rehousing and Collection Storage Methods* section below.

5. *Inventory*. Regular inventory of collection is only followed by four out of 11 institutions (36%). The use of the term "regular" is important. Instead of "regular," *36 CFR Part 79.11* uses the word "periodically." It also says the frequency of inventories will be agreed upon by the institution and the federal agency. There are no set time-frame standards. To dig deeper, the frequency of inventory for a portion of and the entirety of an institutions holdings was explored in this study.

   More than half of the institutions surveyed inventory a portion of their collection yearly. While the majority of those surveyed do not inventory their entire collections every decade or less, only one institution has never inventoried their entire collection. These results suggest further action is necessary to meet this modern curation standard.

6. *Deaccessioning*. Deaccessioning is only mentioned in *36 CFR Part 79* with regard to maintaining records on its occurrence. However, deaccessioning is noted to be used by all participating institutions. Further remarks concerning deaccessioning are presented below.

7. *Accessibility*. Accessibility of collections was explored by looking at (1) limitations on researcher consultation due to the status of collection, of which all but two participants claimed they encounter, and (2) the use of digital databases, of which there are ten institutions. The former measurement is a difficult rule to follow. One could argue that every institutions could, at one time or another, have the status of their collections limit research potential. This fact, coupled with the use of digital databases across all but one institution makes the accessibility of the institutions surveyed reasonably within this modern curation standard.

5.1.3. Methods used to bring collections up to modern curation standards

Though this study relied heavily on data accrued from the structured questions, the non-structured "Curation Crisis Questions" portion of the survey gave participants a chance to respond in an unscripted manner. Looking at the unscripted responses concerning the methods used to bring collections up to modern curation standards, many similarities are seen across institutions and are therefore categorized (Tables 7, 8, and 9). The responses were interpreted to be slightly impulsive and focused on the methods used to harbor modern curation standards that were near the forefront of each participants mind.

Unsurprisingly, seven of the 11 participants indicated funding as a hindrance to curation. Six mention seeking funding from state and federal agencies to bring collections up to modern curation standards. Per *36 CFR Part 79*, it is required that funding is determined during the planning process of projects:

> 79.6 (c) . . . The Federal Agency Official should consult with persons having expertise in the management and preservation of collections prior to preparing a scope of work or a request for proposals for curatorial services. This will help ensure that the resulting contract, memorandum, agreement or other written instrument meets the needs of the collection, including any special needs in regard to any religious remains.

Many collections that accrued prior to the implementation of *36 CFR Part 79* did not have financial backing arranged prior to their collection and are therefore still in need of

funding. While the costs of curation are not explored for this thesis, it is important to note their role in the neglected treatment of collections.

One method mentioned by five of the participants to reduce the cost of curation is the use of volunteers for non-funded and older collections. Three participants alternatively mentioned using students for these collections for the same reasons. Student involvement is particularly helpful as it provides training and awareness of collections for the next generation of archaeologists. Generally, there is a lack of curation training or collections management guidance for professional archaeologists (Childs and Benden 2017:20).

5.1.3.1 Rehousing and collection storage methods

Rehousing was mentioned by seven institutions, making it the most often used method to improve the status of the collections. However, there are obvious variations in housing standards (see Figure 6). The similarities observed in housing standards across the five regions included in this study suggest possible regionally-specific factors. In other words, the general cultural material found in the area, landform variability, and modern-day cultural diversity in the area may affect procedures related to curation.

With regard to housing, the use of differing shelving was noted in the Pacific West, where there are low percentage usage of closed storage drawers or cases, metal shelving, and wooden shelving; the Midwest, where there is 100% use of metal shelving; and the Northeast where there is 95% use of metal shelving. Only three of the respondents use wooden shelving for portions of their collections. The trend away from wooden shelving, however, can be attributed to the off-gassing of wooden shelving that can bring artifacts in contact with harmful acids (Duyck and Bacharach 2012:12). All institutions house at least a portion of their collection in closed storage drawers or cases.

Consistently sized boxes, which optimize space utilization, are used for 85.8% of collections across all institutions. Notably, the Pacific West region has an average of 92.5% use of 12x15x10” boxes with a 0.5% use of boxes of a different but consistent size. A high-percentage similarity in the Northeast region is the 79.5% average use of 12x15x10” boxes.

All institutions use 4-mm plastic bags with an average of 56% (median of 70%) of collections across institutions that use them. Ten institutions use plastic bags other than

4-mm with an average of 41% (median of 35) of collections across all institutions housed in this method.

Across all institutions surveyed excluding the “Other” category, the implementation of a specific housing method for collections ranges from an average of 10% to 55% of the collection. Housing methods need not be standardized across institutions to ensure modern curation standards are met, but variation does make the process of comparing collection status difficult.

The issue of adequate space still appears to have a considerable effect on the status of the curation crisis and the accessioning of new collections. This is supported by four institutions mentioning the expansion of space or storage and five mentioning compact rehousing as a method to solve issues caused by the curation crisis. Further support was given in answer to Survey Question 7, where one institution stated, “We do not currently take collections at this time due to lack of space and funds,” and another stated, “near capacity, not actively taking new collections, but we do accession materials generated from the Center’s contract work.”

One way to increase space available to collections is to reduce the amount of physical document storage by organizing and managing documentation associated with collections digitally. Results of the present study show ten institutions are using computer databases, and collections in the digital catalogue average 51% (median of 50%) across institutions. Along with optimizing space, the use of a digital cataloguing system improves the accessibility of the collections at an institution (Clough 2013). As the world continues moving forward into the digital age, archaeology and curation are likely to follow.

5.2. Stakeholders in archaeological curation

Survey results indicate, not surprisingly, that HRM projects are the major contributor to the amassing of collections in archaeological repositories across the United States. The laws and policies enacted and discussed in Chapter 2 have led to a shift in archaeology from a mainly academic or research-based pursuit to one of salvage and compliance ahead of nationwide development.

Compliance work was somewhat frowned upon by academics, especially as it was commonly associated with grey literature (Green and Doershuk 1998:129; Oikarinen 2002:187; Raab et al. 1980). The grey literature reports are on file with State Historic Preservation Offices and often with the client who requested the report, but these locations are not always easily accessible or comparable to other data sets. A major reason for this was the passing of ARPA in 1979, which states that location information of archaeological resources may not be made available to the public (ARPA 1979). Today, archaeologists are still looking to create an efficient data center for the wide range of projects. Some examples of these data centers are listed in Table X.

Table 10. A list of current archaeology data centers.

Name of Data Center	URL
National Archeological Database	https://www.nps.gov/archeology/tools/nadb.htm
tDAR: the Digital Archaeological Record	https://www.tdar.org/
Digital Antiquity: a new world of Archaeological Preservation, Innovation, and Research	http://www.digitalantiquity.org/
National Technical Reports Library	https://ntrl.ntis.gov/NTRL/dashboard/orgDashboard.xhtml
Archaeology Data Service: Unpublished Fieldwork Reports	https://archaeologydataservice.ac.uk/archives/view/greylit/

While the reports from compliance projects are not always easily accessible, the collections are available to qualified researchers in the repositories in which they are housed. It is therefore essential that these artifacts and associated data remain easily accessible to researchers, preventing a grey collection of artifacts.

Several laws dictate that federal agencies must acknowledge ownership of collections recovered from public lands, and it is their responsibility to provide adequate funds for curation (Childs and Kinsley 2003). The stipulation that agencies hire archaeologists and pay for the curation of collections in perpetuity has resulted in a further shift in archaeology. No longer are we collecting until our bags are full, instead, we are avoiding as many cultural properties as possible and reducing collection and subsequent curation wherever possible. However, the fact that my results indicate 70% of collections on average per year result from HRM projects suggests that HRM involvement in archaeological curation is significant. HRM archaeologists have the potential to be major movers in the field of archaeology and as stewards of the

archaeological past. This begins not only with our writing but with our treatment and care for collections.

The owners of collections and the archaeologists who directly interact with the collections are often considered in the creation of laws and policies. These two groups are obvious stakeholders in the care of collections, but it is important to also include descendent communities, including Native Americans, African-Americans, Asian-Americans, and Euro-Americans, in the conversation surrounding collections.

5.3. Deaccessioning

Deaccessioning was only mentioned by one institution as being a viable method to combat the curation crisis. It is possible that other respondents use it as well but did not include it as a method when crafting their response to the non-structured section of the survey. Deaccessioning is controversial because many of those outside the process associate it with the destruction of artifacts, a means to garner funds for the museum or repository, or as destroying future research opportunities and thus disregarding the stewardship ethic of archaeology (Childs 1999; Childs and Benden 2017; Kersel 2015; Sonderman 1996). However, the majority of deaccessions involve loss of object and/or its provenience information, extreme physical degradation, theft, or accidental destruction. Additionally, an object may be deaccessioned if it does not meet a repository's scope of collection, for repatriation, objects with no research value either through loss of pertinent information, redundancy, or nondiagnostic character, destructive analysis, or objects that are hazardous (Childs 1999; Kersel 2015; Merriman 2008; Morris and Moser 2011; Sonderman 1996; Childs and Benden 2017:20; Sullivan and Childs 2003:39-40).

Materials that are deemed redundant, or lacking in archaeological or historical significance, vary by region and by institution. Bulk materials such as shell may be disregarded near the coasts of the US due to their frequency but considered signficant in a land-locked state. There are no set guidelines for repositories to follow, but general acceptance of deaccessioning could improve the status of collections across the nation. Deaccession of materials deemed appropriate reduces the strain on the limited storage space, time, money, and personnel (Acuff 1993; Bell 1990; Sonderman 1996; Sullivan and Childs 2003:40).

Deaccessioning could be paired with modern curation standards to work toward improving the status of collections. All institutions permit collections to be deaccessioned, but there are no agreed-upon regulations or procedures. Unlike modern curation standards, federal policy documents concerning the process do not exist. As there is considerable variation among collection accessioning and cataloguing, it can be assumed that deaccessioning practices vary as well, and these discrepancies can prove detrimental for stakeholders (Gough 2008).

5.4. Limitations of study in hindsight

Limitations of the present study include the small size of the sample, which reduces the likelihood that the results reflect accurately across the entire population of major archaeological repositories in the US. Regional results are drawn from one institution in the Southeast region, two institutions in the Pacific West, Intermountain, and Northeast regions, and three institutions in the Midwest region, which is a major limitation of regional comparison results. In my sample strategy, it was required that the participants contain federally owned collections and be considered a major archaeological repository within their region or state. Therefore, the resulting data may not be applicable when compared to smaller archaeological repositories, those that do not house federal collections, or those outside of the US. The delimitation of surveying major archaeological repositories that house federal collections was imposed deliberately to ensure institutions could be compared as well as to have federal standards (*36 CFR Part 79*) with which to compare the curation standards at each institution.

Due to the flexible standards of curation within the discipline of archaeology, there is presumably a wide variety of collections management techniques, some of which may have been overlooked in survey development. This may limit the applicability of certain questions for differing repositories.

As a part-time curation laboratory assistant at the University of Wyoming Archaeological Repository from June 2013 to January 2015, it is possible that my experience resulted in a bias toward the protocol for curation. Having worked in a repository that has made progress with collections in crisis could also result in a biased understanding of the problem and the methods to use to resolve it. The construction of

survey questions may be limited by this experience, thus reducing their effectiveness. To combat the issue of question effectiveness, Non-structured questions were added to the survey to give participants the opportunity to include more information about topics that the survey construction may have overlooked.

A further limitation on the study is participant response. Using email for correspondence could possibly lead to emails being sent to spam folders, being overlooked by participants, or being opened and then forgotten. While a follow-up email was sent to prevent the latter, there was no way to control whether or not a participant wished or was able to respond.

Survey Questions 5, 8-16, 19, and 20, as well as Curation Crisis Questions 3, 4, and 6, were used to determine the degree of implementation of modern curation standards. There was, therefore, a lot of data compiled and elucidated in the Results Chapter 4. Table 8 was used to compile the data and assess significant differences of methods within each Modern Curation Standard across institutions. Method options available to participants for the standards of Labeling and Preservation, Inventory, Deaccessioning, and Accessibility were not as varied, possibly effecting the assessment of these standards.

Accessibility was particularly overlooked as it was quantified by the perception of whether or not the status of collections ever limits the researcher. Accessibility could have additionally been explored by looking at: accessibility for religious or ritual practice, what portion of the collection is utilized for any purpose (exhibition, comparative collection, research, religious or ritual practice, etc.) in a given year, and a discussion of digital and/or online access to the contents of the repository. Survey questions related to research Questions 2g (“Are the collections accessible?”) did not allow participants to explain how the status of their collections could limit researchers.

Another research question, Question 2h, asked “Are professional staff used for curation tasks?” This question was answered by a process of elimination from Survey Question 5, “Do you make use of volunteers for some or all the curation tasks?” If a response was “all,” then professional staff were presumably not used. It would have been more effective to ask for a direct response to Question 2h. Survey construction neglected to consider how often professional staff members are used or which projects

require professionals to complete instead of volunteers. Several of the non-structured responses mentioned using volunteers for non-funded projects, but this information could have been compared across institutions had it been adequately included in the survey. *Question 2g* and *2h* fell short. Useful answers would require a follow-up survey question which was not feasible in the time frame of this study.

There was a higher amount of researcher consultation each year than I had expected. The category of "31 or more" contained more than half of the institutions surveyed (64%). Two of the institutions that reported 31 or more consultations per year believe researchers are not limited by the status of their collections. The remaining nine institutions believe researchers are limited by the status of their collections.

Thus, it would have been beneficial to have created more categories to see the actual distribution of consultations per year. The Midwest region contained the lowest frequency of consultation with two "6 to 10" and one "11 to 15" results. The lowest approximate amount of researcher consultation occurred in California in the Pacific West region (0 to 5 consultations). The Burke Museum in that region is a highly used repository and it is possible that the lower frequency at another major repository within the region can be attributed to the popularity of the Burke Museum. Lastly, during survey construction, including the use of archival quality materials in housing artifacts was overlooked. Including archival quality material use would have improved the effectiveness of the survey instrument.

5.5. Comparison of the current status of the curation crisis to previous studies

In this section, I compare my results to three studies. The first is the US General Accounting Office 1987 report titled *Cultural Resources: Problems Protecting and Preserving Federal Archeological Resources*. This is one of the earliest accounts of the status of collections and the curation crisis. It therefore provides a good baseline from which to compare the status of collections today. The second study is the Heritage Health Index report, *A Public Trust at Risk: The Heritage Health Index Report on the State of America's Collections* (2005). This report touches on many of the issues tackled in the present research. The third report, *The Archaeological Curation Crisis in Arizona: Analysis and Possible Solutions* (2006), looks more specifically at four repositories in

Arizona. This was used for a comparison on a smaller scale and to a more recent account of the curation crisis. I compared these reports to a small sample size of 11 institutions.

5.5.1. Cultural Resources: Problems Protecting and Preserving Federal Archeological Resources

The US General Accounting Office 1987 report was a compilation of results from questionnaire responses and on-site visits to repositories in Colorado (n=17), Utah (n=8), New Mexico (n=12), and Arizona (n=6), as well as repositories located elsewhere in the US (n=23). The agency sent a questionnaire to a total of 66 nonfederal curatorial facilities identified by local agencies as housing artifacts removed from their lands (General Accounting Office 1987:19). Fifty-three facilities responded, but only 37 of the facilities were currently curating artifacts from federal lands.

Many of the surveyed institutions did not know the status of their collections (General Accounting Office 1987:89; Childs 1995). Out of these 37 facilities, nine did not inventory their collection, which is approximately 24% (General Accounting Office 1987:85). In my study, only one of the 11 institutions did not inventory their entire collection, or approximately 9%. All institutions had inventoried at least a portion of their collection. This suggests a general improvement concerning inventory and understanding the status of collections.

The General Accounting Office results showed that 31 of the 37 participants used security personnel or electronic security systems (approximately 84%) while the remaining six did not. The four facilities visited followed a strict key control procedure as a security measure (1987:87). In the present study, the entire sample of 11 used a mechanical or electrical system for detecting and deterring intruders, and all maintained control of keys or access to particular areas of the repository. While this could simply be an adjustment with the times, it does suggest a general improvement in the security of repositories.

Out of the 37 respondents for the General Accounting Office (1987:88) questionnaire, 29 said they had either air conditioning, humidity controls, or an air filtration system (approximately 78%) while the remaining eight did not. Additionally, 21 respondents said they monitored air temperature or relative humidity (approximately

57%) while 16 did not. In the study reported here, nine respondents controlled humidity (approximately 82%), four controlled air pollutants (approximately 36%), and all 11 controlled temperature (100%). While the variation of categories across studies makes it difficult to directly compare the two surveys, these results suggest that there has been an improvement in both temperature controls and humidity controls.

With regard to fire control, 33 of the 37 General Accounting Office respondents had fire extinguishers (approximately 89%), 27 of the 37 had fire detection equipment (approximately 73%), and 11 of the 37 had fire suppression systems (approximately 30%) (General Accounting Office 1987:88). Ten of the institutions surveyed in my study have fire detectors and ten have fire suppression equipment (approximately 91% each). The comparison of these results shows a slight improvement in fire detection devices and a large improvement in fire suppression equipment. Overall, compared to the 1987 General Accounting Office report on the status of collections, the results from the present research suggest a marked improvement in curation.

5.5.2. A Public Trust at Risk: The Heritage Health Index Report on the State of America's Collections

The 2005 Heritage Health Index Report (HP and IMLS 2005a) contains the results of 3,370 institution surveys. Over 80% of the institutions are museums or libraries but 1% are Archaeological Repositories, nine of which also responded to the present survey for the current project. Throughout the Heritage Health Index Report, the categories are condensed into types to display results. Out of the available categories, "Archaeological Repositories/Scientific Research Collections" is the most relevant to the present study. This category includes archaeological repositories but also scientific research organizations, or institutions that would not be classified as museums under the HP and IMLS definition (2005a:17). It excludes other museums that may house archaeological collections, but in doing so likely resulted in a sample that is more similar to the major archaeological repositories targeted for the present study.

The average staff size for Archaeological Repositories/Scientific Research Collections in the HP and IMLS report was three full-time paid staff, two part-time paid staff, and three part-time unpaid staff (HP and IMLS 2005a:24). Comparatively, the present study asked, "How many staff do you have for the curation of collections on

average?" and results were split into categories. Taking the mean of each category (aside from the 16 or more category which was considered 16), the average staff to the nearest round number is 5. These results are in line with the HP and IMLS study. The present study also found that all institutions surveyed use volunteers for some of the curation tasks, which is in line with the results found by HP and IMLS.

The HP and IMLS study evaluated the level of need for collections by constructing categories of need and asking participants to select which category described their collections. Definitions of the categories of need are: "no need," which means the "Material is stable enough for use and is housed in a stable environment that protects it from long-term damage and deterioration;" "in need," which means the "Material may need minor treatment or reformatting to make it stable enough for use, and/or the collection needs to be re-housed into a more stable enclosure or environment to reduce risk of damage or deterioration;" and "in urgent need," which means "Material needs major treatment or reformatting to make it stable enough for use, and/or the material is located in an enclosure or environment that is causing damage or deterioration" (HP and IMLS 2005a:30-31).

The Heritage Health Index Report found, with regard to historic and ethnographic objects: 28% were in "unknown" condition; 5% were in "urgent need;" 23% were "in need;" and 44% were "in no need." With regard to individually catalogued archaeological collections: 15% were in "unknown" condition; 2% were "in urgent need;" 17% were "in need;" and 66% were "in no need." With regard to bulk catalogued archaeological collections: 46% were in "unknown" condition; 3% were "in urgent need;" 18% were "in need;" and 33% were "in no need" (HP and IMLS 2005a:30-31, 45, 47).

To summarize the results of the Heritage Health Index Report, 28% of historic and ethnographic objects, 19% of individually catalogued archaeological collections, and 21% of bulk catalogued archaeological collections, were in some level of need. However, there was a significant percentage of historic and ethnographic objects, individually catalogued archaeological collections, and bulk catalogued archaeological artifacts in the HP and IMLS study that were in an "unknown" condition. Evaluating the condition of these artifacts could have increased the percentage of collections "in need." Assuming all collections in "unknown" condition in the Heritage Health Index are in some level of need, 56% of historic and ethnographic objects, 34% of individually catalogued

archaeological collections, and 67% of bulk catalogued archaeological collections are in some level of need.

My study shows an average of 37% and a median of 30% of collections are not up to modern curation standards, which is assumed to mean they are in some level of need. The initial results of collections in need above suggest there has been a decline in the status of collections from the time of the HP and IMLS survey. However, with the addition of the HP and IMLS "unknown condition" collections, there is a general improvement in the percentage of collections in need when comparing these numbers to the current study results.

The Heritage Health Index Report presented results on environmental and storage controls. It indicated that only 28% of Archaeological Repositories/Scientific Research collections reported no environmental controls (temperature, humidity, or light levels controls) for the preservation of collections (HP and IMLS 2005a:52). Additionally, 86% of Archaeological Repositories/Scientific Research Collections had no emergency plan with staff trained to carry it out (HP and IMLS 2005a:61). The HP and IMLS study requested participants to record the percentage of collections held in adequate storage, defined as "large enough to accommodate current collections with safe access to them and appropriate storage furniture" (HP and IMLS 2005a:57).

While my study did not ask for comparable storage information, preventing me from comparing those data, the environmental controls were similarly categorized in both mine and the HP and IMLS study. All respondents in my study have temperature controls (100%), nine of the 11 have humidity controls (approximately 82%), and six of the 11 have light levels controls in place (approximately 55%). Ten of the 11 participating institutions have disaster plans (approximately 91%). This suggests a marked improvement in the use of environmental controls.

The HP and IMPLS study queried whether institutions had completed a survey of the general condition of their collections (HP and IMLS 2005a:83). These results were compared to my study's inventory results, which indicate that ten institutions had completed an inventory of their collections (approximately 91%). This suggests a general improvement as only 40% of Archaeological Repositories/Scientific Research

Collections were reported to have done a survey of the collection's condition in the HP and IMLS survey (HP and IMLS 2005a:84).

Overall, the status of archaeological collections seems to have improved since the HP and IMLS survey 15 years ago. My study had comparable staff and participants use volunteers for some curation tasks, just like the HP and IMLS study. When accounting for collections of unknown condition and including them in the category of being in need of further care, the status of collections has improved. There is a marked improvement in the use of environmental controls. There is an improvement in having completed assessments of the general condition of collections/inventories.

5.5.3. The Archaeological Curation Crisis in Arizona: Analysis and Possible Solutions

The Lyons et al. (2006) report was limited to four repositories located in Arizona (one of which was a participant in my study). It found that three of the four institutions (75%) do not meet all *36 CFR Part 79* standards, collections are used approximately an average of 29 times per year, and none of the institutions had formal policy for deaccessioning (Lyons, et al 2006:11).

The *36 CFR Part 79* standards mentioned above are not explicated in detail in the Lyons et al. study, but one institution chose "No" due to lacking humidity control, and one chose "No" due to lacking a sprinkler system, presumably for fire retardation. This suggests the standards in question are related to environmental controls. Results from the present study suggest that 78% of all environmental standards are being met which suggests an improvement from the Lyons et al. results of 25%.

The average amount of research consultations per year in the present study is 23, which is less than the average per year for the Lyons et al. study. However, as noted in the results section, the true average is likely much higher since the 31+ category was limited to 31 during calculations.

None of the institutions in the Lyons et al. study had policy concerning deaccessioning, though two had a policy against deaccessioning. All four noted they do not deaccession, though two indicated they do cull some historic materials pending approval. The results of my study suggest all institutions enable deaccessioning, but

only six institutions provided policy documentation concerning their deaccessioning procedures. This suggests a trend toward deaccessioning from 2006 to 2018.

To summarize, this comparison suggests an improvement in environmental controls from 25% of the controls being met to 78% in the present study. Comparison of research consultations between the two studies was inconclusive due to my survey construction having an upper limit category of “31+”. The comparison also shows a possible tread toward deaccessioning from 2006 to 2018.

5.6. The status of the curation crisis today

The major purpose of the study reported here was to assess the current status of the curation crisis across the US. The results give insight into the status of collections in major repositories of the United States, with the conclusion that there has been progress concerning the standards with which artifacts are curated. Additionally, current policies such as the Antiquities Act, the NHPA, the Archaeological Historic Preservation Act, and ARPA call for more mindful collection in that curation is considered during the planning process.

The curation crisis has changed since it was first reported in the 1970s. No longer are there seemingly countless boxes upon boxes of split brown paper bags full of unknown artifacts as was described by Bawaya in 2007. Instead, the results of this study suggest the majority of collections, if not meeting all curation standards, meet most of them, and have most likely been inventoried in the past.

The curation crisis cannot be looked at as a singular problem. Instead, it is a constantly evolving process that is impacted by the involvement of each member of the archaeological community and descendent communities. Mindful collection from planning for curation, holding owners of collections accountable for funding, seeking volunteers and grant funding for other collections, and student and professional training/involvement in the repositories and laboratories will improve the status of collections across the United States.

In response to *Curation Crisis Question 5* (“How has the institution been working to solve issues caused by the curation crisis? Does the institution have policy documentation related to the curation crisis?”), one institution stated, “We have recently

expanded our repository by 60 percent. We do not consider there to be a 'curation crisis.' We know what needs to be done and we know exactly how to do it. It is a funding problem only." This response suggests that the use of the phrase "curation crisis" is outdated and is potentially interfering with progress. It is possible that the "curation crisis" being viewed as the large and seemingly insurmountable obstacle that it once was is reducing willingness to work at or fund its resolution. Shifting terminology use to "funding" and "space," the two major impediments to the implementation of modern curation standards across institutions may serve to further improve the status of collections. These two hinderances are consistently noted by others investigating the curation crisis including General Accounting Office 1987:94, and Childs and Benden 2017.

5.7. Future research

Having looked at the past status and the current status of collections and their care, archaeologists must now look to the future stewardship of these collections and collections that are yet to be gathered. There is often an "all or nothing" mentality when it comes to in-field collection. There are several reasons for this, including the cost of curation, limited space within a repository, preference of source nation, or in-field analysis being seen as adequate (Childs and Benden 2017). This is a contentious issue that deserves a separate study due to in-field analysis reducing strain on curation but also possibly resulting in inaccurate and viable results (Heilen and Altschul 2013:130). However, these issues are relevant to collections and the current crisis. Further research on practices concerning the gathering of collections would fill in the gaps in our knowledge. Standards concerning the collection of artifacts in lieu of ad hoc policies would improve the status of collections for the future. Childs and Benden (2017:20) concur and call for archaeologists and other stakeholders to work together to develop guidelines and standards concerning collection ethics including practicing in-field analysis, no collection, and reburial of collections.

A current focus of leading thinkers on this issue is sustainable integration of archaeological collections fully into HRM and other projects. Such integration should preserve not only the artifacts that are collected, but also the research and educational values of the artifacts in perpetuity (Childs and Benden 2017:13). Those planning an archaeological project should include collection criteria and curation plans within their

scope of work (Childs and Benden 2017:14). Childs and Benden (2017) also note the bidding process is problematic and argue that the lowest bid should not be accepted by an agency unless it adequately budgets for curation costs as it counters the sustainability of the process, the preservation and accessibility of the artifacts for further research, and the laws currently in place. Ensuring new collections do not add to the curation crisis should be a priority.

Open digital access is increasing in popularity in relation to data stewardship. Museums and repositories desire to share their inventory with the world. This is evidenced in virtual tours and artifact photography on museum websites in an effort to disseminate knowledge about and improve access to collections for the community, researchers, source cultures, and the rest of the world (King 2009; Childs and Benden 2017). Collections with digital access can help improve collection inventory, enhance education, and work as a tool for publicity, thus increase in-person visits, and pave the way for a shared history and a platform for everyone to share their interpretations and stories (Clough 2013:2). Digital access also decreases information fragmentation – information not residing in a single space but instead spread across repositories, regions, and/or offices (Jones and Teevan 2007). Online access makes information immediately accessible from any location with internet. However, problems surrounding digital storage and data loss need to be considered in a future study.

An additional problem arising is the retirement of academics and senior HRM personnel, as well as the closure and merger of HRM companies (Sullivan and Childs 2003:99). One respondent to the present survey gave an example of restructuring a Memorandum of Understanding between their institution and a university that did not include an agreement on how to fund faculty collections at the time of their retirement. A lack of policy on collection integration at the time of retirement or closure is, therefore, a concern that should be considered.

Based on this study, the implementation of further standards where there are gaps, including for deaccessioning and in-field collection, is recommended. This would lessen considerable uncertainty from the archaeological community. Furthermore, sustainable progress involves many professionals from each group of stakeholders coming together to address the key issues. For this reason, an organization to give a voice to and unite the archaeological repositories in the US would prove useful (Childs

2006, 2011; Childs and Benden 2017:22). This organization could provide consistent standards for curation, review deaccessioning concerns on a case-by-case basis, and provide repository and HRM organization accreditation.

5.8. Conclusions

Many mundane artifacts lose their appeal the moment they are extracted from the ground. However, multiple studies have concluded that in-field analysis is not adequate (Heilen and Altschul 2013:130; Beck and Jones 1994:314; Childs and Benden 2017:20). Artifacts have more scientific potential in a lab where measurements and test results are replicable. This often results in the long-term storage of the artifacts. To maintain scientific potential, artifacts must be cared for and made available to researchers.

My study results indicate that the majority of institutions implemented the methods and guidelines for collection care outlined in *36 CFR Part 79*. The exception to this rule was the less than half of institutions that implemented the environmental controls of air pollutants and inventory of collections, suggesting these two regulations may need to be further incentivized and/or controlled. Where *36 CFR Part 79* does not provide methods or guidelines, best practice is generally implemented, though these practices can vary widely across institutions such as was shown by container usage.

The results from my study compared to previous records of the curation crisis suggest there have been major improvements. However, there is room for further improvement. The results reported here contribute to the field of archaeology by focusing on the artifacts themselves and the standards necessary to maintain their integrity. Archaeologists, as stewards of heritage, must concern themselves with the status of collections. This research intends to continue the discussion necessary for further betterment of archaeological collections.

As stated over three decades ago, ". . . there is a critical need for the acceptance of responsibility, the development of guidelines, and the realistic assessment of costs for adequate curation of archaeological collections in the United States" (Marquardt et al. 1982:409). While considerable progress has been made following the implementation of *36 CFR Part 79*, there is still room for improvement. Movement toward a digital openly-

accessible database of archaeological artifacts and data will improve the interest in, the research or scientific value of, and the longevity of the artifacts that must be cared for in perpetuity. Organized and clearly identified artifact cataloguing, viable deaccessioning procedures, and in-field collection standards will propel curation forward by providing the entire archaeological community with expectations to be met.

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Appendix A.

CFR Title 36 Chapter I Part 79

§ 79.1 Purpose.

(a) The regulations in this part establish definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains, and associated records, recovered under the authority of the Antiquities Act (16 U.S.C. 431- 433), the Reservoir Salvage Act (16 U.S.C. 469-469c), section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2) or the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). They establish:

(1) Procedures and guidelines to manage and preserve collections;

(2) Terms and conditions for Federal agencies to include in contracts, memoranda, agreements or other written instruments with repositories for curatorial services;

(3) Standards to determine when a repository has the capability to provide long-term curatorial services; and

(4) Guidelines to provide access to, loan and otherwise use collections.

(b) The regulations in this part contain three appendices that provide additional guidance for use by the Federal Agency Official.

(1) Appendix A to these regulations contains an example of an agreement between a Federal agency and a non- Federal owner of material remains who is donating the remains to the Federal agency.

(2) Appendix B to these regulations contains an example of a memorandum of understanding between a Federal agency and a repository for long-term curatorial services for a federally-owned collection.

(3) Appendix C to these regulations contains an example of an agreement between a repository and a third party for a short-term loan of a federally-owned collection (or a part thereof).

(4) The three appendices are meant to illustrate how such agreements might appear. They should be revised according to the:

(i) Needs of the Federal agency and any non-Federal owner;

(ii) Nature and content of the collection; and

(iii) Type of contract, memorandum, agreement or other written instrument being used.

(5) When a repository has preexisting standard forms (e.g., a short-term loan form) that are consistent with the regulations in this part, those forms may be used in lieu of developing new ones.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.2 Authority.

(a) The regulations in this part are promulgated pursuant to section 101(a)(7)(A) of the National Historic Preservation Act (16 U.S.C. 470a) which requires that the Secretary of the Interior issue regulations ensuring that significant prehistoric and historic artifacts, and associated records, recovered under the authority of section 110 of that Act (16 U.S.C. 470h-2), the Reservoir Salvage Act (16 U.S.C. 469-469c) and the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) are deposited in an institution with adequate long-term curatorial capabilities.

(b) In addition, the regulations in this part are promulgated pursuant to section 5 of the Archaeological Resources Protection Act (16 U.S.C. 470dd) which gives the Secretary of the Interior discretionary authority to promulgate regulations for the:

(1) Exchange, where appropriate, between suitable universities, museums or other scientific or educational institutions, of archeological resources recovered from public and Indian lands under that Act; and

(2) Ultimate disposition of archeological resources recovered under that Act (16 U.S.C. 470aa-mm), the Antiquities Act (16 U.S.C. 431- 433) or the Reservoir Salvage Act (16 U.S.C. 469-469c).

(3) It further states that any exchange or ultimate disposition of resources excavated or removed from Indian lands shall be subject to the consent of the Indian or Indian tribe that owns or has jurisdiction over such lands.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.3 Applicability.

(a) The regulations in this part apply to collections, as defined in § 79.4 of this part, that are excavated or removed under the authority of the Antiquities Act (16 U.S.C. 431-433), the Reservoir Salvage Act (16 U.S.C. 469-469c), section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2) or the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). Such collections generally include those that are the result of a prehistoric or historic resource survey, excavation or other study conducted in connection with a Federal action, assistance, license or permit.

(1) Material remains, as defined in § 79.4 of this part, that are excavated or removed from a prehistoric or historic resource generally are the property of the landowner.

(2) Data that are generated as a result of a prehistoric or historic resource survey, excavation or other study are recorded in associated records, as defined in § 79.4 of this part. Associated records that are prepared or assembled in connection with a Federal or federally authorized prehistoric or historic resource survey, excavation or other study are the property of the U.S. Government, regardless of the location of the resource.

(b) The regulations in this part apply to preexisting and new collections that meet the requirements of paragraph (a) of this section. However, the regulations shall not be applied in a manner that would supersede or breach material terms and conditions in any contract, grant, license, permit, memorandum, or agreement entered into by or on behalf of a Federal agency prior to the effective date of this regulation.

(c) Collections that are excavated or removed pursuant to the Antiquities Act (16 U.S.C. 431- 433) remain subject to that Act, the Act's implementing rule (43 CFR part 3), and the terms and conditions of the pertinent Antiquities Act permit or other approval.

(d) Collections that are excavated or removed pursuant to the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) remain subject to that Act, the Act's implementing rules (43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229), and the terms and conditions of the pertinent Archaeological Resources Protection Act permit or other approval.

(e) Any repository that is providing curatorial services for a collection subject to the regulations in this part must possess the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part, to safeguard and preserve the associated records and any material remains that are deposited in the repository.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.4 Definitions.

As used for purposes of this part:

(a)Collection means material remains that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study.

(1)Material remains means artifacts, objects, specimens and other physical evidence that are excavated or removed in connection with efforts to locate, evaluate, document, study, preserve or recover a prehistoric or historic resource. Classes of material remains (and illustrative examples) that may be in a collection include, but are not limited to:

(i) Components of structures and features (such as houses, mills, piers, fortifications, raceways, earthworks and mounds);

(ii) Intact or fragmentary artifacts of human manufacture (such as tools, weapons, pottery, basketry and textiles);

(iii) Intact or fragmentary natural objects used by humans (such as rock crystals, feathers and pigments);

(iv) By-products, waste products or debris resulting from the manufacture or use of man-made or natural materials (such as slag, dumps, cores and debitage);

(v) Organic material (such as vegetable and animal remains, and coprolites);

(vi) Human remains (such as bone, teeth, mummified flesh, burials and cremations);

(vii) Components of petroglyphs, pictographs, intaglios or other works of artistic or symbolic representation;

(viii) Components of shipwrecks (such as pieces of the ship's hull, rigging, armaments, apparel, tackle, contents and cargo);

(ix) Environmental and chronometric specimens (such as pollen, seeds, wood, shell, bone, charcoal, tree core samples, soil, sediment cores, obsidian, volcanic ash, and baked clay); and

(x) Paleontological specimens that are found in direct physical relationship with a prehistoric or historic resource.

(2)Associated records means original records (or copies thereof) that are prepared, assembled and document efforts to locate, evaluate, record, study, preserve or recover a prehistoric or historic resource. Some records such as field notes, artifact inventories and oral histories may be originals that are prepared as a result of the field work, analysis and report preparation. Other records such as deeds, survey plats, historical maps and diaries may be copies of original public or archival documents that are assembled and studied as a result of historical research. Classes of associated records (and illustrative examples) that may be in a collection include, but are not limited to:

(i) Records relating to the identification, evaluation, documentation, study, preservation or recovery of a resource (such as site forms, field notes, drawings, maps, photographs, slides, negatives, films, video and audio cassette tapes, oral histories, artifact inventories, laboratory reports, computer cards and tapes, computer disks and diskettes, printouts of computerized data, manuscripts, reports, and accession, catalog and inventory records);

(ii) Records relating to the identification of a resource using remote sensing methods and equipment (such as satellite and aerial photography

and imagery, side scan sonar, magnetometers, subbottom profilers, radar and fathometers);

(iii) Public records essential to understanding the resource (such as deeds, survey plats, military and census records, birth, marriage and death certificates, immigration and naturalization papers, tax forms and reports);

(iv) Archival records essential to understanding the resource (such as historical maps, drawings and photographs, manuscripts, architectural and landscape plans, correspondence, diaries, ledgers, catalogs and receipts); and

(v) Administrative records relating to the survey, excavation or other study of the resource (such as scopes of work, requests for proposals, research proposals, contracts, antiquities permits, reports, documents relating to compliance with section 106 of the National Historic Preservation Act (16 U.S.C. 470f), and National Register of Historic Places nomination and determination of eligibility forms).

(b)Curatorial services. Providing curatorial services means managing and preserving a collection according to professional museum and archival practices, including, but not limited to:

(1) Inventorying, accessioning, labeling and cataloging a collection;

(2) Identifying, evaluating and documenting a collection;

(3) Storing and maintaining a collection using appropriate methods and containers, and under appropriate environmental conditions and physically secure controls;

(4) Periodically inspecting a collection and taking such actions as may be necessary to preserve it;

(5) Providing access and facilities to study a collection; and

(6) Handling, cleaning, stabilizing and conserving a collection in such a manner to preserve it.

(c)Federal Agency Official means any officer, employee or agent officially representing the secretary of the department or the head of any other agency or instrumentality of the United States having primary management authority over a collection that is subject to this part.

(d)Indian lands has the same meaning as in § -.3(e) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(e)Indian tribe has the same meaning as in § -.3(f) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(f)Personal property has the same meaning as in 41 CFR 100-43.001-14. Collections, equipment (e.g., a specimen cabinet or exhibit case), materials and supplies are classes of personal property.

(g)Public lands has the same meaning as in § -.3(d) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(h)Qualified museum professional means a person who possesses knowledge, experience and demonstrable competence in museum methods and techniques appropriate to the nature and content of the collection under the person's management and care, and commensurate with the person's duties and responsibilities. Standards that may be used, as appropriate, for classifying positions and for evaluating a person's qualifications include, but are not limited to, the following:

(1) The Office of Personnel Management's “Position Classification Standards for Positions under the General Schedule Classification System” (U.S. Government Printing Office, stock No. 906--028-00000-0 (1981)) are used by Federal

agencies to determine appropriate occupational series and grade levels for positions in the Federal service. Occupational series most commonly associated with museum work are the museum curator series (GS/GM-1015) and the museum technician and specialist series (GS/GM-1016). Other scientific and professional series that may have collateral museum duties include, but are not limited to, the archivist series (GS/GM-1420), the archeologist series (GS/GM-193), the anthropologist series (GS/GM-190), and the historian series (GS/GM-170). In general, grades GS-9 and below are assistants and trainees while grades GS-11 and above are professionals at the full performance level. Grades GS-11 and above are determined according to the level of independent professional responsibility, degree of specialization and scholarship, and the nature, variety, complexity, type and scope of the work.

(2) The Office of Personnel Management's “Qualification Standards for Positions under the General Schedule (Handbook X-118)” (U.S. Government Printing Office, stock No. 906-030-00000-4 (1986)) establish educational, experience and training requirements for employment with the Federal Government under the various occupational series. A graduate degree in museum science or applicable subject matter, or equivalent training and experience, and three years of professional experience are required for museum positions at grades GS-11 and above.

(3) The “Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation” (48 FR 44716, Sept. 29, 1983) provide technical advice about archeological and historic preservation activities and methods for use by Federal, State and local Governments and others. One section presents qualification standards for a number of historic preservation professions. While no standards are presented for collections managers, museum curators or technicians, standards are presented for other professions (i.e., historians, archeologists, architectural historians, architects, and historic architects) that may have collateral museum duties.

(4) Copies of the Office of Personnel Management's standards, including subscriptions for subsequent updates, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Copies may be inspected at the Office of Personnel Management's Library, 1900 E Street NW., Washington, DC, at any regional or area office of the Office of Personnel Management, at any Federal Job Information Center, and at any personnel office of any Federal agency. Copies of the “Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation” are available at no charge from the Interagency Resources Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127.

(i)Religious remains means material remains that the Federal Agency Official has determined are of traditional religious or sacred importance to an Indian tribe or other group because of customary use in religious rituals or spiritual activities. The Federal Agency Official makes this determination in consultation with appropriate Indian tribes or other groups.

(j)Repository means a facility such as a museum, archeological center, laboratory or storage facility managed by a university, college, museum, other educational or scientific institution, a Federal, State or local Government agency or Indian tribe that can provide professional, systematic and accountable curatorial services on a long-term basis.

(k)Repository Official means any officer, employee or agent officially representing the repository that is providing curatorial services for a collection that is subject to this part.

(l)Tribal Official means the chief executive officer or any officer, employee or agent officially representing the Indian tribe.
[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.5 Management and preservation of collections.

The Federal Agency Official is responsible for the long-term management and preservation of preexisting and new collections subject to this part. Such collections shall be placed in a repository with adequate long-term curatorial capabilities, as set forth in § 79.9 of this part, appropriate to the nature and content of the collections.

(a)Preexisting collections. The Federal Agency Official is responsible for ensuring that preexisting collections, meaning those collections that are placed in repositories prior to the effective date of this rule, are being properly managed and preserved. The Federal Agency Official shall identify such repositories, and review and evaluate the curatorial services that are being provided to preexisting collections. When the Federal Agency Official determines that such a repository does not have the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part, the Federal Agency Official may either:

(1) Enter into or amend an existing contract, memorandum, agreement or other appropriate written instrument for curatorial services for the purpose of:

(i) Identifying specific actions that shall be taken by the repository, the Federal agency or other appropriate party to eliminate the inadequacies;

(ii) Specifying a reasonable period of time and a schedule within which the actions shall be completed; and

(iii) Specifying any necessary funds or services that shall be provided by the repository, the Federal agency or other appropriate party to complete the actions; or

(2) Remove the collections from the repository and deposit them in another repository that can provide such services in accordance with the regulations in this part. Prior to moving any collection that is from Indian lands, the Federal Agency Official must obtain the written consent of the Indian landowner and the Indian tribe having jurisdiction over the lands.

(b)New collections. The Federal Agency Official shall deposit a collection in a repository upon determining that:

(1) The repository has the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part;

(2) The repository's facilities, written curatorial policies and operating procedures are consistent with the regulations in this part;

(3) The repository has certified, in writing, that the collection shall be cared for, maintained and made accessible in accordance with the regulations in this part and any terms and conditions that are specified by the Federal Agency Official;

(4) When the collection is from Indian lands, written consent to the disposition has been obtained from the Indian landowner and the Indian tribe having jurisdiction over the lands; and

(5) The initial processing of the material remains (including appropriate cleaning, sorting, labeling, cataloging, stabilizing and packaging) has been completed, and associated records have been prepared and organized in accordance with the repository's processing and documentation procedures.

(c)Retention of records by Federal agencies. The Federal Agency Official shall maintain administrative records on the disposition of each collection including, but not limited to:

(1) The name and location of the repository where the collection is deposited;

(2) A copy of the contract, memorandum, agreement or other appropriate written instrument, and any subsequent amendments, between the Federal agency, the repository and any other party for curatorial services;
(3) A catalog list of the contents of the collection that is deposited in the repository;
(4) A list of any other Federal personal property that is furnished to the repository as a part of the contract, memorandum, agreement or other appropriate written instrument for curatorial services;
(5) Copies of reports documenting inspections, inventories and investigations of loss, damage or destruction that are conducted pursuant to § 79.11 of this part; and
(6) Any subsequent permanent transfer of the collection (or a part thereof) to another repository.

§ 79.6 Methods to secure curatorial services.

(a) Federal agencies may secure curatorial services using a variety of methods, subject to Federal procurement and property management statutes, regulations, and any agency-specific statutes and regulations on the management of museum collections. Methods that may be used by Federal agencies to secure curatorial services include, but are not limited to:
(1) Placing the collection in a repository that is owned, leased or otherwise operated by the Federal agency;
(2) Entering into a contract or purchase order with a repository for curatorial services;
(3) Entering into a cooperative agreement, a memorandum of understanding, a memorandum of agreement or other agreement, as appropriate, with a State, local or Indian tribal repository, a university, museum or other scientific or educational institution that operates or manages a repository, for curatorial services;
(4) Entering into an interagency agreement with another Federal agency for curatorial services;
(5) Transferring the collection to another Federal agency for preservation; and
(6) For archeological activities permitted on public or Indian lands under the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm), the Antiquities Act (16 U.S.C. 431- 433) or other authority, requiring the archeological permittee to provide for curatorial services as a condition to the issuance of the archeological permit.
(b)Guidelines for selecting a repository.
(1) When possible, the collection should be deposited in a repository that:
(i) Is in the State of origin;
(ii) Stores and maintains other collections from the same site or project location; or
(iii) Houses collections from a similar geographic region or cultural area.
(2) The collection should not be subdivided and stored at more than a single repository unless such subdivision is necessary to meet special storage, conservation or research needs.
(3) Except when non-federally-owned material remains are retained and disposed of by the owner, material remains and associated records should be deposited in the same repository to maintain the integrity and research value of the collection.

(c)Sources for technical assistance. The Federal Agency Official should consult with persons having expertise in the management and preservation of collections prior to preparing a scope of work or a request for proposals for curatorial services. This will help ensure that the resulting contract, memorandum, agreement or other written instrument meets the needs of the collection, including any special needs in regard to any religious remains. It also will aid the Federal Agency Official in evaluating the qualifications and appropriateness of a repository, and in determining whether the repository has the capability to provide adequate long-term curatorial services for a collection. Persons, agencies, institutions and organizations that may be able to provide technical assistance include, but are not limited to the:

(1) Federal agency's Historic Preservation Officer;
(2) State Historic Preservation Officer;
(3) Tribal Historic Preservation Officer;
(4) State Archeologist;
(5) Curators, collections managers, conservators, archivists, archeologists, historians and anthropologists in Federal and State Government agencies and Indian tribal museum;
(6) Indian tribal elders and religious leaders;
(7) Smithsonian Institution;
(8) American Association of Museums; and
(9) National Park Service.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.7 Methods to fund curatorial services.

A variety of methods are used by Federal agencies to ensure that sufficient funds are available for adequate, long-term care and maintenance of collections. Those methods include, but are not limited to, the following:

(a) Federal agencies may fund a variety of curatorial activities using monies appropriated annually by the U.S. Congress, subject to any specific statutory authorities or limitations applicable to a particular agency. As appropriate, curatorial activities that may be funded by Federal agencies include, but are not limited to:

(1) Purchasing, constructing, leasing, renovating, upgrading, expanding, operating, and maintaining a repository that has the capability to provide adequate long-term curatorial services as set forth in § 79.9 of this part;
(2) Entering into and maintaining on a cost-reimbursable or cost-sharing basis a contract, memorandum, agreement, or other appropriate written instrument with a repository that has the capability to provide adequate long-term curatorial services as set forth in § 79.9 of this part;
(3) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470h-2), reimbursing a grantee for curatorial costs paid by the grantee as a part of the grant project;
(4) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470h-2), reimbursing a State agency for curatorial costs paid by the State agency to carry out the historic preservation responsibilities of the Federal agency;
(5) Conducting inspections and inventories in accordance with § 79.11 of this part; and
(6) When a repository that is housing and maintaining a collection can no longer provide adequate long-term curatorial services, as set forth in § 79.9 of this part, either:

(i) Providing such funds or services as may be agreed upon pursuant to § 79.5(a)(1) of this part to assist the repository in eliminating the deficiencies; or

(ii) Removing the collection from the repository and depositing it in another repository that can provide curatorial services in accordance with the regulations in this part.

(b) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470h-2) and section 208(2) of the National Historic Preservation Act Amendments (16 U.S.C. 469c-2), for federally licensed or permitted projects or programs, Federal agencies may charge licensees and permittees reasonable costs for curatorial activities associated with identification, surveys, evaluation and data recovery as a condition to the issuance of a Federal license or permit.

(c) Federal agencies may deposit collections in a repository that agrees to provide curatorial services at no cost to the U.S. Government. This generally occurs when a collection is excavated or removed from public or Indian lands under a research permit issued pursuant to the Antiquities Act (16 U.S.C. 431- 433) or the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). A repository also may agree to provide curatorial services as a public service or as a means of ensuring direct access to a collection for long-term study and use. Federal agencies should ensure that a repository that agrees to provide curatorial services at no cost to the U.S. Government has sufficient financial resources to support its operations and any needed improvements.

(d) Funds provided to a repository for curatorial services should include costs for initially processing, cataloging and accessioning the collection as well as costs for storing, inspecting, inventorying, maintaining, and conserving the collection on a long-term basis.

(1) Funds to initially process, catalog and accession a collection to be generated during identification and evaluation surveys should be included in project planning budgets.

(2) Funds to initially process, catalog and accession a collection to be generated during data recovery operations should be included in project mitigation budgets.

(3) Funds to store, inspect, inventory, maintain and conserve a collection on a long-term basis should be included in annual operating budgets.

(e) When the Federal Agency Official determines that data recovery costs may exceed the one percent limitation contained in the Archeological and Historic Preservation Act (16 U.S.C. 469c), as authorized under section 208(3) of the National Historic Preservation Act Amendments (16 U.S.C. 469c-2), the limitation may be waived, in appropriate cases, after the Federal Agency Official has:

(1) Obtained the concurrence of the Secretary of the U.S. Department of the Interior by sending a written request to the Departmental Consulting Archeologist, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and

(2) Notified the Committee on Energy and Natural Resources of the U.S. Senate and the Committee on Interior and Insular Affairs of the U.S. House of Representatives.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.8 Terms and conditions to include in contracts, memoranda and agreements for curatorial services.

The Federal Agency Official shall ensure that any contract, memorandum, agreement or other appropriate written instrument for curatorial services that is entered into by or on

behalf of that Official, a Repository Official and any other appropriate party contains the following:
(a) A statement that identifies the collection or group of collections to be covered and any other U.S. Government-owned personal property to be furnished to the repository;
(b) A statement that identifies who owns and has jurisdiction over the collection;
(c) A statement of work to be performed by the repository;
(d) A statement of the responsibilities of the Federal agency and any other appropriate party;
(e) When the collection is from Indian lands:
(1) A statement that the Indian landowner and the Indian tribe having jurisdiction over the lands consent to the disposition; and
(2) Such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands;
(f) When the collection is from a site on public lands that the Federal Agency Official has determined is of religious or cultural importance to any Indian tribe having aboriginal or historic ties to such lands, such terms and conditions as may have been developed pursuant to § -.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229;
(g) The term of the contract, memorandum or agreement; and procedures for modification, suspension, extension, and termination;
(h) A statement of costs associated with the contract, memorandum or agreement; the funds or services to be provided by the repository, the Federal agency and any other appropriate party; and the schedule for any payments;
(i) Any special procedures and restrictions for handling, storing, inspecting, inventorying, cleaning, conserving, and exhibiting the collection;
(j) Instructions and any terms and conditions for making the collection available for scientific, educational and religious uses, including procedures and criteria to be used by the Repository Official to review, approve or deny, and document actions taken in response to requests for study, laboratory analysis, loan, exhibition, use in religious rituals or spiritual activities, and other uses. When the Repository Official to approve consumptive uses, this should be specified; otherwise, the Federal Agency Official should review and approve consumptive uses. When the repository's existing operating procedures and criteria for evaluating requests to use collections are consistent with the regulations in this part, they may be used, after making any necessary modifications, in lieu of developing new ones;
(k) Instructions for restricting access to information relating to the nature, location and character of the prehistoric or historic resource from which the material remains are excavated or removed;
(l) A statement that copies of any publications resulting from study of the collection are to be provided to the Federal Agency Official and, when the collection is from Indian lands, to the Tribal Official and the Tribal Historic Preservation Officer, if any, of the Indian tribe that owns or has jurisdiction over such lands;
(m) A statement that specifies the frequency and methods for conducting and documenting the inspections and inventories stipulated in § 79.11 of this part;
(n) A statement that the Repository Official shall redirect any request for transfer or repatriation of a federally-owned collection (or any part thereof) to the Federal Agency Official, and redirect any request for transfer or repatriation of a federally administered collection (or any part thereof) to the Federal Agency Official and the owner;
(o) A statement that the Repository Official shall not transfer, repatriate or discard a federally-owned collection (or any part thereof) without the written permission of the Federal Agency Official, and not transfer, repatriate or discard a federally administered

collection (or any part thereof) without the written permission of the Federal Agency Official and the owner;
(p) A statement that the Repository Official shall not sell the collection; and
(q) A statement that the repository shall provide curatorial services in accordance with the regulations in this part.

§ 79.9 Standards to determine when a repository possesses the capability to provide adequate long-term curatorial services.

The Federal Agency Official shall determine that a repository has the capability to provide adequate long-term curatorial services when the repository is able to:
(a) Accession, label, catalog, store, maintain, inventory and conserve the particular collection on a long-term basis using professional museum and archival practices; and
(b) Comply with the following, as appropriate to the nature and consent of the collection;
(1) Maintain complete and accurate records of the collection, including:
(i) Records on acquisitions;
(ii) Catalog and artifact inventory lists;
(iii) Descriptive information, including field notes, site forms and reports;
(iv) Photographs, negatives and slides;
(v) Locational information, including maps;
(vi) Information on the condition of the collection, including any completed conservation treatments;
(vii) Approved loans and other uses;
(viii) Inventory and inspection records, including any environmental monitoring records;
(ix) Records on lost, deteriorated, damaged or destroyed Government property; and
(x) Records on any deaccessions and subsequent transfers, repatriations or discards, as approved by the Federal Agency Official;
(2) Dedicate the requisite facilities, equipment and space in the physical plant to properly store, study and conserve the collection. Space used for storage, study, conservation and, if exhibited, any exhibition must not be used for non-curatorial purposes that would endanger or damage the collection;
(3) Keep the collection under physically secure conditions within storage, laboratory, study and any exhibition areas by:
(i) Having the physical plant meet local electrical, fire, building, health and safety codes;
(ii) Having an appropriate and operational fire detection and suppression system;
(iii) Having an appropriate and operational intrusion detection and deterrent system;
(iv) Having an adequate emergency management plan that establishes procedures for responding to fires, floods, natural disasters, civil unrest, acts of violence, structural failures and failures of mechanical systems within the physical plant;
(v) Providing fragile or valuable items in a collection with additional security such as locking the items in a safe, vault or museum specimen cabinet, as appropriate;
(vi) Limiting and controlling access to keys, the collection and the physical plant; and

(vii) Inspecting the physical plant in accordance with § 79.11 of this part for possible security weaknesses and environmental control problems, and taking necessary actions to maintain the integrity of the collection;

(4) Require staff and any consultants who are responsible for managing and preserving the collection to be qualified museum professionals;

(5) Handle, store, clean, conserve and, if exhibited, exhibit the collection in a manner that:

(i) Is appropriate to the nature of the material remains and associated records;

(ii) Protects them from breakage and possible deterioration from adverse temperature and relative humidity, visible light, ultraviolet radiation, dust, soot, gases, mold, fungus, insects, rodents and general neglect; and

(iii) Preserves data that may be studied in future laboratory analyses. When material remains in a collection are to be treated with chemical solutions or preservatives that will permanently alter the remains, when possible, retain untreated representative samples of each affected artifact type, environmental specimen or other category of material remains to be treated. Untreated samples should not be stabilized or conserved beyond dry brushing;

(6) Store site forms, field notes, artifacts inventory lists, computer disks and tapes, catalog forms and a copy of the final report in a manner that will protect them from theft and fire such as:

(i) Storing the records in an appropriate insulated, fire resistant, locking cabinet, safe, vault or other container, or in a location with a fire suppression system;

(ii) Storing a duplicate set of records in a separate location; or

(iii) Ensuring that records are maintained and accessible through another party. For example, copies of final reports and site forms frequently are maintained by the State Historic Preservation Officer, the State Archeologist or the State museum or university. The Tribal Historic Preservation Officer and Indian tribal museum ordinarily maintain records on collections recovered from sites located on Indian lands. The National Technical Information Service and the Defense Technical Information Service maintain copies of final reports that have been deposited by Federal agencies. The National Archeological Database maintains summary information on archeological reports and projects, including information on the location of those reports.

(7) Inspect the collection in accordance with § 79.11 of this part for possible deterioration and damage, and perform only those actions as are absolutely necessary to stabilize the collection and rid it of any agents of deterioration;

(8) Conduct inventories in accordance with § 79.11 of this part to verify the location of the material remains, associated records and any other Federal personal property that is furnished to the repository; and

(9) Provide access to the collection in accordance with § 79.10 of this part.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.10 Use of collections.

(a) The Federal Agency Official shall ensure that the Repository Official makes the collection available for scientific, educational and religious uses, subject to such terms and conditions as are necessary to protect and preserve the condition, research potential, religious or sacred importance, and uniqueness of the collection.

(b)Scientific and educational uses. A collection shall be made available to qualified professionals for study, loan and use for such purposes as in-house and traveling exhibits, teaching, public interpretation, scientific analysis and scholarly research. Qualified professionals would include, but not be limited to, curators, conservators, collection managers, exhibitors, researchers, scholars, archeological contractors and educators. Students may use a collection when under the direction of a qualified professional. Any resulting exhibits and publications shall acknowledge the repository as the curatorial facility and the Federal agency as the owner or administrator, as appropriate. When the collection is from Indian lands and the Indian landowner and the Indian tribe having jurisdiction over the lands wish to be identified, those individuals and the Indian tribe shall also be acknowledged. Copies of any resulting publications shall be provided to the Repository Official and the Federal Agency Official. When Indian lands are involved, copies of such publications shall also be provided to the Tribal Official and the Tribal Historic Preservation Officer, if any, of the Indian tribe that owns or has jurisdiction over such lands.

(c)Religious uses. Religious remains in a collection shall be made available to persons for use in religious rituals or spiritual activities. Religious remains generally are of interest to medicine men and women, and other religious practitioners and persons from Indian tribes, Alaskan Native corporations, Native Hawaiians, and other indigenous and immigrant ethnic, social and religious groups that have aboriginal or historic ties to the lands from which the remains are recovered, and have traditionally used the remains or class of remains in religious rituals or spiritual activities.

(d)Terms and conditions.

(1) In accordance with section 9 of the Archaeological Resources Protection Act (16 U.S.C. 470hh) and section 304 of the National Historic Preservation Act (16 U.S.C. 470w-3), the Federal Agency Official shall restrict access to associated records that contain information relating to the nature, location or character of a prehistoric or historic resource unless the Federal Agency Official determines that such disclosure would not create a risk of harm, theft or destruction to the resource or to the area or place where the resource is located.

(2) Section -.18(a)(2) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229 sets forth procedures whereby information relating to the nature, location or character of a prehistoric or historic resource may be made available to the Governor of any State. The Federal Agency Official may make information available to other persons who, following the procedures in § -.18(a)(2) of the referenced uniform regulations, demonstrate that the disclosure will not create a risk of harm, theft or destruction to the resource or to the area or place where the resource is located. Other persons generally would include, but not be limited to, archeological contractors, researchers, scholars, tribal representatives, Federal, State and local agency personnel, and other persons who are studying the resource or class or resources.

(3) When a collection is from Indian lands, the Federal Agency Official shall place such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands on:

(i) Scientific, educational or religious uses of material remains; and

(ii) Access to associated records that contain information relating to the nature, location or character of the resource.

(4) When a collection is from a site on public lands that the Federal Agency Official has determined is of religious or cultural importance to any Indian tribe having aboriginal or historic ties to such lands, the Federal Agency Official shall

place such terms and conditions as may have been developed pursuant to § -.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229 on:

(i) Scientific, educational or religious uses of material remains; and

(ii) Access to associated records that contain information relating to the nature, location or character of the resource.

(5) The Federal Agency Official shall not allow uses that would alter, damage or destroy an object in a collection unless the Federal Agency Official determines that such use is necessary for scientific studies or public interpretation, and the potential gain in scientific or interpretive information outweighs the potential loss of the object. When possible, such use should be limited to unprovenienced, nonunique, nonfragile objects, or to a sample of objects drawn from a larger collection of similar objects.

(e) No collection (or a part thereof) shall be loaned to any person without a written agreement between the Repository Official and the borrower that specifies the terms and conditions of the loan. Appendix C to the regulations in this part contains an example of a short-term loan agreement for a federally-owned collection. At a minimum, a loan agreement shall specify:

(1) The collection or object being loaned;

(2) The purpose of the loan;

(3) The length of the loan;

(4) Any restrictions on scientific, educational or religious uses, including whether any object may be altered, damaged or destroyed;

(5) Except as provided in paragraph (e)(4) of this section, that the borrower shall handle the collection or object being borrowed during the term of the loan in accordance with this part so as not to damage or reduce its scientific, educational, religious or cultural value; and

(6) Any requirements for insuring the collection or object being borrowed for any loss, damage or destruction during transit and while in the borrower's possession.

(f) The Federal Agency Official shall ensure that the Repository Official maintains administrative records that document approved scientific, educational and religious uses of the collection.

(g) The Repository Official may charge persons who study, borrow or use a collection (or a part thereof) reasonable fees to cover costs for handling, packing, shipping and insuring material remains, for photocopying associated records, and for other related incidental costs.

§ 79.11 Conduct of inspections and inventories.

(a) The inspections and inventories specified in this section shall be conducted periodically in accordance with the Federal Property and Administrative Services Act (40 U.S.C. 484), its implementing regulation (41 CFR part 101), any agency-specific regulations on the management of Federal property, and any agency-specific statutes and regulations on the management of museum collections.

(b) Consistent with paragraph (a) of this section, the Federal Agency Official shall ensure that the Repository Official:

(1) Provides the Federal Agency Official and, when the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands with a copy of the catalog list of the contents of the collection received and accessioned by the repository;

(2) Provides the Federal Agency Official will a list of any other U.S. Government-owned personal property received by the repository;
(3) Periodically inspects the physical plant for the purpose of monitoring the physical security and environmental control measures;
(4) Periodically inspects the collection for the purposes of assessing the condition of the material remains and associated records, and of monitoring those remains and records for possible deterioration and damage;
(5) Periodically inventories the collection by accession, lot or catalog record for the purpose of verifying the location of the material remains and associated records;
(6) Periodically inventories any other U.S. Government-owned personal property in the possession of the repository;
(7) Has qualified museum professionals conduct the inspections and inventories;
(8) Following each inspection and inventory, prepares and provides the Federal Agency Official with a written report of the results of the inspection and inventory, including the status of the collection, treatments completed and recommendations for additional treatments. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the report;
(9) Within five (5) days of the discovery of any loss or theft of, deterioration and damage to, or destruction of the collection (or a part thereof) or any other U.S. Government-owned personal property, prepares and provides the Federal Agency Official with a written notification of the circumstances surrounding the loss, theft, deterioration, damage or destruction. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the notification; and
(10) Makes the repository, the collection and any other U.S. Government-owned personal property available for periodic inspection by the:
(i) Federal Agency Official;
(ii) When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands; and
(iii) When the collection contains religious remains, the Indian tribal elders, religious leaders, and other officials representing the Indian tribe or other group for which the remains have religious or sacred importance.

(c) Consistent with paragraph (a) of this section, the Federal Agency Official shall have qualified Federal agency professionals:
(1) Investigate reports of a lost, stolen, deteriorated, damaged or destroyed collection (or a part thereof) or any other U.S. Government-owned personal property; and
(2) Periodically inspect the repository, the collection and any other U.S. Government-owned personal property for the purposes of:
(i) Determining whether the repository is in compliance with the minimum standards set forth in § 79.9 of this part; and
(ii) Evaluating the performance of the repository in providing curatorial services under any contract, memorandum, agreement or other appropriate written instrument.

(d) The frequency and methods for conducting and documenting inspections and inventories stipulated in this section shall be mutually agreed upon, in writing, by the Federal Agency Official and the Repository Official, and be appropriate to the nature and content of the collection:

(1) Collections from Indian lands shall be inspected and inventoried in accordance with such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands.
(2) Religious remains in collections from public lands shall be inspected and inventoried in accordance with such terms and conditions as may have been developed pursuant to § -.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.
(3) Material remains and records of a fragile or perishable nature should be inspected for deterioration and damage on a more frequent basis than lithic or more stable remains or records.
(4) Because frequent handling will accelerate the breakdown of fragile materials, material remains and records should be viewed but handled as little as possible during inspections and inventories.
(5) Material remains and records of a valuable nature should be inventoried on a more frequent basis than other less valuable remains or records.
(6) Persons such as those listed in § 79.6(c) of this part who have expertise in the management and preservation of similar collections should be able to provide advice to the Federal Agency Official concerning the appropriate frequency and methods for conducting inspections and inventories of a particular collection.

(e) Consistent with the Single Audit Act (31 U.S.C. 75), when two or more Federal agencies deposit collections in the same repository, the Federal Agency Officials should enter into an interagency agreement for the purposes of:

(1) Requesting the Repository Official to coordinate the inspections and inventories, stipulated in paragraph (b) of this section, for each of the collections
(2) Designating one or more qualified Federal agency professionals to:
(i) Conduct inspections, stipulated in paragraph (c)(2) of this section, on behalf of the other agencies; and
(ii) Following each inspection, prepare and distribute to each Federal Agency Official a written report of findings, including an evaluation of performance and recommendations to correct any deficiencies and resolve any problems that were identified. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the report; and
(3) Ensuring consistency in the conduct of inspections and inventories conducted pursuant to this section.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

NOT INCLUDED IN THIS APPENDIX:

Appendix A to 36 CFR Part 79 - Example of a Deed of Gift
Appendix B to 36 CFR Part 79 - Example of a Memorandum of Understanding for Curatorial Services for a Federally-Owned Collection
Appendix C to Part 79 - Example of a Short-Term Loan Agreement for a Federally-Owned Collection

Authority: 16 U.S.C. 470aa-mm,16 U.S.C. 470 et seq.
Source: 55 FR 37630, Sept. 12, 1990, unless otherwise noted.

Appendix B.

The Present State of the Curation Crisis and Deaccessioning in the United States Survey

Consent Form
The Present State of the Curation Crisis and Deaccessioning in the United States

To Whom It May Concern:

My name is Marina Tinkcom and as the Principal Investigator I am conducting research to address the curation crisis and deaccessioning. I will be examining repositories across the United States to shed light on the current status of collections, question the current methods of attaining modern curation standards for these collections, and reevaluate current accessioning and deaccessioning criteria. The following is a 26-question survey that should take 15 to 20 minutes to complete and is also accessible online (https://sfu.fluidsurveys.com/s/statusofarchaeologicalcollections/).

These queries will be investigated through the implementation of a questionnaire issued to seventeen major archaeological repositories, three repositories in each of the five major regions of the continental United States, and one major archaeological repository in both Alaska and Hawaii. Repositories that do not house federal collections cannot participate in this study. Ethics approval has not been issued by another agency or university within the United States.

The questionnaire contains a quantitative and a qualitative question section. Data will be analyzed when an adequate number of surveys are returned. The quantitative data will be analyzed using basic statistical analysis and the qualitative data will be summarized based on the questionnaire responses.

Completion of this survey indicates implicit consent to have data used in the study and for participation identification. Participants will not receive any sort of payment for participating in this study. If the participating institution wishes to withdrawal their answers prior to completion of the project, contact stating such will be necessary with the principal investigator. Participation can be terminated via email at any time. Terminating prior to completion will not result in a penalty to the participant.

This study has minimal risk for the participant. Federal agencies who fund the collections have access to the status of collections; this study is simply collecting that data for comparative purposes. Disclosure of the status of your collections for this study could result in praise for improvements in their status of your collections or result in an argument for aid if there is room for further improvement. Your input will help widen the understanding of the status of archaeological collections across the United States.

If you or your organization would prefer a Microsoft Word version of the survey, please contact me.

The data collected via FluidSurveys will be stored in Canada and is compliant with British Columbia's Freedom of Information and Protection Privacy Act. The data will be accessed by the principal investigator's private computer in Laramie, Wyoming. Since data collection will occur in the United States, data is subject to the Patriot Act which allows authorities access to the records of internet service providers, thus access to research participants information. Storing data outside of Canada may increase the risk of disclosure of information because the laws in other countries dealing with protection of personal information may not be as strict as in Canada. Confidentiality cannot be guaranteed. However, the principal investigator will be the only person to have access to the raw data via FluidSurveys and the raw data that is scanned onto her password-protected personal laptop. Hard copies of data will be stored in a lock box within the principal investigator's home. These data will be kept for five years.

In the event that data is incomplete or further questions are necessary, the principal investigator will provide a re-contact consent form.

All of the data collected for this study will be available in the principal investigator's dissertation, published at SFU. Future use will be citable by researchers and the results will be made available to the participating institutions.

I truly appreciate your time.

Marina Tinkcom

Marina Tinkcom is a candidate for Master of Arts in Heritage Resource Management in the Department of Archaeology at Simon Fraser University. Tinkcom is also a full-time field supervisor for LTA, Inc. in Laramie, Wyoming. She will be completing a study titled The Present State of the Curation Crisis and Deaccessioning in the United States as the Principal Investigator. Tinkcom can be contacted via email. Dr. Mark Collard is the faculty supervisor for this study. This study is not funded.

Questions should be addressed to Marina and/or her supervisor, Dr. Mark Collard. Concerns and/or complaints should be addressed to Dr. Jeff Toward, Director, Office of Research Ethics.

Name and Title: _____
Name of Institution: _____
Date: _____

1. What is the background of your institution? Please choose only one.

- ☐ Anthropology
- ☐ Archaeology
- ☐ Paleontology
- ☐ Zoology
- ☐ Biology
- ☐ Other (please specify) _____

2. What is your institution's primary affiliation? Please choose only one.

- ☐ University
- ☐ Museum
- ☐ Research Institute
- ☐ Other Federal/State Agency
- ☐ Self-Employed

3. Is your institution publicly or privately owned?

- ☐ Public
- ☐ Private

4. How many staff do you have for curation of collections on average?

- ☐ 0 to 3
- ☐ 4 to 7
- ☐ 8 to 11
- ☐ 12 to 15
- ☐ 16 or more

5. Do you make use of volunteers for some or all the curation tasks?

- ☐ All
- ☐ Some
- ☐ None

6. What percentage (approximately) of your collections is prehistoric? Historic? Other? (Total percentage should add up to 100%)

_____% Prehistoric
_____% Historic
_____% Other (please specify) _____

7. What percentage (approximately) of collections accrued each year is from Cultural Resource Management (CRM) projects? From academic projects? Research projects? Other? (Total percentage should add up to 100%)

_____% Cultural Resource Management
_____% Academic
_____% Research
_____% Donated
_____% Other (please specify) _____

8. Do you have an accession policy for archaeological collections? If so, please attach policy guidelines.

☐ Yes
☐ No

9. What associated data are required when an archaeological collection is curated? Mark all that apply.

☐ Name of company
☐ Name of discoverer/excavator
☐ Site number
☐ Site name
☐ Location of site
☐ Site map(s)
☐ Site provenience data
☐ Date of field work
☐ Recovery methods
☐ Sampling methods
☐ Photographs
☐ Field notes
☐ Site report
☐ Site form
☐ Analysis of collection
☐ Other (please specify) _____

10. When collections arrive without the following tasks completed, how often does your institution use the following methods? Please select always, often, sometimes, never, or N/A if your institution uses the following methods for applicable collections.

	Always	Often	Sometimes	Never	N/A
Sieving	☐	☐	☐	☐	☐
Flotation	☐	☐	☐	☐	☐

Washing	□	□	□	□	□
Stabilization (adhesives, etc.)	□	□	□	□	□
Numbering artifacts (directly with archival quality pens, tags, or paper)	□	□	□	□	□
Individually bagging of artifacts by provenience	□	□	□	□	□
Testing (blood residue, OSL dating, Radiocarbon dating, etc. in lab or sent off for analysis)	□	□	□	□	□

11. Which of the following does your cataloguing system include?

- □ Ledger
- □ Card file
- □ Computer database
- □ Accession forms
- □ Other (please specify) _____

12. Where are collections stored?

- □ Lab
- □ Repository
- □ Exhibition
- □ Other (please specify) _____

13. How are collections stored? (check all that apply) What percentage of entire collection is in each storage method? (Total percentage should add up to 100%)

- □ Within non-4 mm plastic bags _____%
- □ Within 4 mm plastic bags _____%
- □ Within 12x15x10” boxes _____%
- □ Within boxes of a different but consistent size _____%
- □ In miscellaneous sized boxes _____%
- □ In closed storage drawers or cases _____%
- □ On metal shelving _____%
- □ On wooden shelving _____%
- □ Other (please specify) _____ _____%

14. Which environmental controls are used in the institution?

- □ Temperature
- □ Humidity
- □ Level and duration of visible light
- □ Ultraviolet radiation
- □ Pests (insects, rodents, etc.)
- □ Air pollutants
- □ Other (please specify) _____

15. Which measures are taken at the institution?

- □ Mechanical and/or electrical system for detecting and deterring intruders
- □ Policy on access to collections and associated documents including systems for visitor and researcher registration
- □ Opening and closing storage and exhibition areas
- □ Control of keys/access to particular areas of the repository
- □ Fire detectors
- □ Fire suppression equipment
- □ Fire resistant storage containers
- □ Fire plan for prevention, detection, and suppression
- □ Regular cleaning of storage and exhibit spaces
- □ Regular inventory of collections
- □ Disaster planning

16. How often are collections (re)inventoried?

	Never	Weekly	Monthly	Yearly	Every decade	Longer than every decade
Portion of Collection	□	□	□	□	□	□
Entire collection	□	□	□	□	□	□

17. Do you permit collections to be deaccessioned?

- □ Yes
- □ No

18. Do you have policies in place for deaccessioning?

- □ Yes
- □ No

19. Approximately how many researchers consult your institution per year?

- 0 to 5
- 6 to 10
- 11 to 15
- 16 to 20
- 21 to 25
- 26 to 30
- 31 or more

20. Are these researchers ever limited by the status of the collections? (i.e. collections not yet entered in the computer database).

- Yes
- No

CURATION CRISIS QUESTIONS

1. **What are the methods used to bring collections to modern curations standards?**

2. **What percentage (approximately) of the collections are not to current curation standards within your collection?**

3. **How much of the collection is in the digital catalog?**

4. **What percentage of the collection is inventoried?**

5. **How has the institution been working to solve issues caused by the curation crisis? Does the institution have policy documentation related to the curation crisis?**

6. **What are the current accessioning and deaccessioning criteria? Does the institution have policy documentation related to accessioning and deaccessioning? If so, please attach policy documentation related to accessioning and deaccessioning.**