

*Informing Plans for Managing Resources
of Cape Lookout National Seashore under
Projected Climate Change, Sea Level Rise,
& Associated Impacts:*
Visitor Survey Report

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Adjacent: Live Saving Station, Cape Lookout Village (courtesy of E. Seekamp).



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Executive Summary

Climate change threatens traditional ways of managing cultural resources. In coastal zones, increases in storm-related flooding, sea-level rise, and erosion may damage or destroy cultural resources. Park managers are tasked with protecting the most vulnerable and most significant cultural resources. Yet, climate change impacts and adaptation actions can alter the cultural values and meanings imbedded within cultural resources, as well as visitor experiences. Cultural resource managers need additional information about stakeholder views regarding climate change impacts and adaptation actions. Social science data, such as the study presented in this report, provides insight into such stakeholders' perceptions.

This report documents one type of stakeholder perceptions (visitors) about one type of cultural resource (historic buildings) at one National Park Service site (Cape Lookout National Seashore). Cape Lookout National Seashore, a barrier island system in the Outer Banks region of North Carolina, includes two historic districts with maritime and residential histories (Portsmouth Village and Cape Lookout Village). Although both districts are accessible only by concessionaire ferry services or private boat, most visitors access the island via concessionaire ferry services (up to several hundreds of people daily) to the Cape Lookout Lighthouse and Keeper's Quarters museum (Light Station Complex), an area of Cape Lookout Village located nearly 2-miles north of the rest of the buildings within the historic district. Portsmouth Village, located approximately 55-miles north of Cape Lookout Village, has a 12-passenger ferry service that operates upon request. This is the first social science study conducted at Cape Lookout Village regarding visitor perceptions of the park's cultural resources; therefore we captures more information about the historic districts, along with perceptions of climate change impacts and adaptation actions.

Structured visitor intercept surveys were conducted at the Light Station Complex in the fall of 2015 and at the Light Station Complex and the Theodore and Annie Salter House (Visitor Center in Portsmouth Village) during summer 2016. Intercept refers to the survey style, visitors participated on-site during their visit (rather than by mail, phone, or electronically). On sampling days when no ferry services were chartered to Portsmouth Island, visitors were intercepted at the Cape Hatteras National Seashore Visitor Center in Ocracoke (screening questions disqualified individuals who had not previously visited Portsmouth Village from being included in the sample). All interviews were conducted orally, storing data in digital audio recorders. The data were transcribed, coded and quantified for analysis. The interview guide captured visitors' perceptions of the districts' vulnerability to climate change impacts, their perceptions of climate change adaptation actions, and their connections to the National Seashore. Key findings are highlighted below.

It is important to note that the majority of findings reported here were coded responses to open-ended questions. This method of data collection was selected to ensure that researchers did not constrain the universe of possible response options, as prior social science studies had not focused on the historic resources specifically. However, generalization of the study results is limited, as only the most salient responses were captured in this study. Future research is needed to more precisely quantify visitor perceptions and to enable more advance statistical analysis.

Visitor Sample

- Of the 253 visitors requested to voluntary participate in the study, a total of 216 individuals agreed (85% response rate).
 - The majority of visitors were intercepted at the Light Station Complex in Cape Lookout Village (82%), where the response rate was 86%. Of the 178 visitors who volunteered to participate in the

- study (Light Station Complex subsample), most were intercepted during the summer sampling period (86%); the remaining 24% were intercepted during the fall sampling period.
- o The response rate for the Portsmouth Village subsample was 83%. Of the 38 visitors who are captured in the Portsmouth Village subsample, most were intercepted in Portsmouth Village (86%); the remaining 24% were intercepted in the Cape Hatteras National Seashore Visitor Center in Ocracoke.
- After removing cases with less than 50% of the questions having audible responses, 158 visitor responses were analyzed.
 - o Of the visitors included in the analyses, most respondents were intercepted during the summer sampling period (91%) and at the Light Station Complex (92%).
- For the 13 non-respondents willing to answer the set of non-response bias check questions, no statistically significant differences were found between non-respondents and respondents, which suggests that the sample is representative.

Visitor Profile

- Over one-half of respondents were first-time visitors (55%).
- Nearly one-half of respondents were traveling in groups of 3 people or fewer (48%).
- Nearly one-half of respondents were middle-aged (between 40-60 years old) (48%).
- One-half of respondents traveled between 100 and 399 miles to reach Cape Lookout National Seashore (50%).
- Most respondents accessed the site via a ferry concessionaire (85%).
- Respondents most commonly learned of the site from a friend or family member

(24%), their past tradition of making visits (19%), or from being in the area previously and hearing about the site (17%).

- Of the repeat visitors, a substantial proportion having been making visits to Cape Lookout National Seashore for more than 20 years (41%).

Place Meanings

- Respondents most strongly agreed with statements regarding the site's unique history and culture, the site being an important part of the nation's history, and the importance of preserving the site for future generations.
 - o 98% of visitors believe *it is important that the historical and cultural resources at Cape Lookout are preserved and protected for future generations.*
 - o 94% of visitors agree with the statement *I feel that Cape Lookout is an important part of our nation's history.*
 - o 82% of visitors agree that *the history and culture associated with Cape Lookout are unique and unlike others in the region.*
- Respondents held more neutral opinions about holding personal attachment to the site, having important family memories tied to the site, and the site being more meaningful than other NC coastal areas.
 - o 33% of visitors disagree that they *have a personal attachment to the history and culture at Cape Lookout.*
 - o 46% disagree that *there are important family memories ties to the history and culture associated with Cape Lookout.*
 - o 46% of visitors are neutral regarding the statement *I get more satisfaction from visiting Cape Lookout than from other outer banks historic/cultural sites.*

Recreation Experiences

- The most often cited motivation for visiting Cape Lookout Village was to view or climb the Cape Lookout Lighthouse (46%). The most often cited motivation for visiting Portsmouth Village was the district's cultural resources (69%).
- For visitors intercepted at Cape Lookout Village, the Cape Lookout Lighthouse was the most commonly reported park attribute that respondents expected to see (59%). At Portsmouth Village, the most commonly reported attributed that respondents expected to see was the historic structures (50%).
- Nearly all of respondents reported that their expectations were met or exceeded during their visit to the site (96%).

Perceptions of Site Conditions

- The majority of respondents said that the site is generally in good (77%) or excellent (14%) condition.
- Most respondents *agreed* or *strongly agreed* that the condition of the buildings at the site positively affected their visit (83%) and that if the buildings were more poorly maintained it would disappoint them (80%). Relatively few respondents *agreed* or *strongly agreed* that their experience would be more enjoyable if the buildings were better maintained (13%).
- While many respondents reported that there were either no improvements that could make their visit more enjoyable (or that they could not think of any needed improvements) (57%), some provided recommendations for site improvements:
 - Offer refreshments and/or drinking water (8%)
 - Provide covered shelter and/or benches (5%)
 - Advertise villages, provide more tours, and make villages more accessible (5%)

- Add trashcans (5%)
- Provide warnings about biting insects (4%)
- Respondents identified the following attributes when asked to describe what makes Cape Lookout unique in relation to other NPS or coastal sites:
 - The history and age of the structure (41%)
 - The lighthouse (30%)
 - The undeveloped/natural nature of the site (22%)
 - The secluded/remote nature of the site (20%)
 - The site's beauty (12%)
 - The beaches (11%)

Perceptions of Park History

- Respondents identified the following when asked about the specific history they were most interested in learning about during their visit:
 - General history (49%)
 - Civil War history (14%)
 - Federal maritime history (11%)
 - North Carolina history (9%)
 - Colonial history (7%)
 - WWII history (3%)
 - Personal family histories of past residents (2%)
- In Cape Lookout Village, many respondents were not previously aware of the cultural resources at the site (41% indicated that they were not aware at all and 24% learned about the historic structures during their trip).
- In Cape Lookout Village, most respondents had not visited the historic buildings located south of the Cape Lookout Light Station zone (73%) and did not plan to visit it on that trip (71%).

Climate Change and Adaption Actions

- Nearly all respondents indicated that they were aware that climate change could damage the historic buildings (97%).

- Research assistant described three different adaptation scenarios to manage potential damage, then asked respondents how each strategy might change their experiences at Cape Lookout National Seashore. The adaptation scenarios presented were: (1) Elevate vulnerable buildings; (2) Move vulnerable buildings to safer locations within the historic district; and (3) remove vulnerable buildings and provide information about the building where the building once stood through interpretive signs.
 - About one-half of respondents explained that elevating (58%) or relocating (46%) buildings would not change their experience. Relatively few respondents indicated that they wouldn't like elevating (9%) or relocating buildings (12%) but would understand the need for the actions.
 - Three-quarters of respondents explained that removing (75%) buildings would negatively affect their experience. A few responded that it would not affect their experience (11%) or that they would not like removal but would understand the need to do so (5%).
 - About one-third of respondents (37%) agreed that the story of Cape Lookout Village could be told through interpretive signs if buildings were destroyed by a storm.
 - The majority of respondents reported they would still visit the site if there were fewer buildings present (94%).
 - When visitors intercepted at Cape Lookout Village were asked about which resources they would like prioritized for adaptation, the most frequently mentioned buildings were the Cape Lookout Lighthouse (69%) and the 1873 Keeper's Quarters (46%).
 - When visitors intercepted at Portsmouth Village were asked about which resources they would like prioritized for adaptation, the most frequently mentioned buildings were the Methodist Church (50%), the Schoolhouse (25%), and the Post Office and General Store (25%).
 - Many respondents couldn't specify any specific strategies for climate adaptation prioritization. For those respondents who could, suggestions included historic value or significance (14%), the oldest and most weathered buildings (8%), as much as possible (8%), and the most intact structures (4%).

Key Insights and Recommendations

These results suggest that park managers are meeting the agency's mission of preserving the natural and cultural resources for public enjoyment by providing the infrastructure necessary for recreation and learning while balancing historic preservation and natural resource conservation. Moreover, the study's results indicate that park managers are providing quality visitor experiences at the Light Station Complex and Portsmouth Village. Park managers may consider the importance that visitors place on the park's ability to preserve the history and culture of its historic resources in future planning efforts. Yet, visitors are predominately unaware of the extent of the cultural resources located at Cape Lookout National Seashore and the opportunities to visit those areas. Additionally, visitors were only able to provide limited guidance for preservation under changing climate conditions. However, visitors may be fairly adaptable to changing site conditions as a method for reducing climate change-related impacts. Additional research is needed to better capture visitors' preservation priorities.

Recommendations for Enhancing Visitor

Awareness

- To enhance public understanding of the specific histories that are fundamental to the park unit (noted in the Cape Lookout National Seashore Foundation Document), park managers could consider enhancing the presence of the park unit's maritime history on the homepage of its web site. Information on the park's web site or in print materials could include time and length (and difficulty of access) for visiting the historic districts.
- Additional considerations:
 - Cape Lookout Village: install signs at the ferry dock and provide additional information at the Harker's Island Visitor Center, within the Light Station Complex, and on the Park's website regarding specific histories.
 - Portsmouth Village: partner with park managers at Cape Hatteras National Seashore to enhance public awareness of Portsmouth Village and collaborate with the Ocracoke – Portsmouth Island ferry concessionaire to enhance marketing of the service.

Recommendations for Climate Change

Adaptation

- Primary attractors appear to be preservation priorities, as do specific types of buildings (i.e., buildings that supported a functioning community).
- Weaving climate change into the historical narratives could be a successful strategy when park managers are able to implement adaptation strategies in the historic districts. Regardless of interpretive approach, park managers can include costs associated with interpreting climate change when planning adaptation strategies for the historic buildings.

Background

This report presents findings from a visitor study at Cape Lookout National Seashore. The study was designed to provide information that can assist managers in making preservation decisions about the historic resources located within a cultural landscape¹. This information is particularly relevant as the resources at Cape Lookout National Seashore are threatened by changing environmental conditions from climate change, such as storm-related flooding and erosion and sea level rise (Peek et al., 2015).

Congress established Cape Lookout National Seashore in 1966 and authorized the National Park Service to manage the natural and cultural resources for public use and enjoyment of its outstanding natural and recreational values. Cape

Lookout National Seashore is located along the coastline of North Carolina, and is composed of a system of barrier islands that collectively stretch 56 miles. Barrier islands are dynamic dune, marsh, and beach landscapes, as the sands shift with the wind, tides, and storms. Preservation of these ephemeral ecosystems and physical assets (buildings, docks, roads) is particularly challenging, as managers cannot stop sea level rise, prevent storms from hitting the coast, or mitigate the natural tendency of the barrier island to migrate toward land due to sea level rise (Riggs, et al., 2011).

Although the islands are currently uninhabited², there are two nationally delegated Historic Districts at the northern (Portsmouth Village) and southern (Cape Lookout Village) ends of the park's boundary (Figure 1). The villages are made up of once occupied homes and buildings that serve as

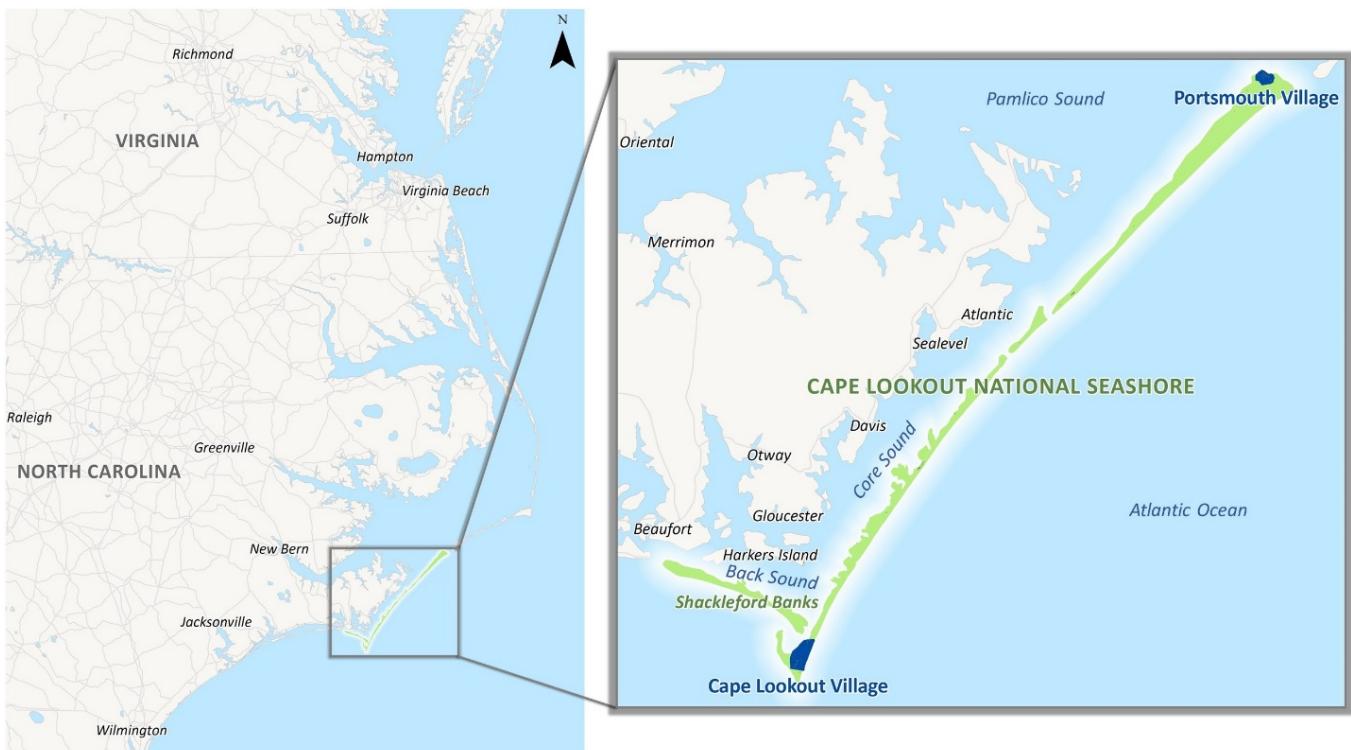


Figure 1. Cape Lookout National Seashore (map created by K. Bitsura-Meszaros, 2017)

¹ The National Park Service defines a cultural landscape as defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values" (Birnbaum, 1994).
² Pre-Columbian peoples occupied the islands as fishing encampments. Post-Columbian occupation began with

occupation for maritime communities that were involved in whaling, shipping and port activities, commercial fishing, and work for the Life Saving Service and the Coast Guard (Garrison-Blake & Sabella, 2009). Livelihoods were traditionally sustained by fishing, farming, and boat building, gradually transitioning to fishing and hunting camps and other second home vacation properties.

remnants of past maritime life on the islands. Prior to this, the island was the site of lightering (transferring heavy loads from ships to smaller vessels that could navigate the shallow coastal waters to the mainland). In Portsmouth Village, the cultural landscape reflects the community that grew from the establishment of a Life Saving Station in 1894. The historic remains in Portsmouth Village tell the story of island life after 1894 and visitors can enter the Life Saving Station, the Post Office and General Store, the Schoolhouse, the Methodist Church, and four former residences (11 former residences are not open for public visitation). Portsmouth Village was listed on the National Register of Historic Places in 1976.

Settlement of Cape Lookout Village began with the establishment of the Cape Lookout Light Station in 1859 and, subsequently in an area two miles south of the Lighthouse, with a Live Saving Station in 1887 and a Coast Guard Station in 1916. Residential development followed in the mid-1900s, first as temporary homes for men working for the Coast Guard and their visiting families and later as seasonal fishing camps and second homes. The Cape Lookout Light Station Complex was listed on the National Register of Historic Places in 1972, the Cape Lookout Coast Guard Station Complex in 1988, and these complexes along with 14 of the residential buildings (one of which is a former Life Saving Station) were designated as a historic district in 2000. Visitors can climb the Lighthouse and enter the adjacent Keeper's Quarters (built in 1873). None of the other buildings are open to the public.

The buildings within each of the historic districts are considered highly vulnerable to climate change impacts by 2100, with the exception of the Coast Guard Station due to its location on higher sand dunes (Peek et al., 2015). Nearly all the buildings in

Portsmouth Village have already experienced significant storm-related flooding and many of the buildings in Cape Lookout Village are especially vulnerable to erosion³. As the National Park Service is tasked with historic preservation, the agency needs to better understand the perspectives of different stakeholder groups regarding their connections to the historic buildings and the ways in which different management strategies aimed at adapting the buildings to climate change impacts may change their place connections. This report is focused on understanding the experiences and perspectives of one specific stakeholder group: individuals who visit the historic districts at Cape Lookout National Seashore.

Methods

It is important to note that the National Park Service has not previously conducted a study of visitors regarding their opinions of cultural resource management under changing climate conditions. Additionally, managers at Cape Lookout National Seashore did not have information regarding motivations for visiting the historic districts at Cape Lookout National Seashore. Therefore, the study was designed to elicit these insights from visitors in their own words, as well as measure their opinions about their connection to the park and their preferences for potential adaptation actions⁴ that could dramatically alter the cultural landscapes within the villages. Specifically, a structured interview format was selected so that visitors could quickly respond to the combination of open-ended questions (no response categories provided) and closed-ended (forced choice responses) questions.

Sampling strategy

Strategic and convenience sampling strategies were used for this visitor survey to accommodate

³ Changes in dredging locations and frequency of dredging activities compound the natural changes of the sound-side of the island, both of which have resulted in a receding shoreline (i.e., loss of sand).

⁴ The potential climate adaptation actions were selected with consultation from National Park Service personnel who were in the process of developing the Cultural Resources Climate Change Strategy, which has since been published; see Rockman et al., 2016.

uneven distribution of visitation throughout the year and within the districts. During times of high visitation, every third visitor party was approached for sampling. When multiple parties would pass a researcher actively administering the structured interview, the next approaching party would be intercepted upon completion of the previous structured interview. During times of low visitation, every visitor party encountered was intercepted (after completion of a structured interview, the next approaching party was intercepted). The introductory script can be found in Appendix A.

Individuals who refused to participate were asked to complete three brief non-response bias check questions. If they agreed, answers were recorded on paper by the researcher, as well as the time and date; if they also refused the non-response questions, the time, date, and any cited reasons for refusal were recorded on paper by the researcher. These non-response bias checks allowed the research team to make comparisons between CALO visitors who participated in the survey and those who did not.

Fall season sampling occurred over two weeks in November 2015 (Cape Lookout Village only: November 6th – 8th, November 11th – 14th). During this sampling period, visitors were intercepted by two research assistants at the Visitor Center by the ferry dock and Cape Lookout Lighthouse; additionally, the research assistants drove a UTV along the beach to capture visitors who were fishing and within the historic district area that is 2 miles south of the Cape Lookout Lighthouse. November respondents were almost exclusively visitors who were fishing on the Atlantic-side beach and no visitors were intercepted within the historic village area.

The summer sampling period began in May 2016. Dates were randomly selected from a stratified sampling frame to include both weekdays and

weekend days. Sampling was conducted at Cape Lookout Village on May 29th – 31st, June 3rd – 7th, June 15th – 18th, July 13th – 16th, and August 14th – 16th, and at Portsmouth Village on June 28th – 30th, July 6th – 10th, and July 24th – 28th. At Cape Lookout Village, two research assistants intercepted visitors (one stationed at the Visitor Center by the ferry dock and one stationed at the Cape Lookout Lighthouse). Researchers would also occasionally visit both the Atlantic-side and Core Sound-side beaches throughout the day to intercept visitors who may have used a private boat to access the beaches. On days when research assistants arrived at the CALO NPS Headquarters late in the afternoon, research assistants remained on the ferry docks and intercepted visitors who were returning from the island⁵. In these cases, one research assistant would intercept the first group leaving the ferry and the other would intercept the third group.

Given the low volume of visitors to Portsmouth Village on any given day, all visitors encountered at Portsmouth Village were intercepted. The ferry captain was consulted at the beginning of each day regarding whether any passengers were scheduled to visit Portsmouth. During the first two trips to Portsmouth Village, one research assistant intercepted visitors at the Visitor Center (Dixon-Salter House), while the other research assistant intercepted visitors at the Lifesaving Station located on the opposite end of the village.

However, we found that the few visitors who were intercepted at the Lifesaving Station had already been approached at the Visitor Center. Thus, during the final two sampling periods at Portsmouth Village, both research assistants remained at the Visitor Center since multiple groups often arrived on the ferry at once and immediately headed to the Visitor Center.

⁵ The Cape Lookout Lighthouse sampling location typically had a higher volume of visitors during the first half of the day, while the Visitor Center location typically had a higher volume of visitors during the second half of the day.

Additionally, those visitors who took the ferry who requested to be dropped off at the beach (instead of the village) were intercepted upon arrival back to the ferry dock at the end of the day. During the days on which no other parties were scheduled to visit Portsmouth Island, visitors to the Cape Hatteras National Seashore Visitor Center in Ocracoke were intercepted; specific screening questions were asked to ensure only individuals with prior visitation history to Portsmouth Island were included in the study.

Structured Interview Instrument

The structured interview instrument (Appendix B) was designed to capture visitors' motivations for visiting a historic district at Cape Lookout National Seashore, their perceptions of districts' vulnerability to climate change impacts, their perceptions of climate change adaptation actions, and their connections to the National Seashore.

To reduce public burden, the survey instrument was shortened from its original version. A structured interview format was selected so that the full range of response options could be elicited (i.e., an "emic" approach to research⁶) and to elicit a higher response rate given a written survey would be challenging given the site conditions (windy, hot and humid, buggy). The interview questions were asked using an interview guide that was audio-recorded and subsequently transcribed verbatim.

The instrument contained a combination of open-ended and closed-ended response questions. The open-ended questions were designed to elicit descriptive information that could be coded using content analysis and quantified, as well as provide quotes that complement the quantitative information. No personally sensitive data were collected in this survey. All instruments and protocols were reviewed and approved by the Institutional Review Board for research with human subjects at North Carolina State University, as well

as by the Office of Management and Budget (OMB Control Number 1024-0224).

Results

Results presented in the following sections represent descriptive statistics. These statistics illustrate mean, or average, values and perceptions of visitors and proportions (percentages) of the visitor sample who responded to items in the survey. While these results give a general idea of the attitudes and values of Cape Lookout visitors, inferences to all visitors, and especially visitors at other sites, should be drawn with caution.

Respondent Profile

A total of 253 visitors were intercepted, of which 216 individuals voluntarily agreed to participate in the study (85% response rate). Of the respondents, the majority were intercepted in the summer sampling period (88%) and within the Cape Lookout Village sampling locations (82%). After data cleaning procedures were performed including removing cases in which 50% or more of the questions were not answered or inaudible on the recordings, our data set consisted of 158 usable cases (completed questionnaires).

A total of 144 cases (91%) retained for analysis were individuals intercepted at the Lighthouse Complex, the remaining 14 (9%) are visitors intercepted at Portsmouth Village. Because of the lower participation rate of visitors to Portsmouth, we feel readers should interpret the statistics and results in this report with caution. These results may lack reliability (i.e., are specific to the visitor population we encountered in 2015 and perhaps not reproducible) and generalizability (cannot be applied to other similar sites or seasons).

Visitors who participated in the survey were all 20 years of age or older. Most respondents (48%) reported an age between 40 and 60 (see Table 1).

⁶ An emic approach to research enables visitors to determine the most salient attributes (as opposed to an etic approach in

which the researcher defines the range of possible responses). For additional information, see Morris, et al., 1999.

Visitors intercepted at Portsmouth were primarily in the 40-49 years old age groups while the age of visitors intercepted at Cape Lookout Village were more diverse.

The respondents represented a mix of both first-time and repeat visitors (55% and 45% respectively). Nearly one-half of respondents (48%) were traveling in small groups (3 people or fewer) and one-third of respondents (34%) were traveling in moderately sized groups (4 or 5 people); the remaining proportion of respondents (18%) were traveling in large groups (6 or more people). Most respondents (85%) accessed Cape Lookout National Seashore via a ferry concessionaire. Twenty visitors traveled to Cape Lookout on a private or personal boat (13%), and three were on a private tour boat (2%).

Table 1. Age of respondents.

Respondent's age	% of full visitor sample	% of Cape Lookout Village visitors	% of Portsmouth Village visitors
20-29	10	10	15
30-39	15	16	8
40-49	27	26	46
50-59	21	21	15
60-69	18	18	15
> 70	9	10	—

Repeat visitors were asked to provide information about their previous visits (see Table 2). Out of the 61 repeat visitors, nearly one-third (29%) first visited Cape Lookout National Seashore less than 5 years ago. Many repeat visitors started visiting the site between 6 to 10 years ago (13%) and 1 to 20 years ago (17%). However, the majority of those return visitors who participated in the survey first visited more than 20 years ago (41%). The majority of repeat visitors reported relatively short use-history at Cape Lookout National Seashore, with 27% making their second visit and 30% having made between three to five trips. Forty three percent of repeat visitors reported extensive use history (more than six prior trips).

Table 2. Length of time since first trip to CALO.

Length of time since first visit	% of full visitor sample	% of Cape Lookout Village visitors	% of Portsmouth Village visitors
Less than 5 years ago	29	19	50
6-10 years ago	13	14	25
11-20 years ago	17	11	25
More than 20 years ago	41	56	—

Distance traveled to Harker's Island was calculated using respondents' self-reported home ZIP Code (Table 3). The distribution of travel distance demonstrates that respondents reside in diverse geographic locations, from local to international visitors, but predominately are residents of North Carolina or adjacent states (67% reside within 399 miles).

Visitors were asked how they learned about visiting Cape Lookout, and numerous information sources emerged (Table 4). The most frequently referenced source were referrals from friends or family members (24%). Other visitors learned about the site from the news, a magazine, or a brochure (12) or through an internet search (13%). Many visitors, particularly repeat visitors, know of Cape Lookout because it's a tradition for them to come and/or they are local to the area (36%). Only 4% of respondents knew about the site because they were lighthouse enthusiasts visiting the numerous lighthouses on the North Carolina coast.

Table 3. Distance traveled from origin

Distance	% of Respondents
< 100 miles	17
100 - 249 miles	26
250-399 miles	24
400 - 649 miles	15
> 650 miles	16
Outside of the U.S.	2

Table 4. Information sources

Information Source	% of Respondents
Friend or family member	24
Tradition / locals/ always come	19
From the area / word of mouth	17
Internet research	13
News, magazine or brochure	12
From a private tour	4
Visiting numerous NPS units	4
Lighthouse enthusiasts	4
From a previous visit	3

Place Meanings

Several statements about place meanings (place attachment, place dependence, family identity, and historical and cultural values) were read to visitors. The statements included:

- I have a personal attachment to the history and culture here at Cape Lookout.
- I get more satisfaction from visiting Cape Lookout than from other historic or cultural sites on the Outer Banks.
- There are important family memories tied to the history and culture associated with Cape Lookout.
- I feel that Cape Lookout is an important part of our nation's history.
- I believe that the history and culture associated with Cape Lookout are unique and unlike others in the region.
- It is important that the historical and cultural resources at Cape Lookout are preserved and protected for future generations.

Then, visitors were asked to state the number that represented the extent to which they agreed or disagreed with statement using a Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with 3 being neither agree nor disagree. Respondents' agreed most strongly with the statements regarding Cape Lookout National Seashore's historical and cultural values (see Figure 2 and Table 5). It is worth noting that visitors generally had the most difficulty gauging their agreement with the statement "*I get more satisfaction from visiting*

Cape Lookout than other Outer Banks

historic/cultural sites." Many respondents talked about how they get more satisfaction from visiting the Outer Banks in general even though they also felt that was about Cape Lookout.

Experiences at Cape Lookout

In addition to collecting data on visitors' trip-taking characteristics, researchers also asked about the recreational opportunities that visitors were most interested in pursuing on the island. This included prompting visitors to share what motivated their visit, what activities they planned to participate in, and how history, natural features, and cultural sites motivated their visit. Researchers also asked respondents for their perceptions of site conditions (e.g., how well-maintained the site appeared).

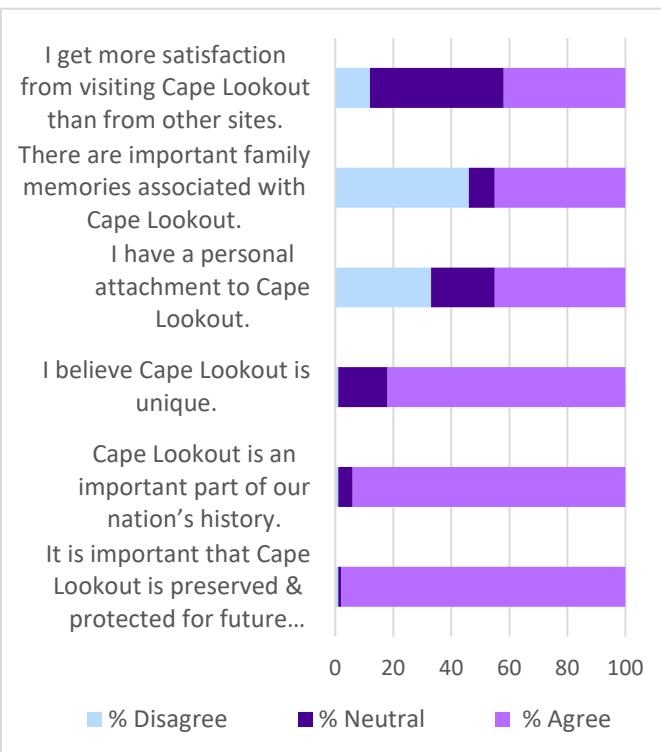


Figure 2. Visitor responses to place meaning measures.

Reasons for Visiting & Activities

A section of the structured interview guide was dedicated to learning more about visitors' current trips to Cape Lookout National Seashore, including the reasons for their visit, the activities they participated in, and site expectations.

Respondents were first asked about their primary reasons for visiting the site (Table 6). Seeing or climbing the lighthouse was the most frequently provided response (42%). Some visitors only talked about the lighthouse, but many described additional things that drew them to the island:

"To give my kids a great experience, see a lighthouse, maybe learn a little bit about what the purpose of a lighthouse is and then spend a little time at the beach as well. Climbing the lighthouse, riding the ferry, sit on the beach, look for seashells with the kids, I'm sure the kids will get in the water."

Table 5. Mean level of agreement with place meanings items.

Place meaning items	Full visitor sample Mean (SD)	Cape Lookout Village Mean (SD)	Portsmouth Village Mean (SD)
I get more satisfaction from visiting Cape Lookout than from other outer banks historic/cultural sites.	3.52 (.973)	3.50 (0.99)	3.58 (0.79)
I have a personal attachment to the history and culture at Cape Lookout.	3.19 (1.36)	3.27 (1.36)	2.38 (1.26)
There are important family memories ties to the history and culture associated with Cape Lookout.	2.95 (1.51)	3.04 (1.50)	1.92 (1.26)
It is important that the historical and cultural resources at Cape Lookout are preserved and protected for future generations.	4.66 (0.53)	4.66 (0.49)	4.62 (0.87)
I believe the history and culture associated with Cape Lookout are unique and unlike others in the region.	4.22 (0.77)	4.19 (0.79)	4.54 (0.52)
I feel that Cape Lookout is an important part of our nation's history.	4.47 (0.65)	4.47 (0.65)	4.46 (0.66)
Sample size	148	135	13

Table 6. Respondents' primary motivation for visiting.

Primary motivation for visiting	% of full visitor sample	% of Cape Lookout Village visitors	% of Ports-mouth Village visitors
Lighthouse	42	46	—
Show family/friends	22	24	—
Vacation/getaway	20	21	8
Beach	14	14	15
Cultural resources	10	4	69
Fishing/shelling	10	10	8
Shackleford horses	5	5	—
Camping	5	5	—

Respondents also frequently mentioned that their primary reason for visiting Cape Lookout National Seashore was for escape ("vacation" or "to get away"; 20%), to show the area to friends or family (22%), and to enjoy the beach (14%). Some respondents talked about how they came to go fishing or shelling (10%), camping (5%), or to see the wild ponies on Shackleford Banks (5%). Of the 15 respondents that stated that they came to see the historic buildings (mentioning buildings other than those at the Light Station Complex), the majority were intercepted at Portsmouth Village (60%).

Visitors participating in the survey were asked to list additional activities (not including their primary motivation for visiting) they had participated in or were planning to do during their visit (Figure 3). It is important to note that without a list of response items from which visitors could select, it is possible that some activities may not have been reported. The four most commonly reported secondary activities are listed in Table 7. In general, respondents tended to list multiple activities (about two per respondent were mentioned, on average) including shelling, camping, fishing, and general sight-seeing. The largest proportions of visitors enjoyed relaxing on the beach and swimming (38%), collecting seashells (26%), and viewing or climbing the lighthouse (24%) as additional activities. Three visitors who were intercepted at the Lighthouse Complex visited the historic village.

Table 7. Most commonly reported secondary activities.

Secondary activity	% of full visitor sample	% of Cape Lookout Village visitors	% of Portsmouth Village visitors
Swim/sunbathe	38	39	23
Shelling	26	27	15
Lighthouse	24	24	31
General sight-seeing	16	15	31

Expectations

Respondents were asked about what they expected to see at Cape Lookout during their trip (Table 8) and whether their expectations were met. Over one-half (59%) of the visitors mentioned the lighthouse in response to this question. Many respondents also mentioned they expected to see the beach or ocean. Other expectations included the Visitor Center and Keeper's Quarters Museum, Shackleford ponies, flora on the island, shells, and a 'primitive setting'. Thirteen respondents (9% of the sample) mentioned that they expected to see historic structures.

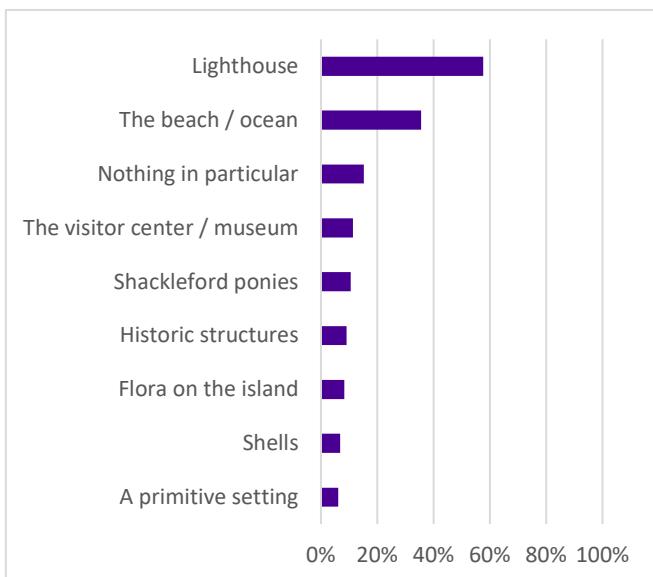


Figure 3. Visitors primary motivation to visit CALO.

Almost all visitors (96%) reported that their experience either met or exceeded their expectations. Many visitors were surprised by how much there was to do on the island other than viewing the lighthouse:

"We had read quite a bit about it so we expected to see the beautiful beaches and the incredibly clear water and the lighthouse. I did not know about the additional historical buildings."

Table 8. Expectations of visit.

Expectations	% of full visitor sample	% of Cape Lookout Village visitors	% of Ports-mouth Village visitors
Lighthouse	58	64	—
Beach/ocean	36	36	25
Nothing in particular	15	16	8
Visitor's center/museum	11	11	—
Shackleford ponies	11	11	—
Historic structures	9	5	50
Flora	8	7	17
Shells	7	8	—
Primitive setting	6	3	33

Repeat visitors (n=46) were asked additional questions related to how their current expectations differ from previous trips to the site. The majority (60.9%) of repeat visitors' expectations were not different from those they held on their first trip to Cape Lookout National Seashore. Of the 18 visitors with different expectations, about one-half attributed it to not knowing what to expect on their first trip (47%). Some repeat visitors talked about how their expectations are higher on return trips (2%) and how their expectations are different because they know which activities are available to do on the island when they return (3%). Two repeat

visitors explained that their mode of transportation to the island changed their expectations (i.e., had traveled by personal boat previously and during this visit used the NPS ferry to get to and from the island). Similarly, 65% of repeat visitors noticed changes since their first trip. The changes referenced most often were: (1) the National Park Service taking over the ferry service (23%)⁷ and boardwalks (15%) and (2) the [new?] visitor center pavilion (15%). Some visitors felt that there were more tourists and trash on the island now (8%), and noticed changes to the docks (8%) and island's landscape (15%):

"The sandbars are changing. You can definitely tell. They're just shifting, it's just amazing to me how quickly one will change and will open up even from last summer from our first visit back here. There's tiny differences but I've fallen in love with it so I notice."

Perceptions of Conditions

Visitors were asked about their perceptions regarding the general maintenance of Cape Lookout and the specific condition of CALO structures. Every respondent (100%) agreed that the site is well-maintained in general,. The majority of respondents said that the site is generally in good (77%) or excellent (14%) condition, and only a few

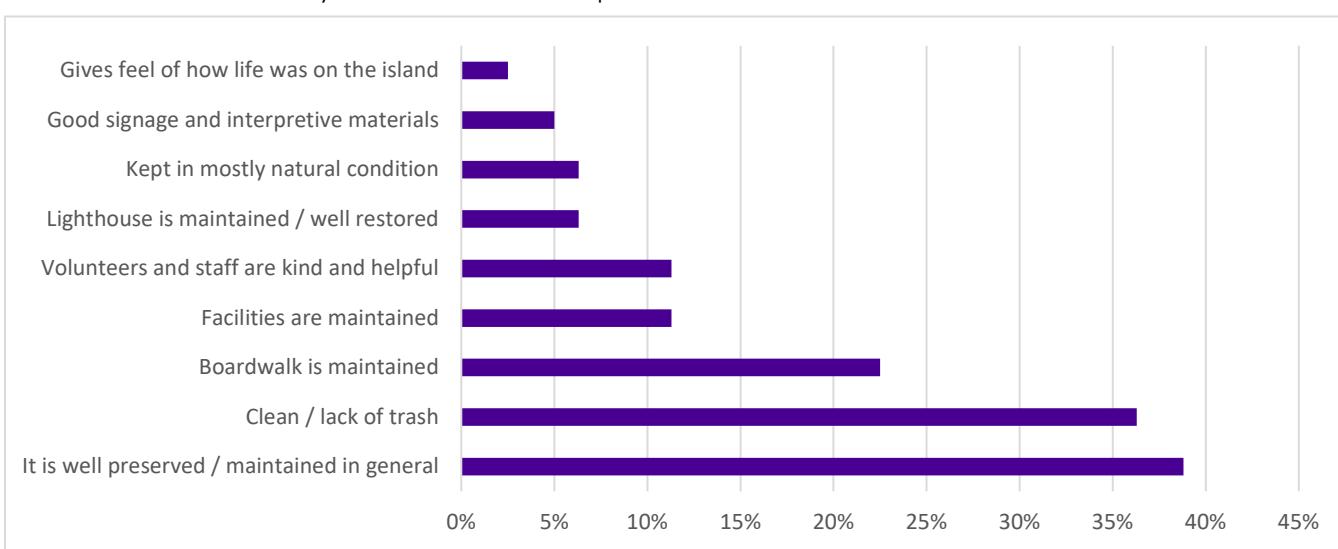


Figure 4. Visitors' perceptions of CALO.

⁷ It is important to note that this is how visitors expressed the change to one concessionaire that has to abide by National Park Service specified standards, including having the

mainland ticket office and ferry dock at Park Headquarters on Harkers Island.

rated it as being in fair condition (7%). Following this question, the visitors were asked to discuss why or why not they felt the site was well maintained (Figure 4). The most frequently mentioned responses were not pointing out anything specific but mentioning that the site was well preserved (37%). Respondents also frequently took notice of the cleanliness of the island due to a “take what you bring” policy regarding trash (36%). Many visitors also discussed how much they liked the boardwalk (22%), one in particular talked about how it made the site more accessible to families:

“You can tell where they have replaced boards that have probably deteriorated in the weather and it is nice to have the boardwalk. You know when you go to those state parks like at Hammock’s Beach it doesn’t have that boardwalk. This is nice to have the boardwalk the whole way over and the bathhouse over it is really nice for families with kids.”

Although some respondents noted that they liked how the island is kept in mostly natural condition (5%) and that they are able to get a feel for life on the island in the past (2%), some also enjoyed the more modern amenities and maintenance by the park service that increase their comfort and the aesthetic of the site (11%). One visitor who was intercepted at Portsmouth Village stated:

“The site is well landscaped without being artificial or detrimental to the setting. I like how it’s kind of self-guided.”

To capture more forced choice responses about the conditions of the buildings specifically, three statements were read to respondents (Figure 5). The majority of respondents *agreed* or *strongly agreed* that the condition of the buildings at the site positively affected their visit (83%) and that if the buildings were more poorly maintained it would disappoint them (80%). Considerably less agreement was found with the statement “If the buildings were better maintained I would enjoy my visit more” (14%). It is important to note that visitors found this question difficult to answer

because they felt that the buildings were already maintained well, leading them to report *disagreement* or *strong disagreement*, (69%) or feeling neutral (*neither agree nor disagree*) (44%) towards that item.

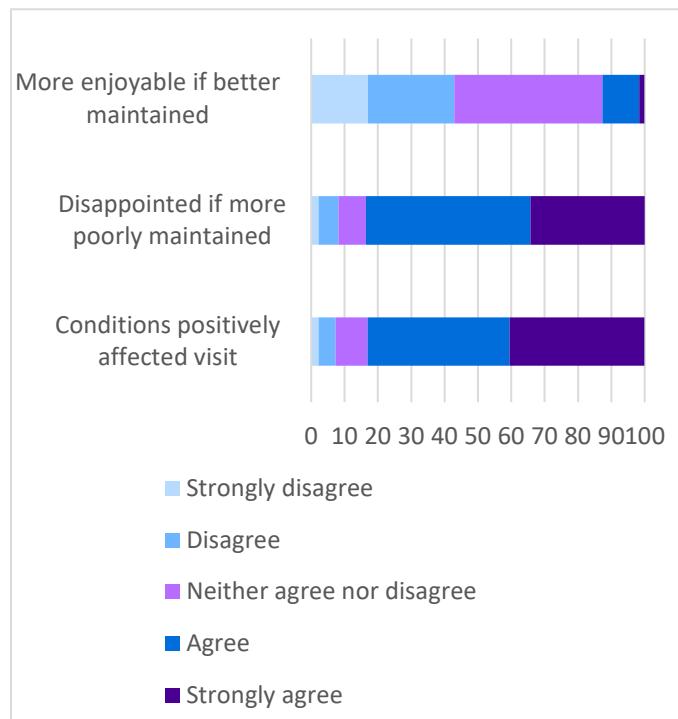


Figure 5. Visitors’ perceptions of building conditions.

Recommended Improvements

After visitors talked about their perceptions of the conditions at Cape Lookout, they were asked if there were any improvements that could have made their visit more enjoyable. The largest proportion of respondents (57%) said that there were either no improvements that could have made their visit more enjoyable or that they could not think of any needed improvements. The visitors who could think of improvements suggested varied changes that could have improved their current trip or would improve future trips (Table 9).

Specific to the cultural resources, a few respondents suggested that the villages could be made more accessible by providing tours and advertising their existence to visitors (5%), by adding or improving facilities to access the harder to reach areas (including the historic districts and

the hook of the Cape; 3%), and by improving the condition of the structures (2%).

Table 9. Suggested improvements to enhance visits.

Suggested improvements	%
None/can't think of any	57
Offer refreshments/provide drinking water	8
Provide covered shelters/benches at beach	5
Advertise villages/provide more (accessible) tours	5
Add trashcans/litter control	5
Provide warnings about biting insects	4
Make lighthouse more accessible	4
Improve facilities at hard to reach areas (villages)	3
Provide a place to wash off at the beach	2
Improve walkway from dock to Visitor's Center	2
Better weather (too hot)	2
Improve structure conditions	2

Several respondents mentioned that they would have liked a place to purchase refreshments or a way to get drinking water (8%). Additionally, a few respondents suggested adding covered shelters or benches at the beach to escape the sun (5%). For example, one respondent stated:

"The only thing I would do different, I think it is well maintained for what it is, I would probably put maybe a few sun shelters or something on the beach... natural looking that would be the only thing. Nothing to take away from the structures, just for people to get out of the sun if they had to. Otherwise, beautiful."

As Portsmouth Island is inundated with biting insects, especially during the hot summer months, several respondents suggested the National Park Service provide better warnings about their presence (4%).

Uniqueness of Cape Lookout

To better understand why visitors come to Cape Lookout National Seashore, respondents were asked to talk about what they think is special or unique about the site (Table 10). The largest proportion of respondents explained that the history and the age of the structures are what makes it special (42%). As one respondent explained, the ability to engage in multiple activities on the island while immersed in an iconic natural setting makes

Cape Lookout National Seashore a one-of-a-kind experience:

"Yes...there's nowhere else in the country like it. There's nowhere else where you can have this huge stretch of beach that's not occupied with houses yet it's open to people and you can bring vehicles so you're not limited to just where you can walk on foot. And fishing is world class, it's got a lighthouse that you see on license plates and mugs and posters all around the world. There's no other place in the country like it. It's the most dynamic piece of terrain on Earth."

Respondents also frequently attributed the uniqueness to the natural, untouched, and undeveloped character (22%) or secluded nature of the site (20%). Other responses included the scenic beauty (12%), flora and fauna (11%), wild horses (7%), and seashells (3%). When specifically asked about the importance of the area's natural history, many respondents discussed that the area's natural history was important to their visit (70.4%).

Table 10. Respondents perceptions of uniqueness..

Unique Characteristics	%
The history; age of structures	41
The lighthouse	30
Natural; untouched; undeveloped	22
Secluded; remote; hard to reach	20
Its beauty	12
The beaches	11
The flora and fauna; biodiversity	7
The wild horses	7
The seashells	3
A variety of things to do	2
Helpful and knowledgeable staff/volunteers	1

The lighthouse was the second most frequently discussed reason for Cape Lookout's uniqueness (30%). To further explore the importance of the historic buildings, visitors were asked if there were any specific buildings of particular interest to them. The vast majority of respondents ($n=112$, 79%) indicated that there were specific buildings of interest to them. Most referenced the lighthouse

(76%). Many of these respondents were also interested in the Keeper's Quarters (26%), while just a few respondents mentioned other structures, such as the Coast Guard Station (2%), the personal residences (3%), the Methodist Church (3%), the schoolhouse (3%), the Life Saving Station (3%), the old cannons (1%), or the Post Office and General Store (1%).

To further explore perceptions of the importance of the Park's history, visitors were asked if the history of the area was important to their visit. Nearly three-quarters of respondents explained that it was important (73%), while a few respondents indicated that it was somewhat important but not as important as other motivations for their visit (5%) or that it wasn't important for the present trip but their ancestral connections to the area make the history important to them (1%).

Visitors were also asked about explicit points in history that were of particular interest to them (Table 11). Although the largest proportion of respondents indicated that they were just generally interested in the area's history (no specific point in time was particularly important; 49%), several respondents indicated that they were particularly interested in Civil War history (14%), federal maritime history (11%), and North Carolina history (9%). One respondent's response covered the general regard felt by visitors towards Cape Lookout's unique history:

"Oh yeah, the history. It's overflowing with history. It's one of the last spots that's really been untouched by human hands really. It's just pure. It's heaven, honestly. Everything stops when you get here."

Table 11. Specific histories of particular interest.

Points in time of interest	%
General history (no specific history)	49
Civil War history	14
Federal maritime history	11
North Carolina history	9
Colonial history	7
Other: WWII, 19020, personal, 18000s	7

Awareness of Historic Districts

As Cape Lookout Village not only includes the Light Station Complex but also the array of federal maritime buildings and private residences in the area two miles south of the Light Station Complex, visitors intercepted at the Light Station Complex were asked about their awareness of the site. Of the 124 visitors asked if they were aware of the historic structures located about two miles south of the lighthouse, about two-thirds of respondents were not previously aware (41% indicated that they were not aware and 24% learned about the area during their trip). Where almost all visitors intercepted at the Light Station Complex were aware the site was managed by the National Park Service (93%), less than one-half of the respondents knew that Cape Lookout Village was designated as a National Historic District (40%).

To gain more knowledge about visitors' perceptions and experiences, respondents who said they were aware of the Cape Lookout Village were asked some additional questions. The additional questions revealed that most respondents had not visited the other part of village (73%) and did not plan to visit it on their current trips (71%). When only considering repeat visitors, the majority had never been to the other part of village (61%). Some of these respondents provided a rationale as to why they did not plan to visit the village on their current trips; the most commonly provided reasons included: time constraints; they weren't previously aware; and the distance was too far to travel during their visit.

When visitors were asked if they think they'd visit the site again, only 4% of respondents said they did not think that they would return because they saw what they wanted to see or that they didn't believe that there was much more worth seeing. Another small fraction of respondents reported feeling unsure about visiting again (7%) or that they "probably" would visit again (2%), and a few said they would come again but only during the off-season for cooler weather and fewer crowds (5%).

The majority of respondents said they would return (85%) and most frequently explained that they had a positive experience or generally enjoy coming to Cape Lookout National Seashore (39% of these respondents). Other reasons to return included: visiting the area is a family tradition (14%); to bring back friends or family (11%); to see and do the things they couldn't do on their current trip (9%); to see how things change (3%); and to participate in specific activities (visiting Cape Lookout Village, 3%; camping, 2%; shelling, 2%). Comparing responses from visitors intercepted at the Light Station Complex to those intercepted in Portsmouth Village, the proportion of visitors who said they would visit the site again was greater for those at Light Station Complex (87%) than those at Portsmouth Village (46%).

Climate Change & Adaptation Actions

Visitors were asked if they were aware that the structures at Cape Lookout could be damaged by climate-related risks, such as flooding or gradual sea level rise. Nearly all respondents indicated that they were aware of the risk of damage (97%). Only one respondent indicated that they were unaware of climate-related risks to the structures and another two respondents indicated that they understood that the structures were vulnerable to these risks but had never previously considered the risks. Following this introductory question, the research assistant described three different adaptation scenarios to manage potential damage and asked respondents how each strategy might change their experiences at Cape Lookout National Seashore. The adaptation scenarios presented were to:

- elevate vulnerable buildings;
- move vulnerable buildings to safer locations within the Historic District;
- and remove vulnerable buildings and provide information about the building where the building once stood through interpretive signs.

About one-half of respondents explained that elevating (58%) or moving structures (46%) would not change their experience (Figure 6). Conversely, respondents most frequently explained that

removing structures from the landscape would negatively impact their experience (75%). Several respondents indicated that they wouldn't like it if the buildings were elevated (9%), moved (12%), or removed (5%) but that they would understand the need for such actions (see Table 12).

Respondents' responses portray the generally positive sentiments about elevating or moving buildings to avoid climate change related damages. For example, one respondent explained:

"If the structures were threatened by rising sea level or a climate where there are more fierce hurricanes I think it is a natural expectation to see if the buildings are going to be preserved it would be perfectly natural to raise the elevation of the buildings to preserve them."

Another respondent explained: *"I don't think it would bother me. I don't think I'd know it [moved] unless someone told me."*

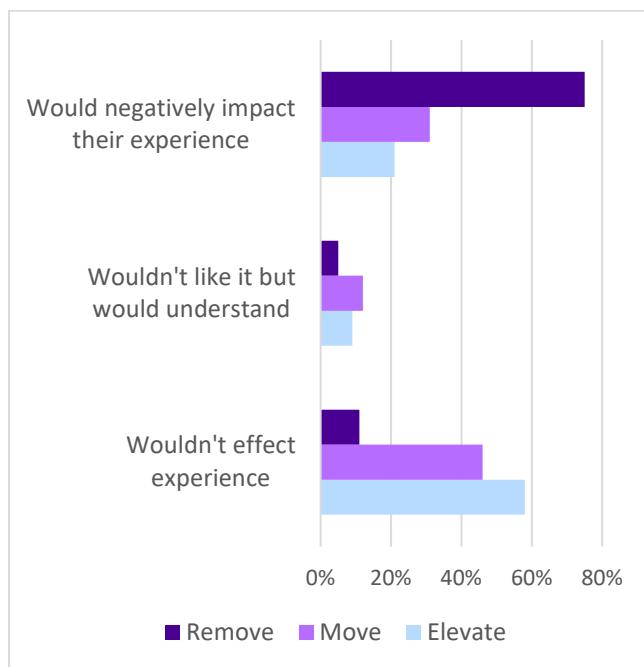


Figure 6. Impacts of adaptation strategies on visitor experiences.

Table 12. Visitors' perception of various adaptation strategies.

Adaptation strategies	% of full sample	% of Cape Look-out	% of Portsmouth
Elevate			
Wouldn't effect experience	58	60	39
Wouldn't like it but would understand	9	10	8
Would negatively impact experience	21	20	39
Move			
Wouldn't effect experience	46	46	46
Wouldn't like it but would understand	12	12	8
Would negatively impact experience	31	31	31
Remove			
Wouldn't effect experience	11	10	23
Wouldn't like it but would understand	5	5	8
Would negatively impact experience	75	77	54

Additionally, several respondents indicated being familiar with the Outer Banks area and talked about how they remembered the relocation of the lighthouse at Cape Hatteras National Seashore and using that as a reference for acceptable actions. One respondent explained:

"As long as it protected them so more people could come years later. I know at one point at Cape Hatteras you could go up in it, but then the next time we came we couldn't go up because they were moving it. I don't see anything wrong with them doing whatever they have to, to preserve it."

A few respondents expressed ambivalence towards moving the buildings because, although they want to see them protected, they were concerned that their historical significance is associated with where they originally stood. For example, one visitor explained:

"I don't think I'd want you to move them but at the same time you can't predict mother nature. It would be a shame if a hurricane destroyed them or something."

Although visitors generally expressed that they did not like the idea of removing vulnerable buildings and providing interpretive materials where they once stood, a few respondents talked about letting nature take its course if elevating or moving buildings is not an option. One visitor explained:

"I understand returning things back to their natural state but the island was habituated by humans and there's history here, so to just let that go away and just put signs up seems kind of detrimental to the revenue and to the community as well because nobody just wants to come look at signs. Anybody can go to a beach, because then it just becomes a beach."

However, a few respondents were explicitly concerned about moving buildings. These visitors explained that removing them would eradicate the historical significance and affect the uniqueness of Cape Lookout National Seashore, as well as the economic vitality of nearby communities.

Visitors were also asked if they thought the story of Cape Lookout Village could be well told through interpretive signs if buildings were destroyed by a storm. About one-third of respondents simply answered "yes" to this question (37%). Nineteen percent of respondents responded "no", voicing their concerns that signs aren't tangible or interesting and people generally do not read them. One visitor explained:

"Quite frankly, it's hot, we've walked by a whole lot of more signs that we stopped to read. How many people are just going to walk by the sign when the sun's shining and they're on their way to the beach."

Others respondents discussed that interpretive signs could tell the story if that is the only option. For example, one visitor explained:

"To an extent I think if the buildings were destroyed and not replaced or rebuilt the only thing you could do is have an interpretive history about it."

Yet, other visitors were concerned that such a strategy would not be the same quality of experience (15%) or that it was better than nothing (19%). A few respondents felt that interpretation as an adaptation strategy would be suitable provided the lighthouse was still there (1%), while others mentioned that interpretive signage and building ruins could create a desirable experience (2%). Additionally, a few respondents explained that they would prefer that replicas be erected in the place of the buildings, as opposed to signs (3%).

When asked if visitors would still visit Cape Lookout National Seashore if there were fewer buildings, relatively few said "no" (4%). The clear majority of respondents indicated that they would still visit (94%), and only a few were undecided (2%). Of those who said they would still visit, 24 respondents (17%) qualified their answer by stating they would only visit if the lighthouse was still there, while others explained that it would be still be enjoyable to bring their family (5 respondents, 4%) or that they would still be able to enjoy other aspects of the island (15 respondents, 11%).

Preservation Priorities

To gain more insight into visitors' perceptions of potential climate adaptations or management actions at Cape Lookout National Seashore, respondents were asked to imagine themselves in the position of a National Park Service manager and describe how they would decide which buildings they would preserve first. Most visitors listed particular buildings they would preserve in order of importance (Table 13).

The lighthouse was a preservation priority to the majority of visitors intercepted at the Light Station Complex (70%), followed by the 1873 Keeper's Quarters (47%). Several respondents even listed their preferred order in which preservation of these

buildings could occur. For example, one visitor explained:

"The lighthouse first because that's the whole reason this area exists. If it wasn't for the lighthouse it would just be a barrier island. Two would be the keeper's quarters. Three would be village complex itself. And then maybe the boardwalks last."

Table 13. Respondents' suggestions of specific buildings to be preserved.

Priorities	% of full visitor sample	% of Cape Lookout Village visitors	% of Portsmouth Village visitors
The Lighthouse	63	69	-
Keeper's Quarters	41	46	-
NPS structures	6	6	8
Methodist Church	5	-	50
The Schoolhouse	4	2	25
Coast Guard Station	3	3	-
Post Office & General Store	3	-	25
Portsmouth Island Lifesaving Station	1	-	17
The Barden House	2	2	-
The historic village (generally)	11	10	17

However, another respondent explained that their prioritization of the lighthouse may change if they saw the other buildings in district. Specifically, this visitor stated: *"I'd say the lighthouse area first just because that's what everybody sees when they come on but then the village. If I saw over there I might save the village first."*

For the visitor intercepted in Portsmouth Village, the largest proportion explained that the Methodist Church should be prioritized (50%), followed by the two other community buildings (Schoolhouse, 25%; and Post Office and General Store, 25%).

Some general prioritization strategies were also offered by visitors (Table 14). The most frequently mentioned strategy was to focus on the historic value and significance when making prioritization decisions (13%). For example, one respondent explained that they would preserve: “*The ones with the most history I guess. I don’t know if those would be the oldest or the most relevant to the area.*” This strategy was most frequent among visitors intercepted at Portsmouth Village (42%). Other suggestions mentioned by respondents (regardless of intercept site) included: preserving the oldest and most weathered buildings first (9%) and to preserve structures that are the most intact (5%).

Table 14. General preservation strategies.

Priorities	% of full visitor sample	% of Cape Lookout Village visitors	% of Portsmouth Village visitors
Historic value & significance	14	11	42
Oldest and most weathered	8	8	8
As much as possible; everything	7	7	-
Most intact structures	4	5	8

Lookout National Seashore. It is important to note structure interviews were selected for data collection, as researchers and site managers were uncertain of the full range of potential responses for many of the questions. Future research is needed to enhance the generalizability of the findings of this study’s open-ended questions, which can determine the strength (rather than salience) of visitor opinions to these questions and perform more advanced statistical analysis to examine relationships between visitors’ demographic information and their management preferences.

The two historic districts at Cape Lookout National Seashore (Cape Lookout Village and Portsmouth Island) attract both new visitors and long-time, repeat visitors who predominately traveled from within North Carolina or adjacent states. In general, visitors held relatively neutral opinions about their personal connections (place attachment, place dependence, and family identity) to Cape Lookout National Seashore. However, visitors typically agreed strongly with statements about the site’s culture and history being unique within the region, the history and culture telling an important part of our nation’s history, and the importance of the preserving the history and culture at the site for future generations. **These results suggest that park managers consider the importance visitors place on the park’s ability to preserve the history and culture of its historic resources in future planning efforts.**

Discussion and Recommendations

This report provides insights from structured interviews conducted with visitors intercepted at the Light Station Complex area within Cape Lookout Village and within Portsmouth Village. The majority of visitors’ perceptions captured in this report apply to visitation at the Light Station Complex. The results include information regarding visitor demographics, the reasons for their visit, and their perceptions of their experiences, the condition of the historic resources and their preferences for climate adaptation of the historic resources, as well as their connections to Cape

It is not surprising that the majority of visitation occurs at the Light Station Complex area within Cape Lookout Village, as it is the most publically accessible area and hosts the primary attractor: the Cape Lookout Lighthouse. The area’s popularity is also associated with the presence of infrastructure (boardwalks and restrooms) that also enable easy access to both the Core Sound and the Atlantic Ocean; swimming and sunbathing were the most predominate secondary activity. Additionally, most visitors (intercepted at both sampling locations) reported having their expectations met, being

satisfied with the conditions encountered, and not foreseeing the need for additional improvements.

These results suggest that park managers are providing quality visitor experiences at the Light Station Complex and Portsmouth Village.

The visitors to Cape Lookout National Seashore hold diverse perceptions of what makes the site unique and what makes it historically significant. It is interesting that visitors, despite their relatively low awareness of the other buildings south of the Light Station Complex, most commonly reported that the uniqueness of the site was its history and the age of the buildings, followed by specific mentions of the Cape Lookout Lighthouse.

However, once respondents were made aware of the other area of Cape Lookout Village and what could be found within it, many were intrigued and wished they would have had this knowledge prior to their trip planning so they could have visited the area during their visit. In terms of the site conditions, most visitors (regardless of intercept location) believed the buildings were either in good or excellent condition. It is important to note that the visitors intercepted at Light Station Complex had not visited the southern portion of the Cape Lookout Village historic district, and therefore, their perceptions are likely only applicable to the buildings and infrastructure (both historic and non-historic) within the Light Station Complex and ferry dock area. **Park managers may consider implementing visitors' recommendation to make the historic districts—particularly, the southern portion of Cape Lookout Village—more widely known by installing signs and providing additional information at the Harker's Island Visitor Center, within the Light Station Complex, and on the Park's website.** Yet, the two-mile walk may require **additional management strategies to increase accessibility**, such as providing transportation directly to and guide tours of this area⁸.

Given the low visitation at Portsmouth Village, sampling also occurred at the Hatteras National Seashore Visitor Center in Ocracoke. However, few visitors intercepted at the Cape Hatteras National Seashore Visitor Center were qualified to participate in the study (i.e., they had previously visited Portsmouth Village). Therefore, **park managers may want to consider enhancing their partnership with park managers at Cape Hatteras National Seashore to enhance public awareness of Portsmouth Village.** Additionally, **park managers may want to seek opportunities to enhance public awareness of Portsmouth Village by collaborating with the Ocracoke – Portsmouth Island ferry concessionaire to enhance marketing of the service.**

In general, the lighthouse is highly regarded by visitors intercepted at the Light Station Complex. Yet, visitors not only care about this major tourist attraction on the island. The undeveloped, uncrowded and natural aspects of the island are also valued by visitors. However, it seems visitors to this area enjoy a balance between historic buildings, amenities (like boardwalks and facilities), easy access to both the Atlantic Ocean and Core Sound beaches, and preserving the island's natural aesthetic. Visitors intercepted in Portsmouth Village also valued the site's historic buildings, as well as its undeveloped, naturalness and remote characteristics. **These results suggest that park managers are meeting the agency's mission of preserving the natural and cultural resources for public enjoyment by providing the infrastructure necessary for recreation and learning while balancing historic preservation and natural resource conservation.** However, visitors to both sites were more likely to describe that the area's general history was of interest to them than to describe a particular history (e.g., maritime history or Civil War history). **To enhance public education of the specific histories that are fundamental to the park unit** (noted in the Cape Lookout National Seashore Foundation

⁸ It is important to note that there is a concessionaire who currently offers transportation and tours; however, none of the

visitors in this study mentioned being aware of or having previously used the service.

Document⁹), park managers could consider enhancing the presence of the park unit's maritime history on the homepage of its web site¹⁰.

For all of these enhanced information recommendations, **information on the park's web site or in print materials could include time and length (and difficulty of access) for visiting the historic districts.** If park managers decide to seek opportunities to increase visitation to the southern portion of Cape Lookout Village historic district and Portsmouth Village, a possible strategy would be to create a "hook" in story telling that is provided on the park's web site, at the visitor centers on Harker's Island and in Ocracoke, on the ferry, at ferry loading/unloading areas, and/or at the Cape Lookout Lighthouse. This "hook" (i.e., key historic information) could serve to elicit interest in (and motivate subsequent visitation to) other historic structures by telling the beginning of a compelling story that is completed when a more distant site is reached¹¹. Additionally, it is important to note that some visitors need additional notification of site conditions (beyond what managers already provide). As biting insects, limited shade and limited potable water present were prevalent in visitors' comments about site condition, additional communication that target these complaints may enhance visitor satisfaction, preparedness and safety.

Nearly all visitors indicated that the historic buildings at Cape Lookout National Seashore are vulnerable to climate change impacts. Elevating buildings as an adaptation measure was generally the action that would have the least impact on visitor experiences, followed by moving buildings. However, elevating buildings in Portsmouth Village would likely negatively impact the same proportion of visitors as those whose experiences would not be affected. Regardless, elevating or moving buildings for climate adaptation appear to be actions that will be far less damaging to visitor experiences than removing buildings. Visitors typically felt that removing vulnerable buildings would negatively impact their experiences. However, most visitors indicated that they would still visit the site in which they were intercepted if there were fewer buildings present. **These somewhat conflicting results suggest that visitors may be fairly adaptable¹² to changing site conditions in response to reducing climate change related threats.** Additional research is needed to better quantify visitors' preferences for a fuller range of adaptation actions for historic buildings vulnerable to storm-related flooding and sea level rise, and to examine these opinions in relation to perceptions of the inevitability of climate change impacts and altered site conditions.

Visitors had difficulty recommending specific considerations to both inform adaptation decisions and prioritize buildings for management actions.

Interpretation: Making a difference on purpose. Golden, CO: Fulcrum Publishing.

¹² The notion of the "adaptable human phenomenon" was first introduced by wilderness researchers David Cole and Troy Hall in 2008, which is grounded in a substantial literature base on recreational coping (particularly in relation to crowding). It is possible that visitors "cope" with and are, therefore, "adaptable" to changing site conditions in historic districts. Further research is needed to fully explore the application of coping and the adaptable human phenomenon within the realm of cultural resource management. See: Cole, D. N., & Hall, T. E. (2008). The "adaptable human" phenomenon: Implications for recreation management in high-use wilderness. In S. Weber & D Harmon (Eds.), *Rethinking Protected Areas in a Changing World: Proceedings of the 2007 GWS Biennial Conference on Parks, Protected Areas, and Cultural Sites* (pp. 126-131). Hancock, Michigan: The George Wright Society.

⁹ U.S. Department of Interior, National Park Service. October 2012. Foundation Document: Cape Lookout National Seashore, North Carolina. Accessed November 20, 2017 at: https://www.nps.gov/calo/learn/management/upload/CALO_FD_2012.pdf

¹⁰ Although the park's homepage currently prominently displays the Cape Lookout Lighthouse, the linked information focuses on hours of operation, purchasing tickets to climb the lighthouse, the ferry schedule, and safety information. There is not a specific target link on the park's homepage related to the maritime history or the interpretive theme: People and Commerce at the Edge of the Sea. The homepage and lighthouse information link were last accessed on November 20, 2017 at: <https://www.nps.gov/calo/index.htm>.

¹¹ Creating a hook in storytelling is a common suggestion for park interpretation and prägnanz, or "closing the loop," is a specific strategy recommended by interpretive communications scholar Sam Ham. See: Ham, S. (2013).

However, visitors were able to express specific buildings that they would like to see prioritized.

Visitors intercepted at the Light Station Complex most frequently regarded the Cape Lookout Lighthouse as a preservation priority.

In Portsmouth Village, visitors reported specific community buildings as preservation priorities: the Methodist Church, Schoolhouse, and Post Office and General Store. **These findings provide some insight into the key types of buildings (i.e., community buildings) that are most salient to Portsmouth Village visitors, which park managers can use to inform their adaptation priorities in that historic district.** Yet, the lack of visitor awareness of the historic buildings located in the southern portion of Cape Lookout Village historic district necessitate further study of visitor priorities in this area (although given the prominence of the Cape Lookout Lighthouse on the landscape and as the primary attractor, it is likely that the lighthouse will remain a visitor priority for climate change adaptation). Additional research is needed to fully explore visitors' perceptions of priority "types" of historic buildings (e.g., federal maritime buildings, community buildings, residential buildings, complexes of buildings), as well as to assess visitors' understanding of the feasibility issues that challenge adaptation of the lighthouse and to model the potential changes to park visitation if the lighthouse was no longer open for climbing.

Weaving climate change into the historical narratives could be a successful strategy when park managers are able to implement adaptation strategies in the historic districts.

As most visitors were aware that the resources are vulnerable to climate impacts, the theme of 'weather' or 'climate' in telling historical narratives could help link to climate change narratives within interpretive materials. Additionally, new interpretive signs—particularly next to buildings that are elevated or moved—could make the links between prior occupants' adaptive responses to storms (and to other hardships of life on the islands) to present managerial challenges and adaptation strategies

more concrete for visitors. Since visitors did not feel interpretation would adequately replace experiencing the building 'in person,' creative solutions may exceed visitors' initial conceptualization of what 'interpretation' of these sites means. For example, buildings that are removed could be creatively interpreted using technology that allows visitors to 'see' where prior (now removed) buildings were positioned. Visitors may be surprised to find that a structure was once located where (or near) open water now exists. As technological advances in interpretation may be better suited as cellphone applications in harsh climates (like the barrier islands of Cape Lookout National Seashore), similar illustration on interpretive panels may achieve the same effect while not demanding the use of technology during the visit (particularly as cellular reception at Cape Lookout National Seashore is limited). **Regardless of interpretive approach, park managers can include costs associated with interpreting climate change when planning adaptation strategies for the historic buildings.**

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Appendix A. Visitor Survey Introductory Script

"Hello, my name is _____. I am a researcher from NC State University conducting a survey for the National Park Service. We would like to understand visitor experiences and opinions of the structures and cultural resources in [Portsmouth Village/Lookout Village], as well as thoughts about some strategies the park should take to address structures that are vulnerable to storms, hurricanes and rising sea levels. Your participation is voluntary and it will take about 15 minutes to answer our questions. We would like to audio record your responses now so that we can compile the responses later. We will not ask for your name or any other information that will personally identify you. Would you be willing to take part in the study?"

→ If YES – the Interviewer will ask, "have you or any member of your group already been asked to participate in this survey?"

→ If "YES" (previously agreed to participate) then, "Thank you for agreeing to participate in this study. We appreciate that you've already helped. Have a great day."

→ If "NO" (have not previously been asked but agrees to participate) then: the interview will provide the terms of the consent agreement as required by the N.C. State University as well as PRA and Privacy Act information.

"I would like to remind you that your participation is voluntary and that it should take about 15 minutes to complete a short interview about your visit and your opinions about the management of cultural resources here [SITE]. At any point you can request to end our conversation. I would like to record your responses. The recording will be assigned a code and will only be used to transcribe the interview - your name will not be associated and your responses will be completely anonymous. All responses in this study will be reported at the group level and not assigned to any specific individual. Once transcribed, I will permanently delete your audio file."

Ask: "for the purposes of the recording, do I have your verbal consent to audio record your responses?" The interviewer will begin with question #1 of the survey.

→ If NO– (soft refusal) then, "I won't bother you with the full interview, however, I hope you are willing to take just two minutes and answer a couple of questions for me now? I will write down your responses, which I will use to compare to the answers of people who completed the full interview. Are you willing to answer four brief questions?" [The interviewer will ask the following non-response bias questions]

NON RESPONSE BIAS QUESTIONS

1. What year was your first visit to Cape Lookout National Seashore?
2. What year was your first visit to [Portsmouth Village/Lookout Village]?
3. Please tell me how much you agree or disagree with the following statements:
 - a. I feel like Cape Lookout National Seashore is a part of me.
 - Strongly Disagree
 - Disagree
 - Neither Agree nor Disagree
 - Agree
 - Strongly Agree
 - b. Cape Lookout National Seashore is an important part of our history as a nation.
 - Strongly Disagree
 - Disagree
 - Neither Agree nor Disagree
 - Agree
 - Strongly Agree

→ If NO – (hard refusal) – "Thank you for your time. Have a great day."

Appendix B. Structure Interview Instrument

1. What is your home zip code (or city and country if not US resident)?
2. Is this your first time visiting Portsmouth Village/Lookout Village
3. In what year were you born?
4. What brings you here today? [purpose/primary reason of visit]
5. How did you learn about this area?
 - a. Cape Lookout
 - b. Portsmouth Village/Lookout Village
 - c. Lookout Lighthouse
6. Using the laminated map the interviewer will ask: *Is this your first visit here?* **YES** **NO**
→ IF **NO** - Which places did you visit during your last trip here? [Interviewer will record the place label nearest where visitor points **or** record the label the visitor says **or** record place names a visitor says that are not on the map]
→→ Have you noticed any changes since your last visit?
→ If **Yes** – GO TO NEXT QUESTION
7. Using the laminated map the interviewer will ask: *During this visit where are you planning to go?*
 - a. [Interviewer will record the place label nearest where visitor points **or** record the label the visitor says **or** record place names a visitor says that are not on the map]
 - b. What do/did you plan to do or see?
 - c. If intercept is near the lighthouse, the interviewer will ask "Have you seen the area of Lookout Village that has the old coast guard station and other buildings?"
8. How did you get here today? Did you use a personal boat or public ferry?

PERSONAL BOAT PUBLIC FERRY
9. When you planned your visit, what did you expect to see or do here [Wait for response]?
 - a. Was this your primary reason for visiting the site today? **YES** **NO**
→→ [If no]: What was your primary reason for visiting?
10. Was the area's history important to your visit? **YES** **NO**
11. Is there a particular part of the history here [site] that is special to you or your experience?

PROBE:

 - Civil war history, maritime history, cultural history,
 - or something else?
12. Was the area's natural history important to your visit? **YES** **NO** (ask to explain either response.)

13. Did you know that this site [Portsmouth Village/Lookout Village] is a National Historic District managed by the National Park Service? **YES** **NO**

14. What do you think is special or unique about this site [Portsmouth Village/Lookout Village]?

PROBE:

- condition, remoteness, historical accuracy and representativeness,
- or something else?

15. Do you believe the site is well maintained? **YES** **NO**

16. What improvements, if any, would make your visit more enjoyable?

17. Because of where this site is located were you aware that there's a chance the buildings and cemeteries could be damaged by flooding from strong storms or gradual sea level rise? [yes/no]
→If **[NO]**, say “unfortunately they are” →If **[YES]** say “that's good that you're aware.”

18. Because of this natural phenomenon, the National Park Service is always considering ways to protect the historic structures at this site, or determining if they should simply let nature take its course. Today we would like to know how either of these decisions might change your experiences here.

- b. If vulnerable buildings were moved to safer locations within the Historic District, how would that change your experience of the Historic District?
- c. If vulnerable buildings were removed, and information about the building were provided through interpretive signs, how would that change your experience?
- d. If the structures were destroyed by a storm, do you think the story of [site] could be well told through interpretive signage placed throughout the District?
 - [If **YES**]: How?
 - [If **NO**]: Why not?

19. I will read a five statements and I am going to ask you to rate your response on a scale between 1 and 5—where 1 is strongly disagree, 2 is disagree, 3 is neither agree nor disagree, 4 is agree, and 5 is strongly agree (hand respondent a card with the scale written on it). After each statement please tell me the number that best represents how you feel.

	SD	D	A nor D	A	SA
1. If vulnerable buildings were elevated, that would change my experience of the Historic District?	1	2	3	4	5
2. I feel the condition of the buildings at this site positively affected my visit.	1	2	3	4	5
3. If the buildings were better maintained I would enjoy my visit more.	1	2	3	4	5
4. If the buildings were more poorly maintained it would disappoint me.	1	2	3	4	5

20. Imagine that you were an NPS manager, and your job was to prioritize the preservation of the buildings within this site. Using the map tell me what you would do.

- Which one(s) would you preserve and why? [record response for each building identified]
- OR
- Would you try to preserve the entire Historic District? How would you do it?

21. Now, we would like to know about your personal connections to Cape Lookout National Seashore

	SD	D	A nor D	A	SA
1. I feel that Cape Lookout is an important part of our nation's history	1	2	3	4	5
2. I have a personal attachment to the history and culture here at Cape Lookout	1	2	3	4	5
3. There are important family memories tied to the history and culture associated with Cape Lookout	1	2	3	4	5
4. It is important that the historical and culture resources at Cape Lookout s preserved and protected is important for future generations.	1	2	3	4	5
5. I believe that the history and culture associated with Cape Lookout are unique and unlike others in the region.	1	2	3	4	5
6. I get more satisfaction from visiting Cape Lookout than from <i>other outer banks</i> historic/cultural sites	1	2	3	4	5

22. One last question, do you think you'll visit the village again in the future? **YES** **NO**

- [if **YES**]: WHY
- [if **NO**]: WHY NOT

Thank you so much for your time today. Enjoy the rest of your visit.