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Stakeholder Sentiments about Adaptation Strategies for Historic Buildings at Cape Lookout National Seashore

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Introduction

The National Park Service (NPS) is charged with minimizing the loss of culturally significant material which the National Historic Preservation Act of 1966 defines as historic districts, historic sites, historic buildings, structures and objects (NPS 1998). These cultural resources can hold and portray multiple values, including research and discovery, introspection, conserving cultural memories, and ancestral connections (Schupp et al. 2016). Moreover, cultural resources can serve as primary data sources for human responses to environmental change (NPS 2014). However, cultural resources are vulnerable to threats posed by climate change.

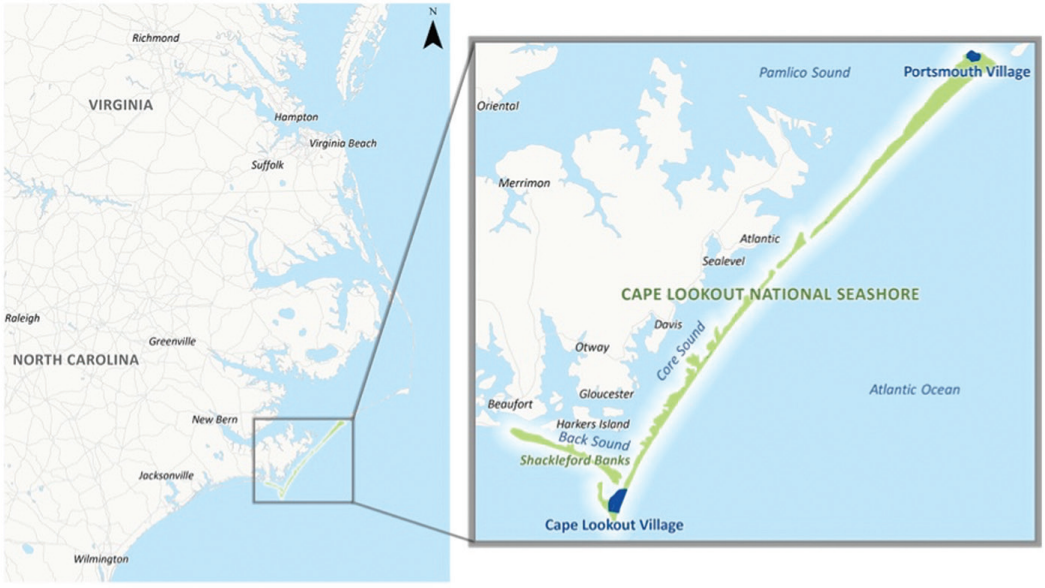
In a recent study, Peek et al. (2015) documented that over $40 billion worth of assets (infrastructure and cultural resources) are at "high risk" from climate change impacts by 2100 under 1 m of sea level rise, given vulnerabilities to submersion, saturation, dissolution, inundation, and erosion. The NPS Climate Change Response Program has dedicated efforts to determine appropriate adaptation strategies for cultural resources in response to Policy Memo 14-02, which suggests managers prioritize adaptation actions for the most vulnerable and most significant cultural resources (NPS 2014). Current adaptation strategies being considered include one or a combination of the following: leave things as they are, take off-site actions, manage the change, improve resilience, relocate, document and prepare for loss, and interpret the change (Rockman et al. 2016). Although vulnerability assessments can help managers determine the resources most at risk from such coastal impacts as storm-related flooding and erosion or sea level rise, currently there are no strategies for distinguishing significance among cultural resources listed on the National Register of Historic Places (NRHP). For example, buildings listed within a historic district on the NRHP are currently considered to hold the same cultural significance.

Citation: Weber, Samantha, ed. 2017. *Connections Across People, Place, and Time: Proceedings of the 2017 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites*. Hancock, Michigan: George Wright Society.

As cultural resources may hold different meanings to diverse stakeholders, there is a need to assess stakeholders' place connections, their preferences for adaptation strategies, and how adaptation strategies may alter stakeholders' place connections. Theoretically, place connections are described in the literature on sense of place (the symbolic meanings of landscapes; Stedman 2003), place attachment (the role of personal and familial identities and personal dependence on a place to form connections; Low and Altman 1992) and place meanings (the instrumental, utilitarian and intangible values that are contingent on relationships with a place; Davenport and Anderson 2005). Research on place connections has been common within natural resource planning and management for several decades (see review by Farnum, Hall, and Kruger 2005); however, such applications are largely absent within cultural resource planning and management. This paper presents a brief overview of stakeholders place connections to the two historic districts (Portsmouth Village and Cape Lookout Village) at Cape Lookout National Seashore (Figure 1), as well as their preferences for adaptation strategies, and perceived impacts to their place connections from adaptation strategies.

Historic accounts of the villages reveal stories of human resilience and relationships to the land and the sea, which began with ties to maritime commerce and federal maritime administration. The communities that emerged were challenged with living in isolation in a harsh environment, and many of the buildings were adapted to changing conditions (and changing occupational purposes). The NPS acquired the lands and buildings in 1966 and instituted either 25-year leases or life estates for buildings with ownership documents. In 1971, the last permanent residents left Portsmouth Village, and it was listed on the NRHP in 1976. In 1972, the Cape Lookout Light Station Complex was listed on the NRHP, followed by the Cape Lookout Coast Guard Station Complex in 1988. In 2000, the two complexes, along with 14 of the residential buildings, were designated as a historic district. Although all leases and life estates have expired, many families who used the buildings as vacation houses still reside in nearby communities. All of the buildings, with the exception of the Coast Guard Station Complex in Cape Lookout Village, have been assessed as having "high" vulnerability to climate change impacts (Peek et al. 2015).

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



Methods

Separate efforts were implemented between 2015 and 2017 to collect the opinions of three distinct stakeholder groups: semi-interviews with individuals known to have direct or indirect connections to the buildings ("community members"); on-site structured interviews with visitors ("visitors"); and online survey research with members of partner organizations ("partners"). Community members (n = 18) were identified through strategic sampling (lists provided by NPS managers and the director of one partner organization), chain-referral sampling, and interviews (open-ended questions) were audio-recorded, transcribed verbatim, and analyzed using thematic coding techniques with peer debriefing sessions to enhance data quality. Visitors (n = 145; 85% response rate) were intercepted within each district on randomly selected days, and interviews were audio-recorded, transcribed verbatim, and coded using content analysis for statistical analysis. Some questions were open-ended and others included Likert-type scale response options. Partners (n = 274) were emailed a pre-study notification, an initial request, and two reminder requests, each with a link to a survey questionnaire (all members of both organizations with valid email addresses were asked to participate). Data were downloaded from the survey administration software for statistical analysis. Although an accurate response rate cannot be determined for the partner survey because one partner organization administered the survey and did not share their membership list, a 53% response rate was calculated based on responses to membership affiliation for the other partner organization that shared their membership list.

Results

Community members interviewed included individuals who were born on the island or descendants of former residents, had previously owned homes in one of the villages, were raised in the area who frequently visited or vacationed within one or both districts, and nearby residents who volunteered or temporarily worked for the NPS within the districts. For these individuals, Cape Lookout National Seashore and the historic districts, particularly the Cape Lookout Lighthouse, are symbols of "home" steeped within intangible cultural resource values that connect them to traditional way of life on the "Banks" (the islands). The place meanings that emerged through their narratives align with the constructs of personal identity, family identity, community identity, and place dependence, all of which are linked to sets of cultural resource values. For example, our participants identify with the history of Cape Lookout National Seashore, and the symbolism of the lighthouse, which stir deep emotions and yield strong sentiments of what it is like to grow up near and with the sea. Such identity represents a strong sense of place that is not necessarily dependent on the physical remains, as exemplified in such statements as "To me the greatest resource is the connection our crowd still has.… It's not tangible.… I think it's within the people really, the cultural resources" and "If all the buildings went away and the lighthouse fell down … I'd be sad, but I'd still have the same feeling about the area whether those resources were there or not."

With such strong intangible place connections (with the exception of the connections to the lighthouse), it follows that community members expressed a preference for maintenance of the historic buildings, robust documentation, and increased interpretation. Moreover, there was a general acceptance of the inevitability of loss to climate impacts and the limited potential of off-site engineered solutions like beach nourishment: "There's nothing they can do… I don't think there are any solutions except to let nature take its course." Yet, community members were concerned about deferred maintenance (what they called "neglect") and would prefer strategies that focus on enhancing the structural integrity of the buildings: "I think it's vulnerable to neglect. I think neglect is the biggest deal.… It's a battle of corrosion, it's a battle of salt and sun and all sorts of

stuff." Additionally, community members were not in favor of substantial structural (moving or elevating), as they feared it would change the meanings instilled in the buildings: "I'm not sure it would help to raise 'em or move 'em … I'm not sure what the value is in trying to raise a house 'cause … you gain saving everything above that level, but you lose how it is people used to live. You don't know what it really looked like."

The majority of visitors intercepted were first time visitors (56%), and 48% were 50 years of age or older (16% were younger than 40). Visitors' place connections (measured from 1, strongly disagree, to 5, strongly agree) were strongest in terms of perceived importance of the history and culture to the nation, and for future generations (Table 1). Mean responses to personal identity, fami-

Table 1. Visitor and partner organization member place connections.

Questionnaire items*				Frequencies				
	N	Mean	SD	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Visitor Interviews								
I feel that Cape Lookout is an important part of our nation's history.	138	4.46	0.664	0.7	0	5.1	40.6	53.6
I have a personal attachment to the history and culture here at Cape Lookout.	137	3.14	1.346	14.6	19.7	23.4	21.9	20.4
There are important family memories tied to the history and culture associated with Cape Lookout.	136	2.92	1.521	24	22.8	8.8	22.1	21.3
It is important that the historical and culture resources at Cape Lookout is preserved and protected is important for future generations.	136	4.65	0.538	0	0.7	0.7	31.6	66.9
I believe that the history and culture associated with Cape Lookout are unique and unlike others in the region.	138	4.22	0.774	0	1.4	16.7	39.9	42
I get more satisfaction from visiting Cape Lookout than from other outer banks historic/cultural sites.	126	3.53	0.961	0.8	9.5	46.8	21.4	21.4
Partner Survey								
Cape Lookout is an important part of our nation's history.	262	4.52	0.653	0.4	1.1	3.1	37.4	58.0
I identify strongly with Cape Lookout.	262	4.13	0.916	2.3	2.3	15.6	40.1	39.7
Many important family memories are tied to Cape Lookout.	262	3.48	1.386	13.4	13.0	15.6	27.9	30.2
Preserving the history and culture associated with cultural resources at Cape Lookout is important for future generations.	262	4.69	0.613	0.8	0.4	2.3	22.1	74.4
The history and culture associated with Cape Lookout is unique and unlike other historic barrier island communities in the region.	262	4.33	0.793	0.5	1.5	13.4	34.0	50.8
No other place can compare to Cape Lookout.	262	3.95	0.985	1.5	6.1	23.7	33.6	35.1

*Measured on 5-point Likert-type scale where 1 = strongly disagree and 5 = strongly agree.

ly identity, and place dependence measures were still favorable but reflect greater variation among respondents. Visitors were asked to describe how three specific adaptation strategies (removing, moving, and elevating buildings) would affect their experience. The majority of visitors indicated that their experiences would be most negatively affected if buildings were removed (79%), while elevating (59%) would have no impact on their experience. Visitors were more divided in their perception of how moving buildings would impact their experience (48% negative impact and 33% no impact). Interestingly, few respondents felt that they wouldn't like but would understand the need to remove (3%), move (10%), or elevate (10%) buildings.

Of the partners surveyed, the average age was 65 years and 85% had never owned or held a lease on one of buildings. Similar to visitor place connections, partners felt strongest about the importance of history and culture to the nation, and preserving them for future generations (Table 1); however, partner responses to place identity (personal and family) and place dependence items were more favorable than visitor responses. In terms of adaptation strategies, partners perceived managing change (e.g., through planting vegetation to reduce erosion, or building boardwalks to access buildings) and interpreting the change as most desirable (Figure 2). Additionally, these strategies were perceived as slightly enhancing partner place connections. Moving buildings, taking off-site action, leaving buildings as they are, and documenting to prepare for loss were the least desirable adaptation strategies, and the ones that were perceived to detract from partner's place meanings.

Discussion

The goals of this research were to document different stakeholder groups place connections to vulnerable coastal cultural resources, preferences for adapting the resources to pending climate change threats, and perceptions of how adaptation strategies would affect place connections, using the two historic districts at Cape Lookout National Seashore as the case study. Results highlight deep place connections among individuals with known ties to the buildings located within Cape Lookout National Seashore's two historic districts, and that those connections are primar-

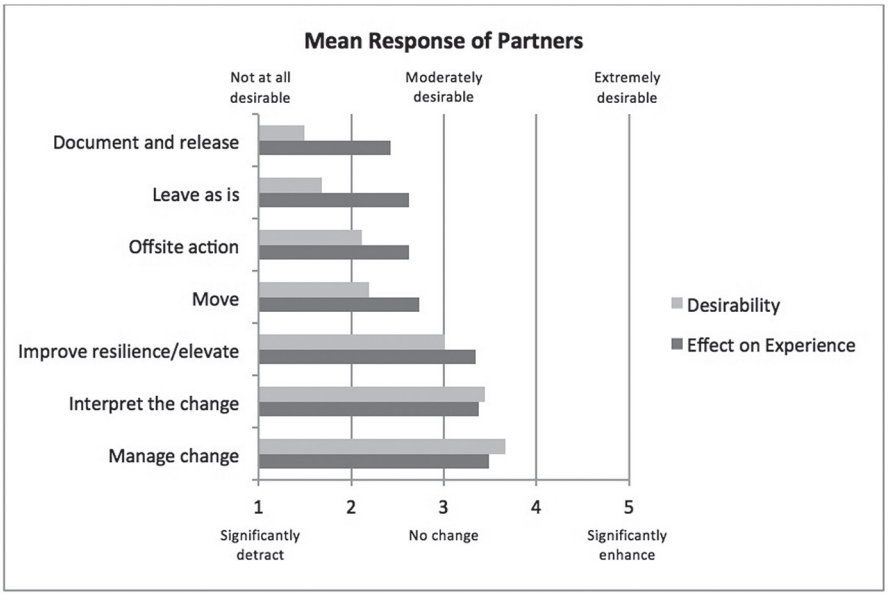


Figure 2. Partners perceptions of adaptation strategies and associated impacts on place connections (n = 264).

ily manifested within intangible meanings and values. While both visitors and partners perceive that the physical cultural resources are important to the nation's history and should be preserved for future generations, visitor place meanings (personal identity, family identity, and place dependence) were generally weaker than partner's. However, results illustrate that both stakeholder groups typically held the weakest connections in terms of family identity. This is likely due to the fact that the last permanent residents occupied buildings over 40 years ago and that all life estates and leases have expired, which suggests that direct familial connections to the resources may be declining and that the NPS should consider expediting efforts to document descendant stories.

Community members and partners preferred keeping the buildings in their current condition, which includes regular maintenance and stabilization, as well as small landscape changes, like planting vegetation to reduce erosion and constructing boardwalks to access buildings. These preferences likely reflect an acceptance of the inevitability of loss from climate change impacts, as well as the importance of maintaining the historic integrity of the buildings. Although visitors were not explicitly asked about these specific strategies, their preference for elevation may suggest a similar preference for strategies that result in the least change. Future research is needed to explore visitor preferences of a fuller range of adaptation strategies. Regardless, the consistency in preferences among two of the stakeholder groups suggests that management decisions may be not be controversial, provided that perceptions of blind neglect from deferred maintenance are remedied first. It will be important to explore stakeholder perceptions of when a building should no longer be maintained and released to the forces of nature.

Study results showed that the preferred management strategies will be those that affect place connections the least. For community members, the intangible values will remain even after the buildings are lost to the sea. However, the symbolic meanings held within the lighthouse suggest that efforts should be made to prioritize actions that retain the structure on the landscape. Although many visitors felt that actively removing buildings from the landscape would negatively impact their experience, the majority of visitors were intercepted near the lighthouse and were mostly unaware of the existence of the other buildings in Cape Lookout Village or Portsmouth Village. This may also explain why moving and elevating buildings were most frequently perceived to have no impact on visitors' experiences. For partners, managing and interpreting changes associated with climate-related impacts were perceived to have a slight positive impact. Again, this may suggest the need to expedite documentation and communication efforts to enhance the telling of the human stories associated with the districts. Regardless, these findings suggest that some adaptation strategies deemed appropriate for addressing climate change (Rockman et al. 2016) may not change and can even enhance stakeholders' connections to vulnerable cultural resources.

Conclusions

Impacts from climate change on cultural resources present significant challenges to the NPS' ability to minimize losses of culturally significant material. In exploring stakeholder place connections, preferences for adaptation strategies, and perceptions of how adaptation strategies might alter place connections, this paper highlights a general acceptance of the inevitable losses to tangible resources from climate change, and a preference for strategies that least impact the historic integrity of those resources. Moreover, such strategies may enhance place connections, at least in the short-term. However, given the realities of insufficient funding (evidenced by the deferred maintenance backlog within the NPS), additional decision guidance will be necessary, such as determining the point at which investment in maintenance and stabilization should be stopped, assessing key criteria for prioritizing such actions when funding becomes available, and optimiz-

ing longer-term planning efforts aimed at retaining as much historical significance within the landscape as possible.

Acknowledgments

I would like to thank Malorey Henderson for her outstanding contributions as a research assistant on this project, leading the data generation and analysis for the community member interviews, as well as managing the data collection efforts for the visitor interviews. Thanks also to Karly Bitsura-Meszaros for serving as the research assistant charged with analyzing the visitor interviews. Funding for this research was provided under Cooperative Agreement P13AC00443 between the United States Department of Interior, National Park Service and NC State University, Task Agreement Number P14AC01737: Informing Plans for Managing Resources of Cape Lookout National Seashore under Projected Climate Change, Sea Level Rise, and Associated Impacts.

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