Interpretive accommodations for National Park Service visitors
who are d/Deaf or hard of hearing

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Elsa Marie Hansen

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Julie Ernst, Committee Chair
Nancy Diener, Committee Member
Chris Johnson, Committee Member

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This is to certify that I have examined this copy of a master's thesis by

Elsa Marie Hansen

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by the final
examining committee have been made.

Julie Ernst

Name of Faculty Adviser

Signature of Faculty Adviser

10-01-2014

Date

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Dedication

; To those whose stories are not yet finished

Abstract

The National Park Service (NPS) works to protect natural and cultural landscapes for the American people. Part of achieving their mission includes providing the best possible services to visitors, including interpretive services. The goal of interpretation is to increase the visitor's enjoyment and understanding of the parks (National Park Service, Interpretive Development Program, n.d.). It is stated that the "NPS will ensure, to the greatest extent possible, that persons with disabilities receive the same interpretive opportunities as non-disabled persons, in the most integrated setting possible" (National Park Service, 2005-2011, section VIII.I, para. 1). About 7.6 million people in the U.S. (3.1%) experience a hearing difficulty, "defined as experiencing deafness or having difficulty hearing a normal conversation, even when wearing a hearing aid" (Brault, 2012, p. 8). Many national park units experience high visitation, yet provide varying levels of accessibility offered for interpretive services. This study provides an overview of the interpretive accommodations currently provided to NPS visitors who are d/Deaf or hard of hearing (HoH) through a survey of national park units.

Results show that most park units do provide some form of interpretive accommodations for visitors who are d/Deaf or HoH. Many park units have also completed accessibility assessments, which have been used to guide the provision of accommodations for visitors with disabilities, including visitors who are d/Deaf or HoH. Still, results also indicated that many park units perceived their unit was not sufficiently meeting the needs of visitors who are d/Deaf or HoH, and many respondents felt that their unit should be doing more. This along with a high overall survey response rate

suggests something other than an attitudinal barrier to ensuring non-hearing visitors and hearing visitors have similar interpretive experiences. Respondents indicated that barriers to providing interpretive accommodations included budget and staffing constraints, competing priorities for general and interpretive budgets and staff time, lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH, and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HoH.

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Chapter One

INTRODUCTION

Background

Since 1916, the National Park Service (NPS) has worked to protect natural and cultural landscapes for the American people. Roughly 84 million acres of land, 4.5 million acres of oceans, lakes, and reservoirs, and tens of thousands of archeological sites and historic structures enjoy protection under management of the NPS (National Park Service, n.d. a). The NPS mission states that the NPS “preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations” (National Park Service, n.d. b, para. 1). The NPS strives to achieve this mission following several guidelines: providing the best possible service to park visitors and partners; incorporating research findings and new technologies into work practices, products and services; providing training opportunities for employees so as to work safely and efficiently; and incorporating social, economic, environmental and ethical considerations when making decisions (National Park Service, n.d. b).

Providing the best possible services to visitors includes providing interpretive services. The goal of interpretation is to increase the visitor’s enjoyment and understanding of the parks and to allow each visitor the opportunity to personally connect to a place (National Park Service, Interpretive Development Program, n.d.). As stated in the National Park Service Director’s Order #6: Interpretation and Education (2005-2011), “Interpretation and education is the key to preserving both the idea of national parks and

the park resources themselves” (section I, para. 1). Also stated in the Director’s Order #6 is that the “NPS will ensure, to the greatest extent possible, that persons with disabilities receive the same interpretive opportunities as non-disabled persons, in the most integrated setting possible” (section VIII.I, para. 1). Further, the NPS has guidelines for accessibility as written in the Programmatic Accessibility Guidelines for National Park Service Interpretive Media (Harpers Ferry Center Accessibility Committee, 2012). Within this publication, it is stated that “park visitors who have physical, sensory or cognitive disabilities have legally established civil rights to receive the same information and context that NPS interpretive media products have always provided to their fellow citizens” (Harpers Ferry Center Accessibility Committee, 2012, p. 4, para. 1). Section 504 of the Rehabilitation Act of 1973, as amended, requires program accessibility for all services provided with Federal dollars. It requires that the NPS does everything feasible to ensure that people with disabilities “receive as close to the same benefits as those received by other visitors” (National Park Service Director’s Order #42, 2000-2004, section V.A.2).

About 7.6 million people in the U.S. (3.1%) experience a hearing difficulty, “defined as experiencing deafness or having difficulty hearing a normal conversation, even when wearing a hearing aid” (Brault, 2012, p. 8). This number includes 1.1 million people who have a severe difficulty hearing, defined as those who are deaf or unable to hear a normal conversation (Brault, 2012). Visitors who are d/Deaf or hard of hearing (HoH) can access NPS units for free with the Access Pass, allowing the pass holder and up to four passengers in the car free entry (National Park Service, n.d. c). This pass is part

of the National Parks and Federal Recreational Lands Pass Series, offering annual passes to visitors for a reduced rate or free passes to NPS volunteers, U.S. citizens aged 62 or over, active duty U.S. military members, and visitors with disabilities. Burns, Paterson and Watson (2009) discuss that access to the outdoors for persons with disabilities, driven by legislative laws and guidelines, has narrowed itself to thinking more along technical solutions, such as free entry and closed captioning, rather than also along a broader social context. They argue that it is important to understand not only the physical barriers present for persons with disabilities to recreate outdoors, but also to understand the social context and needs for persons with disabilities while recreating.

Yosemite National Park is one example where a park has gone beyond providing basic accommodations for visitors who are d/Deaf or HoH. Yosemite is located within the Sierra Nevada of California. As of 2010, Yosemite National Park is the only park to establish a position to facilitate a deaf services program. The Deaf Services Coordinator position was created in 1979, and has since improved accessibility for Yosemite visitors who are d/Deaf or HoH (Cayton, 2010). To negate the idea that people who are Deaf didn't visit the park, the first Deaf Services Coordinator, then a park volunteer, counted 106 park visitors who are Deaf during that first summer season along with 219 contacts made with park staff, "indicating that Deaf visitors had been coming to the park all along; they simply had been invisible to the employees" (Cayton, 2010, p. 12). Since the program's establishment, Yosemite now offers a public videophone in the main lodge, accessibility kits in park hotels, volume control telephones, Assistive Listening Devices (ALDs), and a full-time sign language interpreter during the summer season (National

Park Service, Yosemite National Park, n.d.). In 2011, Yosemite experienced approximately 4 million visitors (National Park Service Public Use Statistics Office, n.d.). With close proximity to major cities, a three hour drive from San Francisco, CA, and five and six hours away from Los Angeles, CA and Las Vegas, NV respectively, Yosemite is a prime location for a deaf services program.

Many other national parks, regardless of location to metropolitan areas, also experience high visitation. Grand Teton National Park experienced approximately 2.7 million visitors in 2012, and Arches National Park had 1.1 million visitors in 2012 (National Park Service Public Use Statistics Office, n.d.). These parks experience high visitation for their remote location, yet the only published services stated online to be available for visitors who are d/Deaf or HoH include closed captioning, park pamphlets, and wayside exhibits with illustrations and text for Arches National Park, and telecommunications device for the deaf (TDD) for Grand Teton National Park (National Park Service, Arches National Park, n.d.; National Park Service, Grand Teton National Park, n.d.). One of the lodges run by a concessionaire in Grand Teton National Park did advertise that they have available a portable strobe and TDD kit for overnight guests. In 2009, Yellowstone National Park, WY, experienced a record number of approximately 3.3 million visitors (National Park Service, Yellowstone National Park, 2009). Yellowstone, located adjacent to Grand Teton National Park, states on their website that the park offers ALDs and captioning of park films at two visitor centers, public telephones with volume control, TDD services, and sign language interpreters available for ranger programs with three weeks advance notice (National Park Service,

Yellowstone National Park, n.d.). These NPS units serve as an example of the varying levels of accessibility offered for interpretive services for visitors who are d/Deaf or HoH, in spite of the accessibility guidelines provided by the Harpers Ferry Center Accessibility Committee (2012).

Purpose of Study

The purpose of this study was to provide an overview of the interpretive accommodations currently provided to National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH). This study surveyed Chiefs of Interpretation from NPS units to describe the interpretive accommodations provided at individual park units and collectively as an agency, as well as the barriers to doing so. The following research questions guided this study:

- 1) How do NPS units accommodate for visitors who are d/Deaf or HoH within their provided front-country interpretive services?
- 2) What guides NPS units provision of interpretive accommodations for visitors who are d/Deaf or HoH?
- 3) Do NPS units perceive they are sufficiently providing interpretive accommodations for visitors who are d/Deaf or HoH?
- 4) What barriers do NPS units face relating to interpretive accommodations for visitors who are d/Deaf or HoH?

Significance of Study

This study focused on accommodations for interpretive services provided to National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH), a topic

where commentary articles are available, but few research articles exist. The study will likely be beneficial to the NPS, along with other land managing and recreation agencies, in its description of the range of interpretive services provided to visitors who are d/Deaf or HoH and the identification of barriers to providing services. The study also identified best practices of accessibility already in place and may encourage park units to re-examine their level of provided accommodations.

Definition of Terms

The following section defines key terms used in this study. These definitions were developed using the process for specification of concepts outlined in Babbie (2011) and Creswell (2009). Definitions include a nominal definition and an operational definition if available.

Visitors who are d/Deaf or hard of hearing (HoH)

From the US Census Bureau's 2010 Household Economic Study, about 7.6 million people (3.1%) experienced a hearing difficulty, defined as "experiencing deafness or having difficulty hearing a normal conversation, even when wearing a hearing aid" (Brault, 2012, p. 8). This number includes 1.1 million people who had a severe difficulty hearing, defined as those who were deaf or unable to hear a normal conversation (Brault, 2012).

Within the deaf and hard of hearing community, a spectrum of identities exist that people use to describe their hearing loss. According to Padden and Humphries (1998), "the lowercase deaf is used when referring to the audiological condition of not hearing, and the uppercase Deaf when referring to a particular group of deaf people who share a

language, American Sign Language, and a culture” (p. 2). Moore (1997) defines hard of hearing as a person with mild-to-moderate hearing loss or a person who is deaf and doesn’t have or want any cultural affiliation with the Deaf community.

People who are “hard of hearing” have some hearing and may rely on visual cues to assist them, along with a means of sound amplification such as a hearing aid or Assistive Listening Device (ALD) (Thornton, 1997). People who are “deaf” have little hearing capabilities and rely mainly on visual information such as signed communication or speech reading (Thornton, 1997).

For this study, the phrasing *d/Deaf and hard of hearing (HoH)* was used to include all people that may require interpretive accommodations while visiting a National Park Service unit.

Interpretation

Interpretation is defined by the National Park Service as “a catalyst in creating an opportunity for the audience to form their own intellectual and emotional connections with the meanings and significance inherent in the resource” (National Park Service, Interpretive Development Program, n.d., para. 3). Similarly, the National Association for Interpretation defines interpretation as the “process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource” (National Association for Interpretation, n.d., para. 1).

Interpretive services

According to the National Park Service’s Interpretive Design Center, common interpretive services include audiovisual media, historic furnishings, museum exhibits,

personal services (human to human communication), publications and wayside exhibits (Harpers Ferry Center, Division of Interpretive Planning, 1998). Web-based media, although not mentioned in the Harpers Ferry Center 1998 publication, has since become a popular means of communicating interpretive information. These interpretive services help visitors create meaning and understanding from tangible experiences had while visiting a NPS unit.

Interpretive accommodations for visitors who are d/Deaf or HoH

Interpretive accommodations include, but are not limited to, subtitles, audio descriptions, assistive listening systems, printed transcripts of a program, or a qualified sign language interpreter available upon request (Harpers Ferry Center Accessibility Committee, 2012). The National Park Service Director's Order #42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services (2000-2004) defines accountability for accessibility. The Harpers Ferry Center is held accountable for the overall management and direction of interpretive media,

ensuring that all new interpretive media are provided in such a way as to be accessible to and usable by all persons with a disability. It also means all existing practices and procedures are evaluated to determine the degree to which they are currently accessible to all visitors, and modifications are made to assure conformance with applicable laws and regulations. (National Park Service, 2000-2004, section VIII.C.I.D)

The responsibility of ensuring access to programs, services, and facilities is also held by park superintendents, regional directors, the NPS Washington Office, and the Department

of the Interior's Equal Opportunity Program (National Park Service, 2000-2004).

Chapter Two

REVIEW OF LITERATURE

Interpretation

The National Park Service (NPS) operates to protect natural and cultural landscapes for the American people. The mission of the NPS is to preserve “unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations” (National Park Service, n.d. b). The NPS strives to achieve this mission following several guidelines: providing the best possible service to park visitors and partners; incorporating research findings and new technologies into work practices, products and services; providing training opportunities for employees so as to work safely and efficiently; and incorporating social, economic, environmental and ethical considerations when making decisions (National Park Service, n.d. b).

Interpretation is part of providing the best possible services to visitors. Early contributors to the field of interpretation have provided the NPS with a foundation that guides today’s interpretive services. John Muir noted the natural values of the Sierra Nevada in his writings (Mackintosh, 1986). Enos Mills founded the first nature guide school after serving as a guide to hotel guests (Bacher et al., 2007), and Freeman Tilden (1977) articulated the basic principles of interpretation in his book, *Interpreting Our Heritage*. Tilden defined interpretation as an “educational activity which aims to reveal meanings and relationships though the use of original objects, by firsthand experience,

and by illustrative media, rather than simply to communicate factual information” (1977, p. 8). Building from these contributions, the NPS now facilitates the Interpretive Development Program (IDP) to guide interpreters in their professional growth and development through a series of competencies that are needed for successful performance.

The goal of interpretation is to increase the visitor’s enjoyment and understanding of the parks and to allow each visitor the opportunity to personally connect to a place (National Park Service, Interpretive Development Program, n.d.). Interpretation is defined by the NPS as “a catalyst in creating opportunities for the audience to form their own intellectual and emotional connections with the meanings and significance inherent in the resource” (National Park Service, Interpretive Development Program, n.d., para. 3). Interpretive opportunities can be provided to visitors through personal services, such as tours or talks, and through non-personal services such as audiovisual programs, artifacts, exhibits, historic furnishings, park signage, publications, wayside exhibits, and web-based media (Harpers Ferry Center Accessibility Committee, 2012). Many park visitors begin their park experience by stopping at the park’s visitor center, which serve as a welcome point and as a source of information. The NPS Social Science Program conducted a study looking at visitor use and evaluation of interpretive media in national parks. They found that personal services (interacting with an interpreter in person) reached only as much as 22% of the visitors surveyed, while interpretation through non-personal methods (brochures, exhibits, etc.) reached over 62% of visitors (Forist et al., 2003). With either method, both help foster connections between visitor and resource,

helping to achieve the NPS mission.

Interpretive services provide an opportunity to affect visitor satisfaction along with increasing visitor knowledge and understanding. Ham and Weiler (2007) found that interpretive services (non-personal media and personal, face-to-face presentations) can have a positive influence on overall visitor satisfaction. They studied visitor satisfaction in relation to interpretive and non-interpretive elements of their site experience. Satisfaction with five interpretive services correlated more highly with overall satisfaction than did any of six non-interpretive services (restrooms, parking, camping) (Ham & Weiler, 2007). A case study demonstrating the effectiveness of interpretation in Dartmoor National Park, UK showed that visitor knowledge increased after visiting the parks visitor center (Tubb, 2003). Questions revealed that visitors were able to use the knowledge gained to likely predict consequences of their actions in the future and see connections between personal behavior and problems within the park.

Henker and Brown (2011) compared the effectiveness of online podcasts, podcasts viewed in the visitor center, and short ranger talks in terms of viewers' intellectual, emotional and stewardship responses. Ranger talks were viewed as an opportunity to "have fun" and "to share an experience with my family", ranking higher in these areas than for the other interpretive methods. Overall, online podcasts were slightly less effective than ranger talks, but more effective than visitor center podcast viewing stations, perhaps due to the ability of online audiences to control topic and timing of their interpretive experience. Across all three methods, survey respondents said they were

motivated to participate “to learn something,” suggesting all three methods of interpretation can be effective tools (Henker & Brown, 2011).

As Beck and Cable (2002) state, “Through interpretation we enhance understanding and appreciation of our cultural and natural legacy” (p. 8). Interpretation, whether through personal or non-personal means, is an important vehicle that allows visitors to connect to a place. Therefore, it is important that these interpretive opportunities be available to all. As stated within the National Park Service Director’s Order #6: Interpretation and Education (2005-2011), the “NPS will ensure, to the greatest extent possible, that persons with disabilities receive the same interpretive opportunities as non-disabled persons, in the most integrated setting possible” (section VIII.I, para. 1).

Accessibility

The Disability Rights Movement arose as a result of “the oppressive marginalization of persons with disabilities” (Winter, 2003, p. 33). From this movement, persons with disabilities were empowered to take control of their own lives, and major legislative advancements occurred that influenced social policy and practice. The passing of the Architectural Barriers Act of 1968 and the Rehabilitation Act of 1973 was necessary to eliminate discriminatory policies and practices, greatly shifting disability legislation (Mayerson, 1992).

Previous thought had assumed that problems faced by people with disabilities (unemployment or lack of education) were consequences of the limitations imposed by the disability itself, and not by any societal barriers or prejudices (Mayerson, 1992). The Architectural Barriers Act of 1968 requires physical access to buildings and facilities

built or renovated with Federal funds (National Park Service, 2000-2004). Going one step further, the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability in programs conducted by Federal agencies or receiving Federal financial assistance, in Federal employment, and in the employment practices of Federal contractors (U.S. Department of Justice, 2009).

Specifically within Section 504 of the Rehabilitation Act of 1973, it specifies requirements for programmatic accessibility in addition to physical accessibility in all facilities and programs assisted or conducted by the Federal government (Project Play and Learning in Adaptable Environments, 1993). It states as follows:

No otherwise qualified handicapped individual in the United States, as defined in Section 705 (20), shall, solely by reason of her or his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance or under any program or activity conducted by any Executive Agency. (Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794)

Also important within the Rehabilitation Act of 1973 is Section 508, which, as amended, “applies specifically to web-based media, audio tours, audiovisual programs, and other media incorporating these electronic elements” (Harpers Ferry Center Accessibility Committee, 2012, pg. 86, para. 2). Section 508 states as follows:

Individuals with disabilities who are members of the public seeking information or services from a Federal department or agency to have access to and use of information and data that is comparable to the access to and use of the

information and data by such members of the public who are not individuals with disabilities. (Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d)

The Architectural Barriers Act of 1968 and the Rehabilitation Act of 1973 together require that the National Park Service,

not only has to be concerned with enabling people with disabilities to have access to parks and facilities but, once there, the NPS also needs to do everything feasible to enable them to receive as close to the same benefits as those received by other visitors. (National Park Service, 2000-2004, section V.A.2, para. 3)

Despite these advancements in legislation, individuals with disabilities still faced a great number of inequities, and in 1978 the National Council on Disabilities was created by former President Reagan to study those inequities (First & Curcio, 1993).

Their study concluded with the passing of the Americans with Disabilities Act (ADA), written into law in 1990. The ADA addresses discrimination against individuals with disabilities in employment, public services, public accommodations, and telecommunications (Project Play and Learning in Adaptable Environments, 1993).

Modeled after the Civil Rights Act and Section 504 of the Rehabilitation Act, the ADA is designed to protect the rights of all individuals with disabilities (First & Curcio, 1993). In 2010, the Department of Justice published revised regulations for Titles II and III of the ADA, resulting in the 2010 ADA Standards for Accessible Design. These standards set minimum requirements “for newly designed and constructed or altered... facilities to be readily accessible to and usable by individuals with disabilities” (U.S. Department of

Justice, 2010, para. 1).

One aspect of the ADA that pertains to the field of interpretation is effective communication, which is essential for individuals to participate and benefit from programs or activities (National Center on Accessibility, 2002). Ensuring equal access to programs, services, or activities is often achieved by offering the same information in various formats to allow everyone to have a similar understanding. The ADA provides examples of auxiliary aids and services to ensure effective communication (ex: qualified interpreters, open and closed captioning, etc.) (Americans with Disabilities Act, 1990). The National Park Service Director's Order #42 states that the ADA technically does not apply to the Federal Government as it relates to state and local governments and most of the private sector; however, the high visibility of the law and public interest in accessibility has increased the pressure on the Federal Government to bring their facilities and programs into compliance (National Park Service, 2000-2004).

In addition to legislation, some organizations have developed internal guidelines relating to accessibility. The National Recreation and Park Association (NRPA) is a non-profit organization that works towards the advancement of public parks, recreation and conservation (National Recreation and Park Association, n.d.). The NRPA focuses on impacting communities through conservation, health and wellness, and social equity. The NRPA Board of Trustees adopted a position statement on inclusion as NRPA Policy (1999) to “encourage providers of park, recreation, and leisure services to provide opportunities in settings where people of all abilities can recreate and interact together” (Purpose section, para. 4). Outlined within are four inclusion concepts: right to leisure for

all individuals; quality of life (enhancements through leisure experiences); support, assistance and accommodations; and barrier removal (National Recreation and Park Association, 1999). As elaborated upon by the National Recreation and Park Association, leisure is part of a healthy lifestyle and necessary for human dignity and well-being, and people should be able to exercise their right to choose from a variety of recreation opportunities. Quality of life is improved with access to leisure, with the development of self-direction, social connections made with others, and the opportunity to choose. Any support, assistance or accommodations provided should maximize both the independence and interdependence of the individual. Physical barriers should be removed, and attitudinal barriers should also be removed or minimized through education and training of personnel (National Recreation and Park Association, 1999).

The Smithsonian Institute, founded in 1846, is the world's largest museum and research complex whose mission is the increase and diffusion of knowledge. Their internal Accessibility Program supports visitors "by providing consistent, effortless access to the Institution's programs, collections and facilities" (Smithsonian Accessibility Program, n.d. a, General Information section, para. 1). Specifically, this program includes the following:

- Advising on and implementing policy, practices, and procedures related to access for people with disabilities;
- Reviewing facility and exhibition designs;
- Providing technical assistance;
- Conducting outreach to the disability community and other cultural arts organizations;
- Providing staff education on disability topics; and
- Working with Smithsonian museums and offices to provide direct visitor services,

including sign language interpretation, real time captioning, and alternate formats of publications. (Smithsonian, Accessibility, n.d. a, General Information section, para. 2)

The Smithsonian has developed several accessible design guidelines that specifically outline standards that must be met. One set of guidelines, the Smithsonian Guidelines for Accessible Publications Design, ensures that publications are successful at conveying information to all people, including people with disabilities, older adults, those learning English as a second language, those trying to read in a darkened gallery, and those in family groups (Smithsonian Accessibility Program, 2001). The Smithsonian Guidelines for Accessible Exhibition Design offers clear guidelines or accessibility standards that are to be met by every exhibition presented at or by the Smithsonian, along with design tools or methods for achieving those standards (Smithsonian Accessibility Program, n.d. b). For example, in regards to exhibition content, the guidelines state that exhibitions must make exhibit content accessible at multiple intellectual levels and present information to all the senses. A provided method for achieving this in a history exhibition includes the use of a captioned video and narrative description on the wearing of period garments, along with a hands-on room where visitors can try on the garments. In order to provide accessible exhibitions for people with disabilities that are also beneficial to the rest of the public, guidance and design tools are provided for the areas of exhibition items and content, label and text design, audiovisuals and interactive exhibits, circulation route, furniture, color, lighting, public programming spaces, emergency egress, and children's environments (Smithsonian Accessibility Program, n.d. b).

Accessibility and the National Park Service

The Harpers Ferry Center (HFC) is responsible for the overall management and direction of interpretive media for the National Park Service (NPS), ensuring that accessibility is incorporated to the highest extent possible (Harpers Ferry Center Accessibility Committee, 2012). The Programmatic Accessibility Guidelines for National Park Service Interpretive Media (2012) prepared by the HFC Accessibility Committee, combines laws, policies, and best practices for interpretive design and presentation solutions.

The Programmatic Accessibility Guidelines contains specific guidelines for all interpretive media types. Some of their guidance includes references to requirements for accessible interpretive media. For audiovisual programs, the Department of the Interior requires the following:

That all new programs created after January 2009 be produced with open captions or subtitles... that are displayed on screen at all times. Programs created with closed captions before this date can continue..., but the closed captions must be opened and displayed on screen or on a caption board at all times. (Harpers Ferry Center Accessibility Committee, 2012, p. 14, para. 2)

Caption boards already in use do not have to be replaced, however, based on the current U.S. Department of the Interior Civil Rights Directive No. 2008-05, they should no longer be installed. From the Civil Rights Directive No. 2008-05, reasons for mandated open captioning include staff time and effort involved with turning captioning on/off in a timely manner for people with disabilities, along with switches becoming easily broken

or tampered with, causing a possible period of non-compliance. The importance of open captions is described within the Programmatic Accessibility Guidelines (Harpers Ferry Center Accessibility Committee, 2012), as they allow viewers with hearing loss to participate fully when watching an audiovisual program without the need to self-identify. The Programmatic Accessibility Guidelines further state that the use of printed scripts is not an acceptable alternative to the required open captioning, however copies of scripts should be available upon request and on park website. Assistive listening systems and audio amplification shall be provided for any audiovisual programs or tours. Transcripts for ranger-led programs are to be available, in addition to qualified sign language interpreters with reasonable advanced notice. The use of assistive listening systems is also ideal for tours in noisy environments (Harpers Ferry Center Accessibility Committee, 2012). Each park's accessibility site bulletin and newspaper shall "note the availability of programs that provide qualified sign language... interpretation, captioning, transcripts, and assistive listening devices" (Harpers Ferry Center Accessibility Committee, 2012, p. 71, Publications guidelines: hearing section, para.1), along with information on how to obtain these services.

Exhibits are multi-media experiences that allow visitors to move freely at their own pace. As amended, Section 508 of the Rehabilitation Act of 1973 requires audio description of video programs used in exhibits (Harpers Ferry Center Accessibility Committee, 2012). For any exhibits with audio components, the guidelines recommend assistive listening systems and either open captions or a printed text alternative. Video programs with no audio shall be identified as such.

The Programmatic Accessibility Guidelines (Harpers Ferry Center Accessibility Committee, 2012) state that training in regards to accessibility issues should include NPS staff, volunteers, park partners, and others. A training guide should be developed for “management, maintenance, repair, and distribution of accessibility programs and equipment for visitor use” (Harpers Ferry Center Accessibility Committee, 2012, p. 80, para. 1). Sensitivity training should also occur in regards to accessibility issues, including basic courtesy and correct terminology.

Shteir (2007) discusses the progress made by the National Park Service in regards to providing access for people with disabilities, due to the passing of the Architectural Barriers Act of 1968, the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. Shteir (2007) gave the example of an inaccessible tide pool or cliff dwelling in a canyon that could be made accessible through a film in a visitor center or a tactile model of the cliff dwelling. Another example in Shteir (2007) is at Cabrillo National Monument, where the play *Voyage of Cabrillo* has been staged with the use of ASL interpreters.

In 1999, the National Park Service began a “NPS National Accessibility Achievement Awards” program that consists of national and regional awards for several categories of achievement including sustained park accessibility achievement, accessibility leadership achievement, programmatic accessibility achievement, architectural design project achievement, interpretive design project achievement, accessible website achievement, volunteer accessibility achievement, and concessioner accessibility achievement (National Park Service, n.d. d). These awards were created “to

stimulate and reward creative thinking and original program/project activity... that result in greater opportunity for persons with disabilities throughout the NPS” (National Park Service, n.d. d, p. 1). Natchez National Historical Park won the 2005 NPS Accessibility Achievement Award for its incorporation of tactile models of buildings, available interpretive audio tracks with displayed narration, a narrated touch screen program that cues to hand-held MP3 players, and three large etched-glass panels with diary and sketch entries, allowing visitors to feel the contours of the lines drawn (Shteir, 2007). More recently, Sagamore Hill National Historic Site was awarded the National Programmatic Accessibility Achievement Award for 2012 for developing a narrated video tour of the Theodore Roosevelt home along with an accompanying photograph book. This award recognizes efforts in the development or improvement of programs and services that embody the concepts of inclusion and universal accessibility (National Park Service, Sagamore Hill National Historic Site, 2013).

Cayton (2010) describes the history of sign language interpretation at Yosemite National Park. During the 1979 summer season, a Deaf Services Coordinator was made into a permanent position. To date, Yosemite is the only national park to establish a position to facilitate a deaf services program. With the establishment of this position, suggestions on ways to set up the program were accepted, which included developing a script for the visitor center slide show, displaying park signs advertising the availability of services for visitors who are Deaf, and organizing a camping trip with people who are Deaf. The first park Deaf Services Coordinator also “set up a TTY (teletype phone device), taught sign language to staff in three park locations, interpreted weekly

scheduled ranger programs... [and] offered a weekly sign language class for hearing visitors called ‘Sign Language for Lunch’ ” (Cayton, 2010, p. 11). Other features since added to Yosemite include TTYs installed at several pay phones throughout the park, training the law enforcement rangers on working with people who are Deaf, and being present in uniform at Deaf community events to advertise the park sign language interpreting services. In 2006, funding was available to purchase Assistive Listening Devices (ALDs) for hard of hearing visitors. In 2009, the Deaf Services Coordinator began the process of obtaining a videophone for the deaf services’ office, and for locations around Yosemite Valley. This technology is useful since cell phone service is limited in the valley and surrounding areas (Cayton, 2010). In 2008, Yosemite’s deaf services program won the National Park Service Programmatic Accessibility Achievement Award, in response to the 2006 additions of ALDs throughout the park and continued community outreach by deaf services program staff. Park programs are announced to local, state and national deaf organizations, specifically the California School for the Deaf, which comprises a high number of visitors with hearing limitations (National Park Service, Yosemite National Park, 2008).

Although the National Park Service is improving accessibility, a panel of park visitors who are disabled testified about their experiences before the U.S. House Subcommittee on National Parks, Recreation and Public Lands in 2006 (Shteir, 2007). A statement was made by Janice Schacter, the Chair of the Hearing Access Program of the Hearing Loss Association of America, on behalf of her daughter who is hard of hearing (Disability access in the National Park System, 2006a). In general, their family found

varied levels of access while visiting national park units, and anticipating the level of access ahead of time was difficult as park websites did not always reflect what was actually available. In one instance, their family decided not to return to Ellis Island as a result of no available ALDs for the films. Only some of the films were captioned. She further testified that on a trip to Gettysburg they experienced no captioning or ALDs for the introductory film, along with being told that their system broke last year and had not been fixed. In addition, they found captioning on a park film in Mammoth Cave National Park was available, but was very small and difficult to read. In her testimony, Schacter stated that the parks appear to be stretched financially and have endured personnel cutbacks, but that “lack of finances is not an excuse for inappropriate access” (Disability access in the National Park System, 2006a, “Statement of Janice Schacter,” para. 12). Another statement provided by James McCarthy, Director of Governmental Affairs of the National Federation of the Blind, said that people who are blind tend not to want specific changes to the built or natural environment as they generally are done by “individuals who do not actually know the capacities of blind people, and they don’t ultimately therefore meet our needs” (Disability access in the National Park System, 2006b, “Statement of James McCarthy,” para. 3). This speaks to the need for inclusion of persons with disabilities on planning committees. In response to the oversight hearing, the National Park Service issued a memorandum acknowledging that the NPS is failing to meet the minimum level of access required by Federal Law, and outlined four critical areas where improvement is needed:

The NPS must ensure that all new constructed assets are designed and constructed

in compliance with the appropriate standards or guidelines... ensure that all rehabilitation and renovation projects incorporate accessibility corrections to the highest degree practicable... ensure that all interpretive programs, services, and opportunities are provided in such a way as to ensure that they are accessible to all individuals with disabilities... ensure that appropriate staff receives the necessary continuing education and technical assistance to... better understand the legal requirements for accessibility, as well as the methods and techniques to more effectively meet the needs of citizens with disabilities. (National Park Service, 2006a, p. 2)

It is suggested that park units contact their Regional Accessibility Coordinator for assistance in meeting these requests. An additional 2006 memorandum focusing specifically on audio-visual accessibility articulates the NPS initiative to use fee revenue dollars in the fiscal year 2007 to improve accessibility of audio-visual programs, which was in response to the testimony received from the Congressional oversight hearing (National Park Service, 2006b, October). Stated within this memo is the goal that all national park units will show films that are captioned and audio-described, and have Assistive Listening Devices available in assembly areas by January 2008 (National Park Service, 2006b, October).

Pease (2011) conducted a literature review of articles pertaining to underserved groups and their relationship to parks, monuments and other recreational areas as part of a NPS Evaluation of Interpretation and Education Services. Along with various ethnic groups, people with disabilities were also included as an underserved population, though

Pease noted that most of the research in interpretation and parks journals in the last decade pertains to the use of parks by people with visual impairments. Pease notes an article relating to hearing impairments, where the author (Medlock, 2003) encouraged interpreters to wear a “set of soundproof ear protectors and check their own facilities and programs, seeing how interesting and communicative they are to those who are deaf or hard of hearing” (Medlock, 2003, as cited in Pease, 2011, p. 46).

The Superintendent of the Chesapeake & Ohio Canal National Historical Park requested that the Harpers Ferry Center (HFC) evaluate the final design of two new visitor centers in terms of accessibility (National Park Service, Chesapeake & Ohio Canal National Historical Park, 2007). A focus group of accessibility specialists was created that included members with sight and hearing impairments. The Principles of Universal Design served as the foundation for evaluating both exhibit designs. In addition, a workshop was held that included the accessibility specialists who participated in the focus group, staff from Harpers Ferry Center and Chesapeake & Ohio Canal National Historical Park, representatives from NPS regional offices and two sign language interpreters. For the National Park Service, this workshop was a first for reviewing programmatic accessibility in this dedicated of a manner (National Park Service, Chesapeake & Ohio Canal National Historical Park, 2007).

Stemming from workshop suggestions, specific comments were made to improve accessibility including adjustments to exhibit lighting, amount of text on panels, and the addition of assistive audio, cell phone tours and other audio devices (Harpers Ferry Center, 2007). Also emphasized was the importance of focusing on accessibility as part

of the design process and not as an afterthought. Additionally, exhibits are to be multisensory, providing information in different ways and should appeal to different learning styles, abilities, and interests (National Park Service, Chesapeake & Ohio Canal National Historical Park, 2007).

Smith and Coffelt (2008) conducted an evaluation of exhibit accessibility at the White House Visitor Center. Areas in need of improvement included the following: size of font on exhibit labels; inadequate lighting or contrast of font with background of labels; need for updated orientation panel to include tactile elements or audio program; need for more multi-sensory exhibits; and overall inadequate lighting for general visitor center area (Smith & Coffelt, 2008).

In 2008, a lawsuit was filed against the National Park Service by the Disability Rights Advocates regarding access barriers at Golden Gate National Recreational Area (Disability Rights Advocates, 2014). A settlement agreement was reached in March 2014, and greater access for visitors with mobility and vision disabilities is to be provided. As part of this agreement, staff and volunteers will have to participate in accessibility training and increase their availability to lead guided tours for visitors with disabilities. In addition, they are to create a dedicated maintenance fund to ensure that access features are kept in good condition (Disability Rights Advocates, 2014).

Universal Design

While accessibility is legally mandated, the concept of universal design is not. The term universal design was coined by architect Ron Mace, founder and former director of The Center for Universal Design at North Carolina State University (The

Center for Universal Design, 2008).

Universal design is “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Connell et al., 1997, para. 1). Universal design takes into consideration “the wide spectrum of human abilities. It aims to exceed minimum standards to meet the needs of the greatest number of people” (Skulski, 2007, Accessible Design vs. Universal Design section, para. 3). This concept is different from accessible design, which describes a site or facility that complies with the minimum accessibility standards to satisfy specific legal mandates or code requirements (Skulski, 2007).

The seven Principles of Universal Design were developed to guide the usability of products, environments and communications (Connell et al., 1997) and are as follows:

- *Equitable use:* The design is useful and marketable to people with diverse abilities;
- *Flexibility in use:* The design accommodates a wide range of individual preferences and abilities;
- *Simple and intuitive use:* Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level;
- *Perceptible information:* The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities;

- *Tolerance for error:* The design minimizes hazards and the adverse consequences of accidental or unintended actions;
- *Low physical effort:* The design can be used efficiently and comfortably and with a minimum of fatigue; and
- *Size and space for approach and use:* Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility. (para. 4-10)

It is suggested that these principles “may be applied to evaluate existing designs, guide the design process, and educate both designers and consumers about the characteristics of more usable products and environments” (Connell et al., 1997, para. 2).

The National Park Service also recognizes the concept of universal design. The Programmatic Accessibility Guidelines for National Park Service Interpretive Media (Harpers Ferry Center, 2012) references the NPS 2006 Management Policies, which guides park facilities toward the incorporation of universal design principles in order to provide accessibility for all. The guidelines further state that all planning should be guided by universal design principles, particularly the first principle of equitable use. For this principle, it is expected that “the same experience can be provided for all users, without segregating or stigmatizing others with special accommodations or the need to ask for the special accommodations” (Harpers Ferry Center Accessibility Committee, 2012, p. 7, para. 1).

Application of Universal Design

In academic settings, the Principles of Universal Design are applied to planning, instruction, and evaluation, allowing inclusive attributes to accommodate learners in a manner that doesn't exclude learning or comprise of academic standards (Darrow, 2010). Darrow (2010) provides examples for in the classroom that can include real-time captioning of lectures for students, use of text-to-speech technology, or tactile graphs and maps for students with vision losses.

The Massachusetts Department of Conservation and Recreation has developed a Universal Access Program to provide recreational opportunities for visitors of all abilities in Massachusetts State Parks (Massachusetts Department of Conservation and Recreation, 2009). Using adaptive recreation equipment, a variety of opportunities are available. For those who want to hike, adaptive equipment includes mountain wheelchairs, push joggers, walkers, hiking sticks, and gait belts. Adaptive cycling includes the opportunity to use various cycle designs such as hand cycles, wheelchair tandems, and trikes. Adaptive equipment is also available for boating and skiing. Birding is made more inclusive through the use of large print field guides, folding chairs, Assistive Listening Devices (ALDs), and accessible locations. American Sign Language interpreters and ALDs may also be available for interpretive programs with advance notice (Massachusetts Department of Conservation and Recreation, 2009).

As part of a national workshop on recreation research and management, Winter (2005) discusses equity in access to recreation opportunities within the U.S. Forest Service. Winter addresses the role of the U.S. Forest Service in engaging and informing

the public about recreation opportunities, constraints experienced by people with disabilities, women, and people of various ethnic groups, and strategies to address inequity (Winter, 2005). Winter quotes Devine et al. (1998) in saying that “inclusion is an ongoing process requiring constant evaluation and modification” (pg. 176). Winter (2005), quoting Westland (1985), suggests that

equity in recreation opportunities and services will only come about through a force of will, adoption of policies that encourage and mandate equality, and personal commitment among agency personnel to actively seek and support actions that make up the building blocks of equitable service delivery. (p. 176).

Technological advances in accessibility

Since the passing of the Americans with Disabilities Act of 1990, facilities across the nation are beginning to make changes to their level of accessibility. Even in countries outside the United States, accessibility is becoming an area of focus. Ruiz, Pajares, Utray and Moreno (2011) provide an outline of the MGA (Multimedia Guides for All) approach, which applies the Principles of Universal Design to allow access to mobile contents for all users equally. These guidelines were developed as part of a project to create a portable and interactive multimedia device that will guide visitors through places like museums. Once developed, the device would share information through different media (text, images, video, audio, etc.) and be adaptable according to the visitors’ differing sensory and cognitive abilities (Ruiz et al., 2011).

The British corporation Antenna Audio made the first sign language guide available to the public in the London Tate Museum in 2003 (Ruiz et al., 2011). This sign

language guide allows users to see video of signed interpretation with captioning for key words or phrases. The company carried out a survey to evaluate the sign language guides and found that 78% of visitors who used the guide stated that it enriched and improved their visit (Proctor, 2005). These sign language guides can also be found in museums such as the Wax Museum in London, the Versailles Palace, and the Reina Sofia National Centre of Art in Madrid.

Acoustiguide has offered audio guides since 1957, which originally were presented on a portable reel-to-reel player (Espro Acoustiguide Group, 2014a). Currently, under the label Espro Acoustiguide Group, they offer interpretive products accessible from various devices including cell phones, multimedia players, and the Internet. Programs have been developed for museums and heritage sites, city sightseeing tours, and corporate sites and events. The Espro Acoustiguide Group (2014a) also produces special programs for international visitors, virtual visitors, kids, teens, families, and visitors with visual and hearing impairments. In 1993, they introduced the world's first digital wand player at the Louvre, in Paris, allowing visitors to choose their own path at their own pace, in lieu of following a linear tour on a predetermined route. Among their users is Kennesaw Mountain National Battlefield Park (Espro Acoustiguide Group, 2014b).

Another technological advancement is the UbiDuo system created by sComm in 2006 (sComm, 2013). The UbiDuo enables face-to-face conversation through typing by means of two identical keyboard units whose display monitors face towards the other user (Accessible Technology Coalition, 2014). Going beyond slow communication

methods between people who are deaf and hearing, such as paper and pen or sharing of a single text-capable device (phone or laptop), the UbiDuo allows for free-flowing conversation. Fonts and background colors can also be adjusted to aid those with vision loss (Accessible Technology Coalition, 2014).

Barriers to inclusive recreation and strategies for overcoming barriers

Germ and Schleien (1997) interviewed Minnesota's key community leisure service agencies to identify the inclusive practices employed and barriers encountered in serving people with disabilities. Agencies included Minnesota park and recreation departments, community education departments, YMCAs and YMCA camps, and Jewish Community Centers. Administrators and supervisors reported financial constraints more so than any other barrier (Germ & Schleien, 1997). Difficulties were encountered in securing additional funding for hiring and training personnel, budgeting for new programs, identifying new funding sources, and persuading city councils on proposed allocations of resources for inclusive programming. Administrators, supervisors, and program instructors also believed staff attitudes to be an issue (Germ & Schleien, 1997). For the participants in this study, fear was the major attitudinal barrier for staff in terms of having additional responsibilities for persons with disabilities, failing to provide a quality program for all, and overcoming internal attitudes towards people with disabilities. Germ and Schleien (1997) stress the need for increased attention to staff training, including any program instructors or volunteers that may have minimal duties or present only a few programs, as well as the importance of administrator involvement with

inclusive programming, as it is difficult to facilitate programs without any actual experience with the program itself.

From a National Park Service perspective, Chief Interpretive Ranger Karl Pierce of Cabrillo National Monument listed several barriers to making parks more accessible including: adequate funding, staffing, time, and technological limitations (Shteir, 2007). Within proceedings from a national workshop on recreational research and management held by the U.S. Forest Service, Winter (2005) shared general constraints experienced by people with disabilities as discussed by Aitchison, 2003 and Devine and Broach, 1998: administrative (lack of staff to conduct programs for people with disabilities); physical (environmental or architectural barriers); and attitudinal (stereotypes that recreation personnel hold).

Coco-Ripp (2005) looked at the importance of inclusive recreation and barriers to providing such recreation. Inclusive recreation was defined as providing services that offer everyone involved a full range of choice, social connections and support as well as the opportunity to reach their potential. As part of her literature review, she cited a national survey by Devine and Kotowski (1999) which found that financial restraints, lack of training, and the role of qualified staff were limiting factors to implementing inclusive recreation. Overall, Coco-Ripp (2005) identified three areas that are problematic when providing recreation for people who are deaf: communication, deaf identity and social skills. Difficulties with communication lie within the ongoing need for effective communication, along with the specific terminology required with many recreational programs. Differing perspectives on deaf identity (ranging from a model

defining deafness as a medical disorder, a distinct cultural group, or a model of interactions between the individual and society) creates differences in the level of services provided. Maintaining an open dialog about perspectives of deaf identify can enhance inclusive recreation (Coco-Ripp, 2005). Social skill development can be hindered between the deaf and hearing, as seen with youth in a formal academic setting in terms of social barriers, magnified with the use of an interpreter or general hallway distractions. This provides an opportunity for recreation to step in and help foster connections not made during school. A study by Luckner and Stewart (2003), as cited in Coco-Ripp (2005), reported that successful adults who are deaf found that self-determination and family involvement were part of their social success, values that can be incorporated into recreation. Bedini & Stone (2000), cited by Coco-Ripp (2005), suggest effective and frequent training programs for staff, parents, advocates, volunteers and others involved in recreation, teaching awareness of deaf identify in recreation and enhancement of opportunities for social skill development.

With staff training mentioned as one barrier to accessibility, there are several online training opportunities available that could help overcome this barrier. The Eppley Institute for Parks and Public Lands is an outreach program conducted by Indiana University-Bloomington that provides planning and design services, training and education, and research and assistance for park, recreation, and public land management operations (Eppley Institute for Parks and Public Lands, n.d. a). Two of their courses focus on accessibility. The Universal Design Course provides a definition, explains major concepts and guidelines for each of the seven Principles of Universal Design, and

distinguishes between universal design, accessibility, and barrier-free design. The Program Access Course explores access as a beneficial and necessary component of providing meaningful experiences for people with disabilities. Examples of integrated services and methods of program access implementation are also provided. These two courses complement a range of courses offered for facility management, interpretation, recreation, resource management, and leadership (Eppley Institute for Parks and Public Lands, n.d. b).

Other training opportunities include distance learning webinars through the National Center on Accessibility (National Center on Accessibility, n.d.). One of these webinars, Program Access in Parks, Recreation and Tourism, addresses how program standards set within the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973 apply to parks, recreation and places of tourism. The Transition Planning: The Dynamic Process for Parks, Recreation and Tourism webinar addresses how to begin developing transition plans for the removal of architectural and communication barriers to participation by people with disabilities in light of standards set within the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973.

Access, driven by legislative laws and guidelines, has been narrowed by people to thinking more along technical solutions rather than also along a broader social context. Burns, Paterson and Watson (2009) studied motivations for outdoor recreation and found that for some people who are deaf, the outdoors provided an escape from the frustrations of communication, as the outdoors provided a means to manage such emotions. They concluded that it is important to understand not only the physical barriers present for

disabled people to recreate outdoors, but also the reasons of how and why people wish to access the outdoors. Burns, Paterson and Watson (2009) stress that there are more than structural changes that need to happen at a facility (ramps, captions), such as understanding the social context and needs of people with disabilities while recreating.

The following studies attempt to begin understanding visitor perspectives as it relates to recreating in a national park unit. The National Center on Accessibility, established at Indiana University through a cooperative agreement with the National Park Service, sponsored a study to identify the perceptions of people with disabilities relative to program and physical accessibility in the NPS (Chen, 2001). Visitors to five national park units were surveyed including Great Smoky Mountains National Park, Blue Ridge Parkway, Shenandoah National Park, Mammoth Cave National Park, and Hot Spring National Park. This survey was a first of its kind, as it focused on the perceptions and expectations of visitors regarding individual park accessibility (Chen, 2001).

The results of Chen (2001) showed that visitors indicated deciding to visit parks less than a month in advance, yet park units typically require a month's notice for providing a sign language interpreter. Additionally, visitors with hearing impairments ranked several elements for communication accessibility on a scale of 1 (not a problem), 4 (neutral), to 7 (major problem). For all the parks excluding, Great Smoky Mountains, lack of telephone volume amplifiers, lack of Assistive Listening Devices (ALDs), lack of TTY, and lack of appropriate communication systems were ranked as not a problem or neutral. For Great Smoky Mountains, lack of telephone volume amplifiers and ALDs

were seen as slight problems, while other items were neutral. The majority of all participants for each park responded that they did not know if the park had a TTY.

The majority of respondents in Chen (2001) indicated that information on park accessibility was readily available, though for Mammoth Cave only 50% responded that information was readily available. Participants indicated obtaining information on park accessibility using the Internet, as well as the visitor center or ranger station, or a call to the park. Visitor participants in this study offered suggestions for accessibility improvement, including hiring individuals with disabilities as consultants of park management teams, understanding the needs of individuals with disabilities, and additional funding to make improvements (Chen, 2001).

As most respondents stated that they did not know if the park had a TTY, it may signify a need to improve communication of services and/or signage within the park about what services are available. Though the number of respondents was low, this study is unique in that it gathered information about accessibility in individual national park units from the people who would potentially utilize the accessible services (Chen, 2001).

The Colonial National Historical Park operates a shuttle service from the Colonial Williamsburg Visitor Center and the Historic Jamestown Visitor Center to several destinations within the national historical park. On the shuttles, historical interpretation is provided through means of an audio system, and visitors were surveyed about the audibility and usefulness of this audio programming (National Park Service, Colonial National Historical Park, 2010). A survey of shuttle users was administered by the John A. Volpe National Transportation Systems Center to gain information on shuttle use and

visitor satisfaction levels of the service.

Shuttle riders expressed somewhat lower levels of satisfaction with the audio programming than with other aspects of the shuttle service (frequency and reliability of services, number of historic sites stopped at, ease of finding stops, and understanding schedule and route information). Open-response questions allowed visitors to elaborate on any points of dissatisfaction, and of those who responded with comments, 57% directly addressed the audio programming, expressing frustration with the audio programming on the bus (National Park Service, Colonial National Historical Park, 2010).

These studies suggest services may not be sufficiently meeting the needs of visitors to these areas. Dissatisfaction may actually be higher, as visitors with disabilities may choose to not visit a park unit (and thus not participate in these research studies) due to anticipating lack of accommodations or having had prior experience where needs were not met.

Chapter Three

METHODOLOGY

Introduction

The purpose of this descriptive study was to explore the interpretive accommodations provided to National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH). This study surveyed Chiefs of Interpretation from NPS units to provide a description of the interpretive accommodations provided at individual park units and collectively as an agency. Findings from this study provide an overview of the level of interpretive accessibility available to visitors who are d/Deaf or HoH, and thus provide guidance as to where additional resources and services are needed. This study was guided by the following research questions:

- 1) How do NPS units accommodate for visitors who are d/Deaf or HoH within their provided front-country interpretive services?
- 2) What guides NPS units provision of interpretive accommodations for visitors who are d/Deaf or HoH?
- 3) Do NPS units perceive they are sufficiently providing interpretive accommodations for visitors who are d/Deaf or HoH?
- 4) What barriers do NPS units face relating to interpretive accommodations for visitors who are d/Deaf or HoH?

Research Design

This quantitative study utilized a cross-sectional design in the form of a self-

administered survey, comprised primarily of close-ended questions. The survey was administered online, as it allowed for data collection from a greater number of National Park Service units in comparison to what would be reasonably have been attained by gathering data via telephone or personal interviews. Additionally, the online survey allowed respondents to take the survey at a time most convenient for them, and helped to maintain respondent anonymity.

Participants

The population of interest for this study was the Chiefs of Interpretation from all 401 (as of March 2014) National Park Service (NPS) units, as these are the NPS employees with likely the most familiarity with interpretive accommodations at their respective park units. However, if the Chiefs of Interpretation felt another employee could better answer the survey, they were given the option for passing the survey on to an employee with more in-depth knowledge of interpretive accommodations. Sampling was not needed as the original population of interest (N=401) was feasible for this survey.

A total of 226 responses were collected for the survey (from 401 NPS units), for a 56.4% response rate. Table 1 displays the NPS units represented among the respondents. Tables 2 and 3 display the approximate distance of responding NPS units from a population center (50,000-70,000 or more people) and from a major community of people who are d/Deaf or HoH, such as a city or an area that have schools which serve students who are d/Deaf or HoH. Annual visitation to the responding NPS units' visitor centers (combining numbers of visitors to all park visitor centers if more than one in park) is seen in Table 4 (n=210).

Table 1

Type of NPS units participating in survey

Type of NPS unit	Number of respondents ^a
National Historical Park/Site	58 (37%)
National Park	40 (26%)
National Memorial/Monument	22 (14%)
National Battlefield/Military Park/Site	10 (6%)
National Recreation Area	9 (6%)
National Lakeshore/Seashore	5 (3%)
International Historic Site	3 (2%)
National Preserve/Reserve	3 (2%)
National River/Wild and Scenic River and Riverway	3 (2%)
Other Designation	2 (1%)
National Parkway	1 (1%)
National Scenic Trail	0 (0%)

^an = 156

Table 2

Distance of NPS units from population center

Distance from population center	Number of respondents ^a
Site located within a population center	65 (31%)
60 miles or less (1 hour or less)	62 (29%)

61-180 miles (1-3 hours)	60 (29%)
Over 180 miles (over 3 hours)	23 (11%)
^a n = 210	

Table 3

Distance of NPS units from major community of people who are d/Deaf or HoH

Distance from major population center	Number of respondents ^a
Site located in city with a major community of people who are d/Deaf or HoH	42 (20%)
60 miles or less (1 hour or less)	33 (16%)
61-180 miles (1-3 hours)	43 (21%)
Over 180 miles (over 3 hours)	28 (13%)
Not sure	64 (30%)
^a n = 210	

Table 4

Annual number of people entering park's visitor center

Visitation levels to visitor center	Number of respondents ^a
Less than 20,000	31 (15%)
20-45,000	43 (21%)
45-100,000	51 (24%)
100-250,000	34 (16%)
250-500,000	27 (13%)

From 225 respondents to this questionnaire item, 223 (99%) indicated that their NPS unit offers non-personal interpretive services such as movies, brochures, publications or visitor center exhibits. From 210 respondents to this questionnaire item, 205 (98%) indicated that their NPS unit also offers personal interpretive services such as ranger led programs or hikes (programs going beyond informal contacts made at visitor center or while roving).

Instrumentation

The survey instrument was developed specifically for this study. A total of 44 questions, both closed and open-ended, were used to gather information regarding interpretive accommodative services provided, guidance for interpretive accommodations, perceptions as to the quality of services provided, and barriers to the provision of interpretive accommodations for each NPS unit. The survey also included general questions about the NPS units' proximity to population centers, visitation levels, budget and overall interpretive services. Survey questions were chosen by the researcher based on the review of literature and personal experience working in the NPS.

A panel of three experts reviewed the survey for content validity. This panel included one with expertise in survey design, one with expertise in accommodations for persons who are d/Deaf or HoH, and one Chief of Interpretation in the NPS. Based on their feedback, survey questions were revised before being administered to the population of interest. Feedback from the Chief of Interpretation included the suggestion to contact

the Washington D.C. Office, Division of Interpretation and Education to make them aware of this study. Consequently, contact was made with the current NPS Associate Director for Interpretation and Education, who viewed the study as relevant and useful (J. Washburn, personal communication, February 10, 2014). Permission was granted to refer to this NPS Associate Director's positive sentiments in the recruitment e-mails sent to NPS units; however it would remain clear in the invitation that this study was an independent study conducted by a graduate student at a university and that the study was not being conducted on behalf of or for the NPS. Contact was also made with the Director of Education and Technical Assistance at the National Center on Accessibility, via the NPS Associate Director, who provided survey feedback (R. Bloomer, personal communication, February 19, 2014).

The Institutional Review Board (IRB) of the University of Minnesota reviewed the research proposal and survey prior to administration. Survey administration, via the online platform Qualtrics, followed a pattern similar to that used by Kwak and Radler (2002). An introductory e-mail was sent out, informing participants about the study and asking for their compliance in participating in the survey. To increase the response rate, a follow-up email was sent out seven calendar days after the initial survey. A final email was sent out to thank the park service staff for participating in the survey and to provide a final opportunity to complete the survey. All e-mails were sent out with a link to the survey, along with a consent form. Participants had 18 days to complete the survey.

While the initial recruitment plan entailed using a publicly available listing of emails for Chiefs of Interpretation from the online National Park Service Directory

(National Park Service, 2000), changes within the NPS email system made these emails no longer publicly accessible. With IRB notification and approval, the invitation to participate was emailed through a general email address for each NPS region (7 regions total) that would directly contact all the Chiefs of Interpretation for that specific region. However, e-mails were returned upon attempting this method.

Thus, with IRB notification and approval, the invitations to participate, consent information and survey link were sent to the Superintendents of each NPS unit, as a list of their names and respective park units was publicly available. The initial e-mail was also sent to the general park information email address for each NPS unit, found on the homepage of each NPS unit. Superintendents and/or the email attendant were asked to forward the email to the Chief of Interpretation. The follow-up and final e-mail were sent to the general park information e-mails only. Those receiving these e-mails were asked to forward the information to the park units' Chief of Interpretation. If a Chief of Interpretation happened to oversee interpretation at two units, they were provided with information as to how to take the survey twice (once on behalf of each unit). Two hundred and twenty-six responses were received, for a response rate of 56.4%.

Data Analysis

Overall data analysis was guided by the overarching research questions. Descriptive statistics were used to analyze the data from closed ended questions. Non-numeric data acquired through open-ended questions was reviewed, clustered into categories of similar responses, and used to add insight to the data obtained through close-ended questions. Correlational analyses were also used with several of the closed-

ended items to determine if relationships existed among items.

Limitations

Within survey research, validity is often weak while reliability is strong (Babbie, 2011). Reliability of the survey can be managed with the standardization of the survey. Each respondent received the same survey to complete, and advanced preparation of the survey allowed for careful wording and question organization to reduce the subject's own unreliability (Babbie, 2011). The following are several areas discussed by Babbie (2011), where validity may have been threatened in this study. Standardization of questions may have resulted in missing site-specific information. However, responses for closed-ended questions were exhaustive in attempts to alleviate this issue. Additional information was also obtained via open-ended questions. The written survey was inflexible, and could not be modified once the data collection process had begun, regardless of any new details that arose. It was expected that by forming a panel of experts to review the survey, any areas of the survey lacking clarity or opportunities to capture information would be identified.

In addition, artificiality of results may have occurred as respondents may not have been aware of whether their park unit offers a specific accommodation or not, though they still may have answered the question. Respondents may also have felt that their park unit was being looked at critically, and may have provided a more favorable response. The purpose of this study was made clear in the sent e-mails, so as to avoid any threat to park units that may only provide minimal accommodations. Allowing the Chiefs of Interpretation to pass the survey on to a fellow staff member who was more

knowledgeable about interpretive accommodations for visitors who are d/Deaf or HoH may also have reduced the artificiality of results. However, as the survey was not able to reach the Chiefs of Interpretation through their direct e-mail, responses to questions may have been provided by someone less familiar with interpretive operations.

Chapter Four

RESULTS

The results will be discussed in context of the study's over-arching research questions.

1) How do NPS units accommodate for visitors who are d/Deaf or HoH within their provided front-country interpretive services?

Survey participants were asked whether their park had offered programs specifically for visitors with disabilities within the last year. Of 224 respondents to this question, 59 respondents (26%) indicated they had, and 165 respondents (74%) had not. When asked if their park had offered programs specifically for visitors who are deaf or hard of hearing within the past year, most had not (179 of the 223 respondents, 80%, had not).

While 16 of the 224 respondents indicated their park units provide no interpretive accommodations, most respondents indicated at least one accommodation for visitors who are d/Deaf or HoH. The most frequently provided accommodation was open/closed captions (see Table 5). As noted in Table 5, 183 park units had open/closed captioning; of those, the majority (158 respondents, 71%) used on-screen captioning, and the remaining used captioning on a separate reader board. For those using on-screen captioning, the majority used open vs. closed captioning (128 respondents, 81%). Of the 37 respondents indicating their park units did not have open/closed captioning, 26 indicated not having a park film and thus not needing open/closed captioning.

Table 5

Accommodations provided for visitors who are d/Deaf or HoH

Accommodation	Frequency of respondents indicating their park unit provides the accommodation ^a
Open/Closed Captions	183
ALDs for visitor center use (exhibits, films)	133
Sign language Interpreter (on request)	56
Printed scripts of programs	35
Portable ALDs for walks, talks, tours	31
Volume Controlled Phones	29
Visitor Center TDD, TTY	24
Sign language Interpreter (on-site)	12
Public use TTYs	6
Printed scripts of films/audio components	5
Videophones	3
Mobile device tour/apps	3
Acoustiguide	1
UbiDuo	1
Sound system for special programs	1
Provide a ranger	1
Website	1
Self guided walking tour brochures	1
Vision Impaired exhibits/accommodations	5

^arespondents could check all that apply; n = 224.

The second most frequently provided interpretive accommodation was Assistive Listening Devices (ALDs) (see Table 5). Of the 147 respondents (66%) whose park units have exhibits with audio components, 128 respondents (88%) indicated that accommodations are available. However, many respondents indicated they were unsure if they had (44 respondents, 21%) or did not have (117 respondents, 55%) standard operating procedures for maintaining their ALDs or other accommodation equipment.

A sign language interpreter upon request was the third most frequently provided interpretive accommodation for visitors who are d/Deaf or HoH. Of the 56 respondents who indicated providing a sign language interpreter upon request (see Table 5), 27 (12%) required less than a week's notice; 33 (15%) required two weeks; and 15 (7%) indicated their site required three weeks or more. In addition, most park units indicated being able to meet requests for a sign language interpreter (180 of 213 respondents, 85%). For the 33 respondents (15%) unable to meet requests for sign language interpreters, the most frequent reason was the request for an interpreter was made with too short of notice. In addition, the following reasons were also stated: sign language interpreter was not available; park unit in remote location/no interpreters in area; do not offer that service; no one qualified on staff; never had received a request in the past; and no funding available.

Respondents who indicated providing some level of interpretive accommodative services for visitors who are d/Deaf or HoH were asked how they communicate the availability of these services. Of the 212 respondents to this question, most indicated using their park website (155 respondents) or signage posted in the visitor center (141 respondents); see Table 6. Other responses for communication of available services

included Trip Advisor narrative, news releases, handouts, and a partnership with the State School of the Deaf and State School of the Blind.

Table 6

Methods of communication used for available interpretive accommodations

Method of communication	Frequency of respondents indicating their park unit uses method of communication for availability of accommodative services ^a
Park website	155
Signage posted in visitor center	141
Park brochure	111
Social media	85
Park newspaper	54
Public outreach	49
Other	26

^arespondents could check all that apply; n = 212.

One form of interpretive accommodations for visitors who are d/Deaf or HoH includes having trained staff on duty. While most respondents (161 of 224 respondents, 72%) indicated having general accessibility training at their park units, only 63 (28%) indicated having training specifically regarding visitors who are d/Deaf or HoH; see Table 7 for information as to for whom this training is provided.

Table 7

Interpretive staff receiving training specific to visitors who are d/Deaf or HOH

Staff members	Frequency of respondents indicating those who receive training ^a
Permanent employees	58
Seasonal employees	58
Volunteers	40
Interns	36
Other	4

^arespondents could check all that apply; n = 63.

For those that indicated having training specific to visitors who are d/Deaf or HoH, most indicated their training included what resources/services were available in the park to visitors who are d/Deaf or HoH and how to communicate with people who are d/Deaf or HoH (see Table 8).

Table 8

Accessibility topics covered in staff training specific to visitors who are d/Deaf or HoH

Accessibility topics	Frequency of respondents indicating topic is covered within staff training ^a
Available resources/services within park	54
Communicating with people who are d/Deaf or HoH	41
Service animals used by visitors who are d/Deaf or HoH	31
Tools for adapting interpretive programs	26
Information on what it means to be d/Deaf or HoH	20

Legislation pertaining to equal recreational opportunities	12
Instructions to help visitors use ALDs	2

^arespondents could check all that apply; n = 63.

The majority of respondents indicated that they have reviewed their interpretive accommodative services for visitors with general disabilities (146 of 212 respondents, 69%) as well as for visitors who are d/Deaf or HoH (114 of 146 respondents, 78%). From the 114 respondents that indicated they reviewed their interpretive accommodative services for visitors who are d/Deaf or HoH, 64 (56%) indicated that they regularly review those services (once every year or at least once every several years).

2) What guides NPS units provision of interpretive accommodations for visitors who are d/Deaf or HoH?

Respondents were first given an open-ended question that asked them what guides their planning for the provisions of interpretive accommodations for visitors who are d/Deaf or HoH. Their responses are summarized in Table 9. The most frequent responses were Harper's Ferry Center guidance, NPS policies/guidelines, and requests from visitors. Respondents also were asked the degree to which specific guidelines or regulations influence their parks' provision of interpretive accommodations for visitors who are d/Deaf or HoH. The most influential guidance for respondents was the Americans with Disabilities Act ($M = 3.37$, $SD = .88$) and the Harpers Ferry Center Accessibility Guidelines ($M = 3.06$, $SD = 1.02$), which corresponded to a rating of somewhat influential on a 4 point rating scale (1 not at all influential/not familiar with to 4 = very influential). Less influential were the principles of Universal Design ($M = 2.90$,

SD = 1.03), their park Long Range Interpretive Plan (M = 2.72, SD = 1.01), and the Rehabilitation Act (M = 2.42, SD = 1.18).

Table 9

Guidance for planning for the provision of interpretive accommodations for visitors who are d/Deaf or HoH

Means of Guidance	Frequency of use for guidance in provision of interpretive accommodative services ^a
<i>Organizations</i>	
Harpers Ferry Center	18
Accessibility organizations/service centers	3
National Center on Accessibility	2
NPS staff Regional office	2
Local University	1
Partnership with School for Deaf and Blind	1
Universal Design group	1
Best practices shared from other museums and parks	1
<i>Guidelines</i>	
NPS policy/guidelines	18
ADA guidelines	15
General laws, policies, directives	7
Long Range Interpretive Plan	3
Park Accessibility Plan	2

Smithsonian Guidelines for Accessibility	1
<hr/> <i>Assessment</i> <hr/>	
Visitor needs/requests	16
Accessibility assessment	11
Level of demand	3
Annual visitor use survey	1
Ease of use by visitors/staff	1
<hr/> <i>Training/experience</i> <hr/>	
Accessibility training and experience	4
Awareness of requirement for accommodations	1
Staff members dedicated to Accessibility services	1
Staff with hearing disabilities	1
<hr/> <i>Funding</i> <hr/>	
Funding	5
Ability to maintain service into future - sustainability	1
<hr/> <i>Other</i> <hr/>	
Case by case basis	6
N/A	3

^aresponses compiled from open-ended question; n = 104; some respondents indicated multiple forms of guidance

In addition, respondents were asked if their park unit's provision of interpretive accommodations was guided by persons with disabilities. Of 213 responses, 85 respondents (40%) indicated they were, while 88 respondents (41%) indicated they were not, and 40 respondents (19%) indicated they were unsure. Beyond regulations/legislation and guidance from persons with disabilities, results suggest provision of interpretive

accommodations for visitors who are d/Deaf or HoH seem to be influenced by the frequency of requests for services. Respondents were asked about the frequency of requests for services made by visitors who are d/Deaf or HoH, regardless of if the park unit has access to the requested service or not. The majority of respondents (96 respondents, 44%) indicated receiving one request per year, and 89 respondents (41%) indicated receiving requests either less than one a year or no requests. There were respondents who indicated receiving requests more frequently, with 30 respondents (14%) indicating receiving monthly requests, 3 respondents (1%) receiving weekly requests, and 2 respondents (1%) receiving daily requests. There was a significant correlation between frequency of requests and offering programs specifically for visitors who are d/Deaf or HoH ($r = .31, p = < .01$). Further, there were significant correlations between offering programs specifically for visitors who are d/Deaf or HoH and perceived need to provide accommodative services ($r = .16, p = .02$), distance from major community of people who are d/Deaf or HoH ($r = .14, p = .05$), and visitor center visitation ($r = .21, p < .01$). In summary, while park units' provision of accommodative services are influenced by the Americans with Disabilities Act, Harpers Ferry Center Accessibility Guidelines, and in some cases persons with disabilities, park units' offering of programs specifically for visitors who are d/Deaf or HoH seem to be influenced by perceived need, actual need, distance from major community of people who are d/Deaf or HoH, and visitor center visitation.

3) Do NPS units perceive they are sufficiently providing interpretive accommodations for visitors who are d/Deaf or HoH?

Respondents were asked if they have had visitors to their park who are d/Deaf or HoH (n=225). One hundred, ninety-nine (88%) responded that they had, 2 (1%) responded that they had not, and 24 (11%) responded that they were unsure. Respondents were asked how great of need there was to provide interpretive accommodative services for visitors who are d/Deaf or HoH at their park unit. Most respondents indicated somewhat of a need to provide interpretive accommodations (135 respondents, 60%), while 69 respondents (31%) indicated a strong or very strong need. Some respondents indicated that interpretive accommodations were not needed at their park unit (20 respondents, 9%). Perceived need was significantly related to distance from population center ($r = .16, p = .02$), distance from major community of people who are d/Deaf or HoH ($r = .25, p = < .01$), and visitor center annual visitation ($r = .26, p = < .01$). This suggests park units that were closer to population centers or communities of people who are d/Deaf or HoH and units with higher visitor center visitation perceived a greater need to provide interpretive accommodations.

Respondents were asked if they felt their park unit is sufficiently meeting the needs of visitors who are d/Deaf or HoH and if they are providing similar interpretive experiences for both non-hearing and hearing visitors. About a third of respondents felt their NPS units were sufficiently meeting the needs of visitors and providing similar experiences for hearing and non-hearing visitors (65 respondents, 31% and 59 respondents, 28% respectively). Some units indicated they felt they were neither meeting

the needs of visitors who are d/Deaf or HoH (90 respondents, 42%) nor providing similar experiences (89 respondents, 42%), and others were unsure (57 respondents, 27% and 64 respondents, 30% respectively).

Respondents were also asked if they felt the following level of interpretive accommodations for visitors who are d/Deaf or HoH was needed at their park unit: Assistive Listening Devices (ALDs) available for park programs, public videophones, accessibility kits in park hotels, and a staffed Deaf Services Coordinator position. About half of respondents indicated they felt this level of service was needed (103 respondents, 50%) and about one half of respondents indicated they felt this was feasible (113 respondents, 55%). Tables 10 and 11 list reasons as to why and why not respondents felt a high level of services would be needed at their park unit. Tables 12 and 13 provide reasons why respondents perceived this high level of services to be feasible or not feasible. Respondents were asked what one service that they feel would be most important to add to their interpretive operations. The most frequent responses were staff training for interpretive accommodations and ALDs; see Table 14.

Table 10

Respondents' reasons why a high level of services is needed at NPS unit

Reasons why needed	Frequency of respondents indicating reason ^a
Every visitor deserves access to information/interpretation	30
Frequent visitation/requests for accommodative services	16
Interpretive media in need of improved accessibility (ALDs, captions)	10

Legal obligations	5
A Deaf Services Coordinator might better assess actual needs of park	3
Challenge locating interpreter while in remote area	1
^a responses compiled from open-ended question; n = 163; some respondents indicated multiple reasons of why/why not high level of services is needed	

Table 11

Respondents' reasons why a high level of services is not needed at NPS unit

Reasons why not needed	Frequency of respondents indicating reason ^a
Limited requests/low visitation	69
Already have sufficient level of accommodative services	24
Other park priorities	6
Need for general accessibility first	6
Few/no interpretive media with sound	5
Visitors typically arrive with own way of dealing with needs (friends who can interpret)	2
Use of park website, social media, smart phones sufficient	2
Limited storage space for any additional services	2
^a responses compiled from open-ended question; n = 163; some respondents indicated multiple reasons of why/why not high level of services is needed	

Table 12

Respondents' reasons why a high level of service is feasible at NPS unit

Reasons why feasible	Frequency of respondents indicating reason ^a
Current opportunities for facility improvements	14
ALDs feasible equipment to purchase	6
Available expertise (local school for Deaf, staff member with hearing impairment)	4
Funding could be secured	2

^aresponses compiled from open-ended question; n = 145; some respondents indicated multiple reasons of why/why not high level of services is feasible

Table 13

Respondents' reasons why a high level of service is not feasible at NPS unit

Reasons why not feasible	Frequency of respondents indicating reason ^a
Limited budget	34
Limited requests/low visitation	32
Limited staffing	19
Remote location	5
Need for training/awareness of options	4
Limited formal interpretive programming	3
Visitor contact stations located over large area	3
Need for general accessibility first	2
Deaf Services Coordinator better as a collateral duty	2

Other park priorities	2
Minimal pressure from management	1

^aresponses compiled from open-ended question; n = 145; some respondents indicated multiple reasons of why/why not high level of services is feasible

Table 14

Service most important to add to interpretive operations

Service most important accommodation to add	Frequency ^a
Staff training for interpretive accommodations	73 (35%)
ALDs	49 (24%)
Sign Language Interpreter (upon request)	19 (9%)
Printed transcripts of ranger programs	19 (9%)
Open captions	15 (8%)
Sign Language Interpreter (on-site)	12 (6%)
TDD, TTY	5 (3%)
Videophones	4 (2%)
Public use TTYs	3 (2%)
Accessibility assessment of NPS unit	2 (1%)
Advertised sign language interpreted programs	1 (0.5%)
More Universal Design in exhibits, both tangible and online	1 (0.5%)
Volume controlled phones	0

^an = 206; some responses from “other” not included due to lack of relevance

4) What barriers do NPS units face relating to interpretive accommodations for visitors who are d/Deaf or HoH?

To ascertain barriers faced by NPS units, a list of potential barriers was provided for respondents to rate the extent to which they acted as barriers (1 = not a barrier to 5 = strong barrier). The strongest barriers were limited Division of Interpretation budget and limited park budget, yet the strength of these barriers corresponded with a rating of somewhat to moderate barrier (see Table 15). Respondents had the opportunities to list additional barriers, which are presented in Table 16.

Table 15

Level of influence of barriers to provision of interpretive accommodations

Composite	Mean ^a (SD)
Limited budget for Division of Interpretation (n = 210)	3.90 (1.24)
Limited park budget (n = 209)	3.84 (1.23)
Infrequent number of requests for services (n = 212)	3.57 (1.46)
Priorities for interpretation budget other than accessibility (n = 208)	3.46 (1.28)
Other (n = 30)	3.20 (1.80)
Staff with limited experience with accommodations (n = 211)	3.17 (1.30)
Limited time for staff accessibility training (n = 212)	3.15 (1.31)
Lack of personal familiarity with services used by visitors who are d/Deaf or HoH (n = 211)	2.58 (1.15)
Limited personal interpretive services/programs (n = 210)	2.50 (1.47)
Low number of park visitors (n = 211)	2.46 (1.54)
Lack of or limited knowledge of legal responsibilities (n = 207)	2.43 (1.20)

Low attendance to interpretive programs (n = 208)	2.28 (1.44)
Low number of visitors entering visitor center (n = 209)	2.25 (1.50)
Little support from Superintendent on accessible issues (n = 210)	1.40 (0.89)

^a1 = *not a barrier* to 5 = *strong barrier*

Table 16

Additional barriers to provision of interpretive accommodations for visitors who are d/Deaf or HoH

Barriers	Frequency of respondents indicating barrier ^a
Low demand for interpretive accommodations	5
Limited staff time	4
Minimal staff to cover all interpretive operations	4
Budget	3
Changing technology	1
Need for on-demand training (online)	1

^an = 30; responses compiled from open-ended question from “other” response in Table 15; some respondents did not provide a specific barrier

In anticipation of the role of budget in influencing the provision of interpretive accommodations (Germ & Schleien, 1997, Devine & Kotowski, 1999, Shteir, 2007), respondents were asked to indicate sources of funding for general interpretive accommodative services, indicating all that applied. Most indicated their Division of Interpretation budget (139 respondents) or general park budget (82 respondents), while other sources included special grant funding (79 respondents), natural history association (21 respondents), and some indicated not knowing (3 respondents). Other sources for funding indicated through open response included park donations, fee program funds, and

volunteers, with one response of ‘none’. Additionally, 84 respondents (40%) indicated having received funding specifically for accessibility improvement projects for interpretive accommodations for visitors who are d/Deaf or HoH.

Chapter Five

DISCUSSION

Implications

The purpose of this study was to describe the provided interpretive accommodations for National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH). Based on the high response rate to this voluntary survey (respondents from 226 of the 401 NPS units), it seems there is an openness and interest in ensuring that visitors are appropriately accommodated. Perhaps this is reflective of, or at least consistent with, *A Call to Action: Preparing for a Second Century of Stewardship and Engagement*, which, in preparation for the 100th anniversary of the National Park Service in 2016, identifies specific actions to advance its mission (National Park Service, 2011). Within this *A Call to Action* is the goal of strengthening the educational and interpretive mission by engaging NPS visitors with interpretive media that is accessible to the broadest range of the public.

Achieving Relevance in Our Second Century (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014), which aligns with *A Call to Action*, helps identify ways for the NPS to prioritize and expand limited resources, while adapting to recent budget cuts and staff reductions. This strategic plan mentions the need to strengthen the capacity for organizational learning, increase flexibility in response to new opportunities and challenges, and ensure the presence of forward-thinking leaders. The outcome, Relevance and Inclusion, is particularly relevant to this study, as it includes

the strategies of improving the accessibility of interpretive programs and products, using social media and other emerging technologies to promote free-choice learning and reach new audiences, and using social science research to better understand audiences and stay current on best practices. The outcome, Business Acumen, includes the strategies of creating a flexible and adaptive organizational culture by regularly seeking input from stakeholders and encouraging a culture of evaluation. Strategies also include using long-range interpretive planning processes to incorporate trends, operational realities and audience research, as well as supporting and training staff, volunteers and partners involved with interpretation, education, and volunteer services (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014). This study and its findings could be helpful to the NPS regarding these strategies pertaining to understanding audiences and improving the accessibility of interpretive programs and products.

The memos written by the National Park Service (2006a & 2006b) in response to the Oversight Hearing before the Subcommittee on National Parks of the Committee on Resources, addressed shortfalls in areas of accessibility. These memos state that all interpretive programs, services, and opportunities are to be made accessible and available to all persons with disabilities (National Park Service, 2006a) along with the goal that all national park units will show films that are captioned and audio-described, and have Assistive Listening Devices available in assembly areas by January 2008 (National Park Service, 2006b). Though a small percentage, several park units indicated that no captioning is available for their primary park film, nor are accommodations available or

provided for audio components of visitor center exhibits. As the NPS continues to plan for the next century, accountability is needed to attain the goals stated in 2006.

Based on the respondents to this survey, most NPS units have not provided programs specifically for visitors with disabilities, nor have they provided programs specifically for visitors who are d/Deaf or HoH. However, most units do provide some form of interpretive accommodations for visitors who are d/Deaf or HoH, such as open or closed captioning, Assistive Listening Devices, and sign language interpreters upon request. Another encouraging finding is that many respondents indicated having completed accessibility assessments at their park units, which they have then used to guide the provision of accommodations for visitors with disabilities, including visitors who are d/Deaf or HoH. Many also are guided by the Americans with Disabilities Act, as well as by the Harpers Ferry Center Accessibility Guidelines. Some respondents also indicated their provision of accommodations was guided by people with disabilities.

In addition, the results of this study suggest the provision of programs specifically for visitors who are d/Deaf or HoH was related to the degree to which park units perceived a need for interpretive accommodative services, frequency of requests for services, distance from a major community of people who are d/Deaf or HoH, and annual visitor center visitation. In some cases, lack of requests for interpretive accommodations or even perceived lack of need may be a true reflection of lack of need. Perhaps the unit's overall visitation level is low and consequently the number of visitors who are d/Deaf or HoH is also low. Or perhaps visitors are enjoying NPS units in ways that do not require accommodations or special programs. On the other hand, lack of requests or a perceived

lack of need may mask a true need, as this disability often isn't as apparent as other disabilities, such as visual or mobility impairments. For example, about 10% of respondents weren't sure whether or not they have had visitors to their parks who were d/Deaf or HoH.

In spite of this uncertainty regarding actual need, many respondents offered this reason for why they felt their park unit should be doing more in terms of accommodations for visitors who are d/Deaf or HoH: Every visitor deserves access to interpretation. Further, about two-thirds of the respondents to this study indicated they perceived their park unit was not sufficiently meeting the needs of visitors who are d/Deaf or HoH, and most perceived either a need or a strong need to better accommodate visitors who are d/Deaf or HoH. This, coupled with a high overall response rate, suggests something other than an attitudinal barrier to ensuring non-hearing visitors and hearing visitors have similar interpretive experiences. Instead, a variety of other barriers seem to be standing in the way of providing needed services and accommodations, including budget and staffing constraints, competing priorities for general and interpretive budgets and staff time, lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH, and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HOH. These barriers identified through this current study are consistent with some of the barriers previously identified, such as in Germ and Schleien (1997) and Coco-Ripp (2005).

Recommendations

With many respondents indicating a need to better accommodate visitors who are d/Deaf or HoH, the question is how to do so. Respondents were provided with a description of interpretive accommodations that could be considered a high level or perhaps ideal level of services for visitors who are d/Deaf or HoH (a Deaf Services Coordinator position, Assistive Listening Devices for park programs, public videophones, and accessibility kits in park hotels). Only about a half of respondents felt this level was needed and feasible.

Most respondents, when asked if they could do one thing to better accommodate visitors who are d/Deaf or HoH, identified *staff training regarding interpretive accommodations*. Staff training would be useful toward decreasing two barriers identified in this study: lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HoH. The need for staff training is consistent with the literature. For example, Devine and Kotowski (1999, as cited in Coco-Ripp, 2005) found that lack of training and lack of qualified staff were limiting factors to implementing inclusive recreation, along with staff attitudes that were negative toward accommodations. Germ and Schleien (1997) stressed the need for increased attention to staff training, including even program instructors or volunteers who have minimal duties or present only a few programs. Bedini and Stone (2000, as cited by Coco-Ripp, 2005) suggested teaching awareness of deaf identity in recreation, as well as teaching how to provide opportunities for social skill development through recreation.

The majority of NPS units responded that interpretive staff received training regarding accessibility in general, however only 28% responded that this training includes topics specifically related to visitors who are d/Deaf or HoH. Staff with limited experience with accommodations and limited time for staff accessibility training were both rated by respondents as acting as somewhat of to moderate barriers to the provision of interpretive accommodative services. In regards to an open-ended question as to whether or not a higher level of accommodations for visitors who are d/Deaf or HoH is needed or feasible, several respondents indicated a need for training to become familiar with services in regards to visitors who are d/Deaf or HoH. One respondent stated, “I’m actually not sure... Perhaps if I knew more about this area of accessibility, I would better understand where/how the services would be helpful.”

Another respondent indicated being unsure how to find relevant training, suggesting the usefulness of an online course offered “on demand.” In light of respondents indicating limited time available for staff accessibility training, and in some cases not enough staff to cover all the demands of the interpretive division, an online training course that could be accessed at any time is a good suggestion. Currently, the National Center on Accessibility, along with the Eppley Institute for Parks and Public Lands, has two courses relating to accessibility (one on Universal Design Principles, and one on access). Raising awareness of these training options among NPS interpretive staff may be helpful. In addition, The Eppley Institute and the National Center on Accessibility, potentially in conjunction with the NPS, might consider the development of additional modules focusing on fostering understanding of specific disabilities in an

interpretive context, such as one on visitors who are d/Deaf or HoH. Another training option for consideration would be within the Interpretive Development Program, which provides NPS interpreters with professional growth and development opportunities. While the interpretive competencies currently available include the topic of accessibility as a small component within interpretive programs, visitor contacts, interpretive writing, media, curriculum-based programming, coaching of programs, research, and planning park interpretation, the addition of a separate competency regarding accessibility (or interpretation for visitors with disabilities) may be beneficial.

In addition to staff training, another recommendation for better accommodating visitors who are d/Deaf or HoH is to *incorporate the Principles of Universal Design into the planning and provision of interpretive services*. These principles could also be used for evaluating existing interpretive services. While some respondents indicated their units' provision of interpretive accommodations were influenced by these principles or were influenced by the Harpers Ferry Center Programmatic Accessibility Guidelines (which incorporate the Principles of Universal Design), the Principles of Universal Design were not as influential as legislation aimed toward eliminating discriminatory policies and practices. The Americans with Disabilities Act, which was, on average, the most influential guidance on the provision of interpretive accommodations at respondents' units, reflects accessible design or the compliance with minimum accessibility standards to satisfy specific legal mandates (Skulski, 2007).

In contrast, universal design aims for use by people of all abilities, to the greatest extent possible, without the need for adaptation; rather than meeting the minimum

accessibility standards, the aim is to exceed the minimum standards (Connell et al., 1997). With interpretive services grounded in the Principles of Universal Design, visitors who may not have otherwise requested assistance would benefit. For example, open captions may be beneficial to people who don't wish to identify themselves as being d/Deaf or HoH, those learning English, or for media situated in a noisy room. Thus, by grounding interpretive services in the Principles of Universal Design, visitors can benefit from the interpretive services provided without being segregated with special accommodations or stigmatized by having to ask for special accommodations (Harpers Ferry Center Accessibility Committee, 2012). In addition, the Principles of Universal Design can help address the problem noted in the literature regarding access to the outdoors for people with disabilities being narrowed to thinking more along technical solutions, such as free entry and closed captioning, rather than along a broader social context (Burns, Paterson, & Watson, 2009). The Principles of Universal Design provide a more holistic approach to planning interpretive services that are usable by people of all abilities. With universal design, issues of accessibility can be addressed not as isolated problems or projects, but through initiatives that reach the greatest number of people.

An additional recommendation stemming from this study and the literature review is to *include individuals who are d/Deaf or HoH when planning, updating, or evaluating interpretive services*. While 40% of respondents have included individuals with disabilities to provide guidance regarding accommodative interpretive services at their respective park units, the majority has not. Including individuals with disabilities when planning or evaluating interpretive services is consistent with recommendations by Chen

(2001) and would help address the barrier of lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH. As several respondents noted, requests, feedback, or suggestions from visitors who are d/Deaf or HoH can guide provision of interpretive accommodations. They know best what they need and may have had experiences at other parks or museums where they experienced something that worked well that might be transferable to another park unit. Another resource to consider for accessing individuals who are d/Deaf or HoH is the State Residential School for the Deaf, as each state in the United States has a residential school. In addition, the National Association of the Deaf, which is a civil rights organization of, by and for individuals who are deaf and hard of hearing, may be another resource for consideration.

In addition, *regular park unit assessments for accessibility* are recommended. While the majority of survey respondents indicated they had reviewed interpretive accommodations for visitors with general disabilities and also for visitors who are d/Deaf or HoH, only about half indicated they review these services at least once every year or once every several years. With budget constraints being a barrier for many respondents, facility or program assessments conducted by the National Center on Accessibility, while perhaps ideal, would likely not be feasible. However, one respondent indicated that this survey encouraged them to check on their Assistive Listening Devices (ALDs). This respondent sent a brief online questionnaire to each of the operating visitor centers asking for the number of ALDs available, location of ALDs, if staff had been trained on their use, how often they are tested, if Standard Operating Procedures (SOPs) are available, and where signage is posted to advertise availability of the ALDs. This is an example of

how a review of interpretive accommodative services could be done relatively easily and by doing so, raise awareness of accessibility to a park unit's staff and help ensure that services are available and functioning. And as mentioned in prior recommendations, including visitors with disabilities and reviewing services in light of the Principles of Universal Design would also be helpful.

Another recommendation pertains to *personal and agency-level commitment toward equitable service*. Limited time and budget, along with competing priorities for time and budget, were barriers faced by many respondents. In addition, one respondent expressed this concern, "The real question will come with the park's ability to maintain and/or improve the systems and program now in place into the future." In *Achieving Relevance in Our Second Century* (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014), managers are encouraged to identify several actions from within the document and focus on those so that collectively the agency can take small steps towards common outcomes. Perhaps if some of these small steps are in the equitable service context, capacity for organizational learning regarding accessibility may be increased, as well as flexibility in response to rapidly changing technologies, even in light of competing priorities for time and budget.

With limited time and budget and competing priorities to address, the following recommendations can be accomplished with minimal budget or time. Park units that are not already *using their websites as a source of information regarding interpretive accommodations* could begin to do so. While updating the website requires technical knowledge and time, it is a resource that can be updated frequently for less cost than

updating printed materials. Park units should assess the ease of access to this information on their website and verify that the information is most current. It would also be helpful for park units to include the amount of time needed for requesting a sign language interpreter, as most units indicated they require at least two weeks notice, in contrast with Chen (2001) who found many visitors decide to visit a park site less than two weeks in advance. Another low-cost recommendation is to develop *Standard Operating Procedures* (SOPs) for accommodative services such as ALDs, as most respondents indicated they did not have these in place. This is particularly useful when services are not requested frequently, as one respondent expressed, “It is a challenge for staff to remember how to use them when so rarely requested.” SOPs may include location of provided services, operating instructions, troubleshooting guide, procedures to loan equipment to visitors if applicable, and instructions for upkeep and maintenance. Another easy-to-implement recommendation would be to *create a collateral duty for general accessibility*. For example, one respondent indicated they already had an Accessibility Coordinator as a collateral duty.

A final recommendation from this study pertains to *the need for additional research*. Because this survey focused on what interpretive accommodations were provided, future research should assess the needs and preferences of NPS visitors (past, current, and potential) who are d/Deaf or HoH. Since NPS units expressed concern about limited time and money, research regarding what services visitors who are d/Deaf or HoH would find most useful would allow for making the most of limited time and budget. Further, perceptions NPS units have regarding how well they are meeting the needs of

visitors may change as NPS units or other research entities explore the social context and broader needs of visitors who are d/Deaf or HoH beyond the physical changes to programs and structures.

REFERENCES

- Accessible Technology Coalition. (2014). Communicating with people who are deaf or hard of hearing. Retrieved April 28, 2014 from <http://atcoalition.org/article/communicating-people-who-are-deaf-or-hard-hearing>
- Aitchison, C. (2003). From leisure and disability to disability leisure: Developing data, definitions and discourses. *Disability & Society*, 18(7), 955-969.
- Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101 et seq.
- Architectural Barriers Act of 1968, 42 U.S.C. §§ 4151 et seq.
- Babbie, E. (2011). *The basics of social research* (5th ed.). Belmont, CA: Wadsworth, Cengage Learning.
- Bacher, K., Baltrus, A., Barrie, B., Bliss, K., Cardea, D., Chandler, L., Dahlen, D., Friesen, J., Kohen, R., & Lacome, B. (2007). *Foundations of Interpretation Curriculum Content Narration*. [PDF document]. Retrieved from <http://www.nps.gov/idp/interp/101/foundationscurriculum.pdf>
- Beck L. & Cable T. (2002). The meaning of interpretation. *Journal of Interpretation Research*, 7(1), 7-10.
- Bedini, L.A. & Stone, C.F. (2000). Training for diversity. In M.T. Allison & I.E. Schneider (Eds.), *Diversity and the recreation profession: Organizational perspectives* (pp. 235-262). State College, PA: Venture Publishing, Inc.
- Brault, M.W. (2012). *Americans with disabilities: 2010, current population reports* (P70-131). U.S. Census Bureau, Washington, D.C. [PDF document]. Retrieved from <http://www.census.gov/prod/2012pubs/p70-131.pdf>

- Burns, N., Paterson, K. & Watson, N. (2009). An inclusive outdoors? Disabled people's experiences of countryside leisure services. *Leisure Studies*, 28(4), 403-417.
- Cayton, N. (2010). Summer at Yosemite in Sign. *ASL News*, 11(4), 1, 11-15. Retrieved from
<http://www.communiqueinterpreting.com/pdfs/newsletters/BCCsummer10.pdf>
- Chen, R.J.C. (2001). *Visitor expectations and perceptions of program and physical accessibility in the National Park Service*. Bloomington, IN: National Center on Accessibility. Retrieved from
https://scholarworks.iu.edu/dspace/bitstream/handle/2022/3105/Visitor_Expect_Full_Report.pdf?sequence=2
- Coco-Ripp, J.A. (2005). Including people who are deaf in recreation. *Parks and Recreation*, 40(2), 26, 28-33.
- Connell, B.R., Jones, M., Mace, R. Mueller, J., Mullick, A., Ostroff, E., Sanford, J., Steinfeld, E., Story, M., & Vanderheiden, G. (1997). *The Principles of Universal Design (Version 2.0)*. Raleigh, NC: North Carolina State University.
 Retrieved from
http://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: SAGE Publications.
- Darrow, A. (2010). Music education for all: Employing the Principles of Universal Design to educational practice. *General Music Today*, 24(1), 43-45.
- Devine, M.A. & Brooch, E. (1998). Inclusion in the aquatic environment. *Parks and*

Recreation, 33(2), 60-67.

Devine, M.A. & Kotowski, L. (1999). Inclusive leisure services: Results of a national survey of park and recreation departments. *Journal of Park and Recreation Administration, 17(4), 54-72.*

Devine, M.A., McGovern, J.N., & Hermann, P. (1998). Inclusion in youth sports. *Parks and Recreation, 33(7), 68-76.*

Disability access in the National Park System: Oversight hearing before the Subcommittee on National Parks of the Committee on Resources (Serial 109-53), 109th Cong. 28 (2006a) (testimony of Janice Schacter). Retrieved from <http://www.gpo.gov/fdsys/pkg/CHRG-109hhrg27519/html/CHRG-109hhrg27519.htm>

Disability access in the National Park System: Oversight hearing before the Subcommittee on National Parks of the Committee on Resources (Serial 109-53), 109th Cong. 39 (2006b) (testimony of James McCarthy). Retrieved from <http://www.gpo.gov/fdsys/pkg/CHRG-109hhrg27519/html/CHRG-109hhrg27519.htm>

Disability Rights Advocates. (2014, March). *Landmark settlement agreement substantially improves accessibility to Golden Gate National Recreational Area.* Berkeley, CA. Retrieved from <http://www.dralegal.org/pressroom/press-releases/landmark-settlement-agreement-substantially-improves-accessibility-to>

Eppley Institute for Parks and Public Lands. (n.d. a). About Eppley. Retrieved April 18,

- 2014 from <http://www.eppley.org/about-eppley/>
- Eppley Institute for Parks and Public Lands. (n.d. b). Catalog – Accessibility. Retrieved April 18, 2014 from <http://www.eppley.org/elearning/recreation/accessibility>
- Espro Acoustiguide Group. (2014a). Company profile. Retrieved April 28, 2014 from <http://www.acoustiguide.com/company-profile>
- Espro Acoustiguide Group. (2014b). Client list. Retrieved April 28, 2014 from <http://www.acoustiguide.co.uk/client-list>
- First, P.F. and Curcio J.L. (1993). *Implementing the Disabilities Acts: Implications for educators*. Bloomington, IN: Phi Delta Kappa Educational Foundation.
- Forist, B., Littlejohn, M., Baxter, R., Machlis, G.E., & Gramann, J.H. (2003). Visitor Use and Evaluation of Interpretive Media. *A Report on Visitors to the National Park System: The National Park Service Visitor Services Project*. Park Studies Unit, University of Idaho: National Park Service, U.S. Department of the Interior.
- Germ, P. & Schleien, S. (1997). Inclusive community leisure services: Responsibilities of key players. *Therapeutic Recreation Journal*, 31(1), 22-37.
- Ham, S.H. & Weiler, B. (2007). Isolating the role of on-site interpretation in a satisfying experience. *Journal of Interpretation Research*, 12(2), 5-24.
- Harpers Ferry Center. (2007, November/December). Learning from the experts: Harpers Ferry Center, NCR, and C&O Canal host accessibility workshop. *HFC on Media*, 20, 4-8.
- Harpers Ferry Center Accessibility Committee. (2012). *Programmatic Accessibility Guidelines for National Park Service Interpretive Media, Version 2.1*. [PDF

document]. Retrieved from

<http://www.nps.gov/hfc/accessibility/accessibilityGuideVersion2.1.pdf>

Harpers Ferry Center, Division of Interpretive Planning. (1998). *Planning for Interpretation and Visitor Experience*. [PDF document]. Retrieved from <http://www.nps.gov/hfc/pdf/ip/interp-visitor-exper.pdf>

Henker, K. and Brown, G. (2011). As good as the real thing? A comparative study of interpretive podcasts and traditional ranger talks. *Journal of Interpretation Research*, 16(1), 7-23.

Kwak, N. & Radler, B. (2002). A comparison between mail and web surveys: Response pattern, respondent profile, and data quality. *Journal of Official Statistics*, 18(2), 257-273.

Luckner, J.L. & Stewart, J. (2003). Self assessments and other perceptions of successful adults who are deaf: An initial investigation. *American Annals of the Deaf*, 148, 243-250.

Mackintosh, B. (1986). *Interpretation in the National Park Service: A historical perspective*. Washington D.C.: National Park Service, History Division. Retrieved from http://www.nps.gov/history/history/online_books/mackintosh2/origins_before_nps.htm

Massachusetts Department of Conservation and Recreation. (2009). *Universal Access: Outdoor recreation opportunities for people of all abilities in Massachusetts State*

- Parks*. [Brochure]. Amherst, MA: The Universal Access Program, Department of Conservation and Recreation. Retrieved from <http://www.mass.gov/eea/docs/dcr/universal-access/accessbroch.pdf>
- Mayerson, A. (1992). The history of the ADA: A movement perspective. Retrieved from Disability Rights Education & Defense Fund website: <http://dredf.org/news/publications/the-history-of-the-ada/>
- Medlock, C. 2003. Opening doors-environmental interpretation for the deaf and hard-of-hearing. *Legacy*, 14(4), 24-25.
- Moore, S.M. (1997, October). For hearing people only. *Deaf Life*, p. 8.
- National Association for Interpretation. (n.d.). Mission, Vision and Core Values. Retrieved December 20, 2012 from http://www.interpnet.com/nai/About/What_We_Believe/nai/_About/Mission_Vision_and_Core_Values.aspx?hkey=ef5896dc-53e4-4dbb-929e-96d45bdb1cc1
- National Center on Accessibility. (n.d.). Education. Retrieved April 18, 2014 from <http://www.ncaonline.org/education/index.shtml>
- National Center on Accessibility. (2002). *Effective communication in parks and recreation*. Bloomington, IN: National Center on Accessibility, Indiana University-Bloomington. Retrieved from <http://www.indiana.edu/~nca/?q=node/333>
- National Park Service. (n.d. a). U.S. National Park Service – About Us. Retrieved from <http://www.nps.gov/aboutus/index.htm>
- National Park Service. (n.d. b). U.S. National Park Service – Mission. Retrieved from

<http://www.nps.gov/aboutus/mission.htm>

National Park Service. (n.d. c). *America the Beautiful – The National Parks and Federal Recreational Lands pass series*. Retrieved from

<http://www.nps.gov/findapark/passes.htm>

National Park Service. (n.d. d). National Park Service National Accessibility

Achievement Awards nomination guidelines. Retrieved from

<http://concessions.nps.gov/docs/Accessibility%20Awards%20Guidelines.doc>

National Park Service. (2000). National Park Service directory: People and places.

Retrieved December 10, 2012 from <http://www.nps.gov/directory/index.cfm>

National Park Service. (2000-2004). National Park Service Director's Order #42:

Accessibility for Visitors with Disabilities in National Park Service Programs and

Services. Retrieved from <http://www.nps.gov/policy/dorders/DOrder42.html>

National Park Service. (2005-2011). National Park Service Director's Order #6:

Interpretation and Education. Retrieved from

<http://www.nps.gov/policy/DOrders/DOrder6.html>

National Park Service. (2006a, October). *Disability access in the National Park Service*

(D24(2420)). [Memorandum]. Washington, D.C.: Author. Retrieved from

<http://www.nps.gov/hfc/pdf/accessibility/nps-disability-access-memo.pdf>

National Park Service. (2006b, October). *Audio-visual accessibility initiative for visitors*

with disabilities (D24(2420)). [Memorandum]. Washington, D.C.: Author.

Retrieved from <http://www.nps.gov/hfc/pdf/accessibility/av-access-memo-oct2006.pdf>

- National Park Service. (2011). *A Call to action: Preparing for a second century of stewardship and engagement*. Retrieved from http://www.nps.gov/calltoaction/PDF/Directors_Call_to_Action_Report.pdf
- National Park Service, Arches National Park. (n.d.). Accessibility. Retrieved December 20, 2012 from <http://www.nps.gov/arch/planyourvisit/accessibility.htm>
- National Park Service, Chesapeake & Ohio Canal National Historical Park. (2007, November). Improving exhibits for visitors with disabilities: Harpers Ferry Center initiative to enhance programmatic accessibility in museum exhibits. Workshop on *Accessibility Review of Exhibits*. Workshop conducted at the U.S. Fish and Wildlife Service National Conservation Training Center, Shepherdstown, WV. Retrieved from <http://www.nps.gov/hfc/pdf/accessibility/choh-access-report-nov2007.pdf>
- National Park Service, Colonial National Historical Park. (2010). *Colonial National Historical Park: Shuttle service survey report*. (NPS TIC No. 333/100825). Retrieved from <http://ntl.bts.gov/lib/42000/42100/42164/DOT-VNTSC-NPS-10-03.pdf>
- National Park Service, Grand Teton National Park. (n.d.). Accessibility. Retrieved December 20, 2012 from <http://www.nps.gov/grte/planyourvisit/accessibility.htm>
- National Park Service, Interpretive Development Program. (n.d.). About Interpretation. Retrieved from <http://idp.eppley.org/about-interpretation>
- National Park Service, National Council for Interpretation, Volunteers, and Education. (2014). *Achieving Relevance in Our Second Century*. Retrieved from

http://www.nps.gov/interp/IEV%20Strategic%20Plan_FINAL.pdf

National Park Service, Public Use Statistics Office. (n.d.). National Park Service Visitor Use Statistics. Retrieved from <https://irma.nps.gov/Stats/>

National Park Service, Sagamore Hill National Historic Site. (2013, July). *Sagamore Hill Receives National Accessibility Achievement Award*. Sagamore Hill National Historic Site News Release. Retrieved from <http://www.nps.gov/sahi/parknews/sagamore-hill-receives-national-accessibility-achievement-award.htm>

National Park Service, Yellowstone National Park. (n.d.). Accessibility. Retrieved December 20, 2012 from <http://www.nps.gov/yell/planyourvisit/accessibility.htm>

National Park Service, Yellowstone National Park. (2009, October). *Yellowstone 2009 visitation tops 3 million mark*. (09-104). Yellowstone National Park News Release. Retrieved from <http://www.nps.gov/yell/parknews/09104.htm>

National Park Service, Yosemite National Park. (n.d.). *Deaf Services*. [Brochure]. Retrieved December 15, 2012 from <http://www.nps.gov/yose/planyourvisit/upload/deafservices.pdf>

National Park Service, Yosemite National Park. (2008, November 13). *Yosemite National Park wins prestigious award for Deaf Services*. Yosemite National Park News Release. Retrieved from <http://www.nps.gov/yose/parknews/dsp08.htm>

National Recreation and Park Association. (n.d.). About NRPA. Retrieved from <http://www.nrpa.org/About-National-Recreation-and-Park-Association/>

National Recreation and Park Association. (1999). *NRPA position statement on inclusion*

as adopted by the NRPA Board of Trustees as an NRPA Policy, October 24, 1999.

Ashburn, VA: National Recreation and Park Association. Retrieved from
<http://www.nrpa.org/uploadedFiles/nrpa.org/Advocacy/Resources/Position-Statement-Inclusion.pdf>

Padden, C., & Humphries, T. (1988). *Deaf in America: Voices from a Culture*.

Cambridge, MA: Harvard University Press.

Pease, J.L. (2011). *Parks and Under-served Audiences: An Annotated Literature Review*.

Ames, Iowa: Iowa State University. Retrieved from
<http://www.nps.gov/hfc/services/interp/interpPlanning/literatureReview.pdf>

Proctor, N. (2005). Providing deaf and hard-of-hearing visitors with on-demand, independent access to museum information and interpretation through handheld computers. In J. Trant & D. Bearman (Eds.), *Museums and the Web 2005: Proceedings*. Toronto: Archives & Museum Informatics.

Retrieved from <http://www.archimuse.com/mw2005/papers/proctor/proctor.html>

Project Play and Learning in Adaptable Environments, Inc. (PLAE). (1993). *Universal access to outdoor recreation: A design guide*. Berkeley, CA: PLAE Inc.

Qualtrics (Version 56281). [Computer software]. (2014). Provo, UT: Qualtrics.

Ruiz, B., Pajares, J., Utray, F., & Moreno, L. (2011). Design for All in multimedia guides for museums. *Computers in Human Behavior*, 27, 1408-1415. doi:
10.1016/j.chb.2010.07.044

sComm. (2013). Electrify Communication. Retrieved from <http://www.scomm.com>

Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794. Retrieved

from <http://www.dol.gov/oasam/regs/statutes/sec504.htm#.UHGxEmBgMeM>

Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d. Retrieved from <http://section508.gov/Section-508-Of-The-Rehabilitation-Act>

Shteir, S. (2007, Winter). Open to Interpretation. *National Parks*, 81(1), 34-39.

Skulski, J. (2007, October). *Designing for inclusive play: Applying the Principles of Universal Design to the playground*. Bloomington, IN: National Center on Accessibility, Indiana University-Bloomington. Retrieved from <http://www.ncaonline.org/resources/articles/playground-universaldesign.shtml>

Smith, A.T. & Coffelt, C. (2008). *White House Visitor Center accessibility evaluation report and recommendations*. Washington D.C.: National Park Service. Retrieved December 15, 2012 from: <http://www.nps.gov/hfc/pdf/accessibility/whho-vc-eval-report.pdf>

Smithsonian Accessibility Program. (n.d. a). Retrieved April 29, 2014 from <http://www.si.edu/Accessibility>

Smithsonian Accessibility Program. (n.d. b). Smithsonian Guidelines for Accessible Exhibition Design. Retrieved April 29, 2014 from <http://www.si.edu/Accessibility>

Smithsonian Accessibility Program. (2001). Smithsonian Guidelines for Accessible Publication Design. Retrieved April 29, 2014 from <http://www.si.edu/Content/Accessibility/Publication-Guidelines.pdf>

The Center for Universal Design. (2008). About the center: Ronald L. Mace. Retrieved from http://www.ncsu.edu/ncsu/design/cud/about_us/usronmace.htm

- Thornton, M. (1997, July/August). Breaking the sound barrier: communicating effectively with visitors who are deaf or hard of hearing. *Legacy, The magazine of the National Association for Interpretation*, 8(4), 10-13.
- Tilden, F. (1977). *Interpreting Our Heritage* (3rd Ed.). Chapel Hill, NC: University of North Carolina Press.
- Tubb, K. (2003). An evaluation of the effectiveness of interpretation within Dartmoor National Park in reaching the goals of sustainable tourism development. *Journal of Sustainable Tourism*, 11(6), 476-498.
- U.S. Department of the Interior, Office of Civil Rights. (2008, January 31). *Open Captioning of Audio-Visual Media* (CRD-2008-05). Washington, D.C.: Author. Retrieved from <http://www.nps.gov/hfc/pdf/accessibility/civil-rights-directive-2008-05.pdf>
- U.S. Department of Justice. (2009). *A Guide to Disability Rights Laws*. Retrieved from <http://www.ada.gov/cguide.htm#anchor65610>
- U.S. Department of Justice. (2010). *2010 ADA Standards for Accessible Design*. Retrieved from <http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm>
- Westland, C. (1985). The development of national recreation policies. In: T.L. Goodale & P.A. Witt (Eds.), *Recreation and leisure: issues in an era of change* (pp. 391-406). State College, PA: Venture Publishing.
- Winter, J. A. (2003). The development of the Disability Rights Movement as a Social Problem Solver. *Disability Studies Quarterly*, 23(1), 33-61. Retrieved from

<http://dsq-sds.org/article/view/399/545>

Winter, P. (2005). Equity in access to recreation opportunities: A synthesis of research and management implications. In: Kruger, L. Mazza, R., & Lawrence, K., eds. (2007). Proceedings: National workshop on recreation research and management. Gen. Tech. Rep. PNW-GTR-698. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 167-180.

Appendix A

INVITATION TO PARTICIPATE E-MAIL

Dear Chief of Interpretation,

Hello, my name is Elsa Hansen; I am a graduate environmental education student at the University of Minnesota Duluth. I have worked 7 seasons as a Park Ranger, and am interested in conducting research on the interpretive accommodations available for visitors who are deaf or hard of hearing in the National Park Service (NPS). I am inviting Chiefs of Interpretation for all units of the NPS to participate, due to their role in providing interpretive services.

I have been in contact with Julia Washburn, NPS Associate Director for Interpretation and Education, and she has viewed this study as being relevant and useful, and I hope you take the time to complete the survey.

The purpose of the study is to provide an overview of the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the NPS, an area where only general accessibility research has occurred. My research focuses on accommodations provided, as well as barriers to doing so. The information you provide will help us better understand what services are being provided to the deaf and hard of hearing community, as well as offer examples of best practices of accessibility already in place within the NPS.

There are 44 questions in this online survey, which will take 10-15 minutes to complete, found by clicking the following link:

http://survey.az1.qualtrics.com/SE/?SID=SV_3TYbt052QVAZhvn

If you are not directed to the website, please copy the link address and paste it into your browser. If you feel that someone else within the park is more knowledgeable in this area, please forward this email to them.

Please note the consent information below, prior to your decision to participate in this survey. Please feel free to ask any questions regarding this study. My contact information is below. Thank you for your time and participation.

Sincerely,

Elsa Hansen
Masters of Environmental Education Candidate
University of Minnesota-Duluth

Contact information:

Elsa Hansen

University of Minnesota-Duluth
hanse900@d.umn.edu
920-203-9007
Center for Environmental Education
1216 Ordean Court
Duluth, MN 55812-3032

Consent Form:

Dear Chiefs of Interpretation,

Thank you for your interest and willingness to participate in this University of Minnesota Duluth research study, conducted by myself, Elsa Hansen, a graduate student in the Masters of Environmental Education program. This letter contains important information regarding this research and your consent to participate. I ask that you read this letter and ask any questions you may have before agreeing to be in the study. Please keep a copy for your records.

The purpose of this study is to provide an overview of the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the National Park Service (NPS), an area where only general accessibility research has occurred. My research focuses on accommodations provided, as well as barriers to doing so. I am inviting Chiefs of Interpretation for all units of the NPS to participate, due to their role in providing interpretive services. The information you provide will help us better understand what services are being provided to the deaf and hard of hearing community, as well as offer examples of best practices of accessibility already in place within the NPS. Your time and effort is greatly appreciated!

After reading this information, please continue on with the survey. Completion of the survey should take about 10-15 minutes.

No benefits accrue you or the park for your participation. Any discomfort or inconvenience to you derives only from the amount of time it takes to complete the survey. While there is no compensation for your participation, the information you provide can bring awareness to the NPS of its level of interpretive accessibility for visitors who are deaf or hard of hearing.

The records of this study will be kept private. No identifying data will be collected about you personally, or about the name or location of the park. In any sort of report or article I might publish, I will not include any information that will make it possible to identify a park. Research records will be stored securely and only I will have access to the records.

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. Completing the survey is implied consent. No need to respond to this email if you opt not to participate.

If you have questions now, or have questions later, please contact me by mail at the University of Minnesota, Duluth, Dept. HPER, 110 SpHC, 1216 Ordean Court; Duluth, MN, 55812, by phone (920-203-9007), or by email (hanse900@d.umn.edu). You may also contact my advisor at the same address as above, by phone (218-726-6761), or by email (jernst@d.umn.edu). If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, MN, 55455; (612) 625-1650.

Sincerely,

Elsa Hansen
Masters of Environmental Education Candidate
University of Minnesota-Duluth

Appendix B

REMINDER E-MAIL

Dear Chief of Interpretation,

Hello, You were recently asked to participate in a survey regarding the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the National Park Service. I would like to express my gratitude if you have already completed it. Your responses may help bring awareness to best practices of accessibility already in place within the NPS and encourage other park units to begin discussions of interpretive accessibility.

If you have yet to complete the survey, please strive to do so within the next week. There are 44 questions in this online survey, which will take 10-15 minutes to complete, found by clicking the following link:

http://survey.az1.qualtrics.com/SE/?SID=SV_3TYbt052QVAZhvn

If you are not directed to the website, please copy the link address and paste it into your browser.

Again, I have been in contact with Julia Washburn, NPS Associate Director for Interpretation and Education, and she is aware of this study and views the results as being useful in moving the NPS forward in regards to program accessibility. I hope you find time to take the survey.

If you feel that someone else within the park is more knowledgeable about interpretive accommodations for visitors who are deaf or hard of hearing, please forward this email to them.

Please feel free to ask questions regarding this study. My contact information is below. Thank you for your time and participation.

Sincerely,

Elsa Hansen
Masters of Environmental Education Candidate
University of Minnesota-Duluth

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The purpose of this study is to provide an overview of the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the National Park Service (NPS), an area where only general accessibility research has occurred. My research focuses on accommodations provided, as well as barriers to doing so. I am inviting Chiefs of Interpretation for all units of the NPS to participate, due to their role in providing interpretive services. The information you provide will help us better understand what services are being provided to the deaf and hard of hearing community, as well as offer examples of best practices of accessibility already in place within the NPS. Your time and effort is greatly appreciated!

After reading this information, please continue on with the survey. Completion of the survey should take about 10-15 minutes.

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The records of this study will be kept private. No identifying data will be collected about you personally, or about the name or location of the park. In any sort of report or article I might publish, I will not include any information that will make it possible to identify a park. Research records will be stored securely and only I will have access to the records.

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If you have questions now, or have questions later, please contact me by mail at the University of Minnesota, Duluth, Dept. HPER, 110 SpHC, 1216 Ordean Court; Duluth, MN, 55812, by phone (920-203-9007), or by email (hanse900@d.umn.edu). You may also contact my advisor at the same address as above, by phone (218-726-6761), or

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Sincerely,

Elsa Hansen
Masters of Environmental Education Candidate
University of Minnesota-Duluth

Appendix C

FINAL REMINDER E-MAIL

Dear Chief of Interpretation,

I would like to thank you for completing the survey regarding the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the National Park Service. I realize your time is limited and I am grateful for your cooperation.

If you have not yet participated in the survey, you have two more days to do so. To complete the survey, please click on the following link:

http://survey.az1.qualtrics.com/SE/?SID=SV_3TYbt052QVAZhvn

As before, if you feel that someone else within the park is more knowledgeable about interpretive accommodations for visitors who are deaf or hard of hearing, please forward this email to them.

Please feel free to ask questions regarding this study. My contact information is below.

Once again, I thank you for your time and have a great summer season!

Sincerely,

Elsa Hansen
Masters of Environmental Education Candidate
University of Minnesota-Duluth

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Elsa Hansen
University of Minnesota-Duluth
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The purpose of this study is to provide an overview of the interpretive accommodations currently provided to visitors who are deaf or hard of hearing in the National Park Service (NPS), an area where only general accessibility research has occurred. My research focuses on accommodations provided, as well as barriers to doing so. I am inviting Chiefs of Interpretation for all units of the NPS to participate, due to their role in providing interpretive services. The information you provide will help us better understand what services are being provided to the deaf and hard of hearing community, as well as offer examples of best practices of accessibility already in place within the NPS. Your time and effort is greatly appreciated!

After reading this information, please continue on with the survey. Completion of the survey should take about 10-15 minutes.

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If you have questions now, or have questions later, please contact me by mail at the University of Minnesota, Duluth, Dept. HPER, 110 SpHC, 1216 Ordean Court; Duluth, MN, 55812, by phone (920-203-9007), or by email (hanse900@d.umn.edu). You may also contact my advisor at the same address as above, by phone (218-726-6761), or by email (jernst@d.umn.edu). If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, MN, 55455; (612) 625-1650.

Sincerely,

Elsa Hansen

Masters of Environmental Education Candidate
University of Minnesota-Duluth

Appendix D

SURVEY

Interpretive accommodations for visitors who are d/Deaf or hard of hearing in the National Park Service

Q1 Welcome and thank you for choosing to participate in this survey! I sincerely value your feedback. The survey will take approximately 10-15 minutes to complete. Please click the ">>" button below to continue.

Q2 Have you had visitors to your park who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure (3)

Q3 Within the past year, has your park offered programs specifically for visitors with disabilities?

- ☐ Yes (1)
- ☐ No (2)

Q4 Within the past year, has your park offered programs specifically for visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)

Q5 Does your park offer non-personal interpretive services? (such as movies, brochures, publications, visitor center exhibits)

- ☐ Yes (1)
- ☐ No (2)

Q6 Do visitor center exhibits have audio components?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not applicable (3)

Answer If Do visitor center exhibits have audio components? Yes Is Selected

Q7 For exhibits with audio components, are accommodations available and provided for visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)

Q8 What accommodations or services do you provide for visitors who are deaf or hard of hearing? (check all that apply)

- ☐ Assistive Listening Devices (ALD) for visitor center use (exhibits, park film, etc.) (1)
- ☐ Portable ALD for walks, talks or tours (2)
- ☐ Open/Closed captions (3)
- ☐ Visitor Center Telecommunication Devices for the Deaf (TDD, TTY) (4)
- ☐ Public use TTYs (5)
- ☐ Volume controlled phones (6)
- ☐ Sign Language Interpreter (on-site) (7)
- ☐ Sign Language Interpreter (upon request) (8)
- ☐ Videophones (9)
- ☐ Printed scripts of Ranger programs (10)
- ☐ Other (11) _____
- ☐ None (12)

Q9 Does your primary park film have the captioning on the screen or on a separate reader board?

- ☐ Screen (1)
- ☐ Separate reader board (2)
- ☐ No captioning available (4)
- ☐ No primary park film available (3)

Answer If Does your primary park film have the captioning on the screen or on a separate reader board? Screen Is Selected

Q10 For the primary park film, are the on screen captions presented in an Open format (always in view and cannot be turned off) or Closed format (can be turned on/off by viewer)?

- ☐ Open captions (1)
- ☐ Closed captions (2)
- ☐ Not sure (3)

Q11 How do you communicate to visitors who are deaf or hard of hearing the interpretive accommodations your park provides? (check all that apply)

- ☐ Signage posted in Visitor Center (1)
- ☐ Park website (2)
- ☐ Park newspaper (3)
- ☐ Park brochure (4)
- ☐ Public outreach (information provided at events and facilities within nearby communities) (5)
- ☐ Social media (Facebook, twitter, etc.) (6)
- ☐ Other (7) _____

Q12 Based on your experience in your park, how great of a need do you feel there is to provide accommodative interpretive services for visitors who are deaf or hard of hearing at your site?

- ☐ Not a need (1)
- ☐ Somewhat of a need (2)
- ☐ Strong need (3)
- ☐ Very strong need (4)

Q13 How often are accommodative services requested by visitors who are deaf or hard of hearing? (regardless of if park has access to requested service or not)

- ☐ Never (1)
- ☐ Less than once a year (2)
- ☐ Once a year (3)
- ☐ Monthly (4)
- ☐ Weekly (5)
- ☐ Daily (6)

Q14 How much time in advance must a visitor request a sign language interpreter to guarantee an interpreter be available for their trip?

- ☐ 1 week or less (1)
- ☐ 2 weeks (2)
- ☐ 3 - 4 weeks (3)
- ☐ Over 1 month (4)
- ☐ Do not know (5)
- ☐ Not applicable (do not offer this service) (6)

Q15 To the best of your knowledge, has your park ever been unable to meet a request for a sign language interpreter?

- ☐ Yes (1)
- ☐ No (2)

Answer If To the best of your knowledge, has your park ever been unable to meet a request for a sign language interpreter? Yes Is Selected

Q16 Why has your park not been able to meet a request for a sign language interpreter?

Q17 Do interpretive staff receive training about general accessibility?

- ☐ Yes (1)
- ☐ No (2)

Q18 Do interpretive staff receive training specific to visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)

Answer If Do interpretive staff receive training specific to visitors who are deaf or hard of hearing? Yes Is Selected

Q19 Which staff members receive training specific to visitors who are deaf or hard of hearing? (check all that apply)

- ☐ Permanent employees (1)
- ☐ Seasonal employees (work 1039 or less) (2)
- ☐ Interns (SCA, Pathways) (3)
- ☐ Volunteers (4)
- ☐ Other (5) _____

Answer If Do interpretive staff receive training specific to visitors who are deaf or hard of hearing? Yes Is Selected

Q20 Which accessibility topic areas are covered within training? (check all that apply)

- ☐ Communicating with people who are deaf or hard of hearing (1)
- ☐ Tools for adapting interpretive programs for visitors who are deaf or hard of hearing (2)
- ☐ Available resources / services within park for visitors who are deaf or hard of hearing (3)
- ☐ Legislation (specifically Sections 504 & 508 of Rehabilitation Act) pertaining to equal recreational opportunities (4)
- ☐ Information on what it means to be deaf or hard of hearing (5)
- ☐ Service Animals used by visitors who are deaf or hard of hearing (6)
- ☐ Other (7) _____

Q21 Have you ever reviewed your interpretive accommodative services for visitors with general disabilities?

- ☐ Yes (1)
- ☐ No (2)

Answer If Have you ever reviewed your interpretive accommodative services for visitors with general disabilities? Yes Is Selected

Q22 Have you ever reviewed your interpretive accommodative services for visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)

Answer If Have you every reviewed your interpretive accommodative services for visitors who are deaf or hard of hearing? Yes Is Selected

Q23 Do you regularly (once every year, or once every several years) review your interpretive accommodative services for visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)

Q24 Does your park have written Standard Operating Procedures for maintaining Assistive Listening Devices, or other accommodation equipment?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure (3)

Q25 Where does funding come from for general interpretive accommodative services?
(check all that apply)

- ☐ Interpretation division budget (1)
- ☐ General park budget (2)
- ☐ Special grant/funding source (3)
- ☐ History Association (4)
- ☐ Other (5) _____

Q26 Has your Division of Interpretation received/provided funding specifically for "accessibility improvement projects" for interpretive accommodations for visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)
- ☐ As needed (3)
- ☐ Upon request (4)
- ☐ Other (5) _____

Q27 If you provide interpretive accommodations for visitors who are deaf or hard of hearing, what guides your planning for the provision of these services?

Q28 Rate how the following guidelines/regulations influence your parks' provision of interpretive accommodations for visitors who are deaf or hard of hearing.

	Not at all influential / not familiar with (1)	Slightly influential (2)	Somewhat influential (3)	Very influential (4)
Harpers Ferry Accessibility Guidelines (1)	☐	☐	☐	☐
Rehabilitation Act (2)	☐	☐	☐	☐
Americans with Disabilities Act (3)	☐	☐	☐	☐
Principles of Universal Design (4)	☐	☐	☐	☐
Park Long Range Interpretive Plan (5)	☐	☐	☐	☐

Q29 In the last year (or last several years), has your park included persons with disabilities to provide guidance regarding accommodative interpretive services?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure (3)

Q30 Do you feel that your park is sufficiently meeting the needs of visitors who are deaf or hard of hearing?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure (3)

Q31 Do you feel your park provides interpretive services in a way that the experiences of non-hearing visitors are similar to what hearing visitors experience?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Not sure (3)

Q32 To what extent do the following act as barriers to the provision of accommodative interpretive services for visitors who are deaf or hard of hearing?

	Not a barrier (1)	Slight barrier (2)	Somewhat of a barrier (3)	Moderate barrier (4)	Strong barrier (5)
Limited Park Budget (1)	☐	☐	☐	☐	☐
Limited budget for Division of Interpretation (2)	☐	☐	☐	☐	☐
Priorities for use of Interp. budget other than accessibility (3)	☐	☐	☐	☐	☐
Low number of park visitors (4)	☐	☐	☐	☐	☐
Low number of visitors entering visitor center (5)	☐	☐	☐	☐	☐
Low attendance to Interpretive programs (6)	☐	☐	☐	☐	☐
Limited personal interpretive services / programs (7)	☐	☐	☐	☐	☐
Infrequent number of requests for accommodative services (8)	☐	☐	☐	☐	☐
Staff with limited experience with accommodations for visitors who are deaf or hard of hearing (9)	☐	☐	☐	☐	☐
Limited time for	☐	☐	☐	☐	☐

staff accessibility training (10)					
Little support from Superintendent on accessible issues (11)	☐	☐	☐	☐	☐
Lack of personal familiarity with services used by people who are deaf or hard of hearing (12)	☐	☐	☐	☐	☐
Lack of or limited knowledge of legal responsibilities towards visitors who are deaf or hard of hearing (13)	☐	☐	☐	☐	☐
Other (14)	☐	☐	☐	☐	☐

Q33 Beyond providing basic interpretive accommodations for visitors who are deaf or hard of hearing (open captions or printed materials), some parks have assistive listening devices available for park programs, public videophones, accessibility kits in park hotels, and have a staffed Deaf Services Coordinator position. Do you see this level of service as needed at your park?

- ☐ Yes (1)
☐ No (2)

Q34 Please explain why or why not this level of service is needed at your park.

Q35 Do you see this level of service as feasible at your park?

- ☐ Yes (1)
☐ No (2)

Q36 Please explain why or why not providing this level of service would be feasible at your park.

Q37 Which one of these accommodative services for visitors who are deaf or hard of hearing would you feel most important to add to your interpretive operations (budget not an issue)

- ☐ Assistive Listening Devices (ALD) (1)
- ☐ Open captions (2)
- ☐ Visitor Center Telecommunication Devices for the Deaf (TDD, TTY) (3)
- ☐ Public use TTYs (4)
- ☐ Volume controlled phones (5)
- ☐ Sign Language Interpreter (on-site) (6)
- ☐ Sign Language Interpreter (upon request) (7)
- ☐ Videophones (8)
- ☐ Printed transcripts of Ranger programs (9)
- ☐ Staff training for interpretive accommodations for visitors who are deaf or hard of hearing (10)
- ☐ Other (11) _____

Q38 What is your type of NPS unit?

- ☐ National Battlefield or Military Park /Site (1)
- ☐ National Historical Park / Site (2)
- ☐ International Historic Site (3)
- ☐ National Memorial / Monument (4)
- ☐ National Park (5)
- ☐ National Parkway (6)
- ☐ National Preserve / Reserve (7)
- ☐ National Lakeshore / Seashore (8)
- ☐ National Recreation Area (9)
- ☐ National River / Wild and Scenic River and Riverway (10)
- ☐ National Scenic Trail (11)
- ☐ Other Designation (12)

Q39 What is your approximate distance (miles) from a population center (50,000-70,000+ people)?

- ☐ My site is located within a population center (1)
- ☐ 60 miles or less (1 hour or less) (2)
- ☐ 61- 180 miles (1-3 hours) (3)
- ☐ Over 180 miles (over 3 hours) (4)

Q40 What is your approximate distance (miles) from a major community of people who are deaf or hard of hearing?

- ☐ My site is located in a town/city that has a major community of people who are deaf or hard of hearing (1)
- ☐ 60 miles or less (1 hour or less) (2)
- ☐ 61- 180 miles (1-3 hours) (3)
- ☐ Over 180 miles (over 3 hours) (4)
- ☐ Not sure (5)

Q41 What is the total number of people annually entering your parks' visitor center? (If more than one VC in park, please estimate and combine numbers of visitors to all park visitor centers)

- ☐ Less than 20,000 (1)
- ☐ 20,000 - 45,000 (2)
- ☐ 45,001 - 100,000 (3)
- ☐ 100,001 - 250,000 (4)
- ☐ 250,001 - 500,000 (5)
- ☐ 501,000 + (6)

Q42 Does your park offer personal interpretive services? (such as Ranger led program, hikes, Jr. Ranger programs; specifically programs that go beyond informal contacts made at visitor center desk or while roving)

- ☐ Yes (1)
- ☐ No (2)

Q43 What is the annual attendance to your front-country, ranger led interpretive programs? (combine attendance for all programs offered)

Q44 What is your park's total budget for front-country interpretive services?

Q45 Thank you for your participation! If interested, please look for a summary of my findings via email to all those included in this survey. Please click the ">>" button below to complete the survey.