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Special Issue

The Influences of Place Meanings and Risk Perceptions on Visitors' Willingness to Pay for Climate Change Adaptation Planning in a Nature-Based Tourism Destination

Allie McCreary
Sandra Fatoric
Erin Seekamp
Jordan W. Smith
Mark Kanazawa
Mae A. Davenport

Abstract

Travel to nature-based tourism (NBT) destinations contributes to the economic vitality of many communities. However, NBT is especially vulnerable to changes in climate, such as shifts in weather patterns, and changes in environmental conditions that can directly influence outdoor recreation experiences. Communities, parks, and protected areas in NBT destinations have started to respond to climate change threats by assessing their adaptive capacity and planning adaptation strategies. Climate adaptation planning within NBT destinations necessitate local support and the leveraging of proximate resources. Yet, strategies to integrate visitors into climate

Allie McCreary is a postdoctoral research scholar in the Department of Parks, Recreation and Tourism Management at NC State University.

Sandra Fatoric is a postdoctoral research scholarin the Department of Parks, Recreation and Tourism Management at NC State University.

Erin Seekamp is an associate professor in the Department of Parks, Recreation and Tourism Management at NC State University.

Jordan W. Smith is an assistant professor in the Institute of Outdoor Recreation and Tourism and Department of Environment and Society at Utah State University.

Mark Kanazawa is a professor in the Department of Economics at Carleton College.

Mae A. Davenport is a professor in the Department of Forest Resources and direct of the Center for Changing Landscapes at the University of Minnesota.

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Please send correspondence to Erin Seekamp, elseekam@ncsu.edu

adaptation efforts is not common, even though visitors' support for climate change planning and policy may be high. Little is known about the relationship between visitors' support for adaptation planning and their sociodemographic characteristics, their perceptions of climate-related risks, or the meanings they assign to destinations affected by climate change. In this study, we analyze visitors' personal attributes, trip characteristics, unique emotional ties and perceptions of the places they visit in relation to their willingness-to-pay (WTP) for a license plate that would direct funds toward regional climate adaptation planning. Survey data were collected on-site with NBT visitors and analyzed using binary logistic regression models. Results showed a WTP $30 annually is significantly influenced by increased income, age, climate-related risk perceptions, and place meanings. Similarly, WTP more than the initial bid (i.e., >$30/year) for climate change adaptation and planning is significantly predicted by increased income and destination loyalty, as well as negative perceptions of climate change risks. This study contributes to a broader understanding of how recreationists and visitors can be incorporated into climate adaptation planning, demonstrating the possibility of a novel funding source.

Keywords

Ecosystem-based tourism, sense of place, pro-environmental behavior, contingent valuation, environmental conditions

Introduction

The tourism industry is one of the largest and fastest growing industries contributing to national, regional, and local economies. In the United States, travel and tourism generated 8.1% (i.e., $US 1.5 trillion) of GDP and sustained 9.4% of employment (i.e., 14.2 million jobs) in 2016 (WTTC, 2017). The nearly 331 million visits to U.S. national parks in 2016 resulted in expenditures of estimated at $US 18.4 billion in local communities, which supported about 318,000 jobs (Thomas & Koontz, 2017). Visitation levels to U.S. national parks are related to temperature, where higher visitation levels are associated with warmer temperatures, except at lower latitudes that are projected to become uncomfortably hot resulting in reduced visitation (Fisichelli, Schuurman, Monahan, & Ziesler, 2015).

Given the economic importance and climate dependent nature (i.e., climate can define the length, timing, and quality of the tourism season; Smith et al., 2016) of outdoor recreation and tourism, nature-based tourism (NBT) destinations are beginning to recognize the need to engage both local communities and visitors in climate adaptation planning. There are an increasing number of studies exploring climate adaptation planning, implementation, and policy development aimed at reducing climate change vulnerability and increasing resilience (e.g., Berrang-Ford et al., 2011; Biesbroek et al., 2010; Ford et al., 2011; Kim et al., 2016; Matasci et al., 2014; Preston et al., 2011; Smith et al., 2015). Adaptation is described as a process of adjusting natural and socioeconomic systems to changing climatic conditions while moderating harm or exploiting beneficial opportunities (IPCC, 2014).

Although climate change and greenhouse gas emissions are a global phenomenon, the impacts of climate change are experienced locally. As such, both scientific and local knowledge about place-based vulnerability are important for developing adaptation strategies tailored to community needs (Hegarty, 1997; Keskitalo, 2004). In other words, adaptation strategies should be designed and implemented locally with input from the individuals and communities directly affected by climate change (e.g., Baker et al., 2012; Fatorić et al., 2014; Otto-Zimmermann, 2002; Poyar & Beller-Simms, 2010). In turn, local stakeholder involvement in climate adaptation planning efforts can increase support for, and facilitate the implementation of, adaptation strategies (Carlson &McCormick, 2015; Mcleod et al., 2015; van Aalst et al., 2008) by fostering trust and building social capital between local stakeholders and those agencies who implement adaptation policies and plans (Burley et al,. 2007; Jones et al., 2015; Paavola & Adger, 2002).

Place meanings—that is, the values assigned to and derived from a landscape—may influence individuals' willingness to support climate adaptation (Agyeman et al., 2009; Smith et al., 2012). Embedded within the broader "sense of place" literature, place meanings are most closely related to the construct of place attachment, which is conceptualized as the bond that people develop toward a place and are embodied as emotional connections to and values of a place (Low & Altman, 1992; Manzo, 2005; Scannell & Gifford, 2010a). Place attachment may involve identifying with a place, depending on a place for specific experiences, or valuing a place because it provides a setting for social bonding (Davenport et al., 2010; Jorgensen & Stedman, 2001). Place meanings may contribute to higher pro-environmental behavior and support (e.g., environmental conservation and restoration; Scannell & Gifford, 2010b; Vaske & Kobrin, 2001; Graefe et al., 2004) and have been suggested as an integral component of community resilience, influencing how residents perceive their community's fragility (Burley et al., 2007), promote problem-solving (Smith et al., 2012), and drive engagement in adaptation planning (Amundsen, 2015). Given these initial findings, additional research is needed that explores the role of place meanings in multiple adaptive planning contexts, such as visitors' willingness to contribute monetarily to climate adaptation planning efforts at NBT destinations.

Understanding individuals' willingness-to-pay (WTP) for climate adaptation planning efforts directly affects the types and scale of adaptation strategies that can be implemented. Literature exploring individuals' WTP to reduce the risk of global warming and climate change finds that people who believe that climate change is occurring are more willing to pay to reduce climate change related risks (Jones et al., 2015; Veronesi et al., 2014; Viscusi & Zeckhauser, 2006; Yang et al., 2014). Additionally, individuals' WTP for climate adaptation strategies and policies can depend on gender (Cameron, 2005), age (Hamed et al., 2016), environmental values (Joireman et al., 2010), and risk perceptions (Viscusi & Zeckhauser, 2006). However, the influence of visitors' WTP for climate change adaptation is not well understood [e.g., Bujosa and others (2015) explored visitors' WTP for destination assets but noted that more research is needed to evaluate support for adaptation].

In this study, we explore factors that may influence visitors' WTP for climate adaptation planning in NBT destinations. Specifically, we sought to answer the following questions:

1. What visitor attributes, characteristics, and perceptions influence their WTP a nominal fee (i.e., $30) in support of destination-specific climate change adaptation planning (simple WTP $30)?
2. How are visitors' attributes, characteristics, and perceptions related to their WTP more than $30 in support of climate adaptation planning (maximum WTP $30/>$30)?

To enhance a more realistic scenario for visitors to consider, we framed our WTP question in the survey instrument as paying for a set fee ($30) for a specialty license plate (a common fund-raising mechanism in the U.S. for special causes) that would direct funds towards supporting climate change planning and adaptation efforts in a NBT region.

Method

Following a modified contingent valuation methodology (Bernath & Roschewitz, 2008), WTP was assessed through two measures wherein "first, respondents decide to accept the hypothetical scenario or not [and] second, those accepting the scenario choose the amount of money they are willing to pay for the good to be valued" (p. 158). First, a regression was conducted evaluating the influence of theoretical predictors (i.e., age, gender, income, destination loyalty, season of visit, party size, trip length, place meanings, and risk perceptions) on simple WTP $30. A second regression explored the role of the same predictors on the maximum amount visitors were willing to pay ($30/>$30) for climate change adaptation and planning. This incremental approach (allowing visitors to decide if they would pay and then select their maximum value) was selected over the more traditional double-bounded dichotomous choice approach (presenting respondents with bids randomly drawn from a pre-defined set of values) because of the nature of the hypothetical payment mechanism (funds directed from a recurring license plate registration fee). We selected the specialty license plate scenario because it is something with which respondents are likely familiar (similar fees are available via license plate registration currently in the U.S.) and, as such, can meaningfully consider.

Study Area

Our NBT study area, the North Shore region of Lake Superior in Minnesota (USA) (Figure 1), is characterized by small towns, prominent public land ownership, and the influence of Lake Superior as an industrial (shipping) and recreational (fishing, boating) hub. Much of the recreation infrastructure lies proximate to the coast of Lake Superior and State Highway 61, which parallels the coastline. The area's tourism economy is dependent on outdoor recreation activities, such as fishing, snowmobiling, hiking, and general nature observation (Davenport et al., 2011), and comprised of small-scale outfitters and guides, as well as locally owned lodges and restaurants. Eight state parks, scenic waysides along Highway 61, the Superior National Forest, the Superior Hiking Trail, and a downhill ski resort all further contribute to the recreation amenities and opportunities that draw visitors to the North Shore.

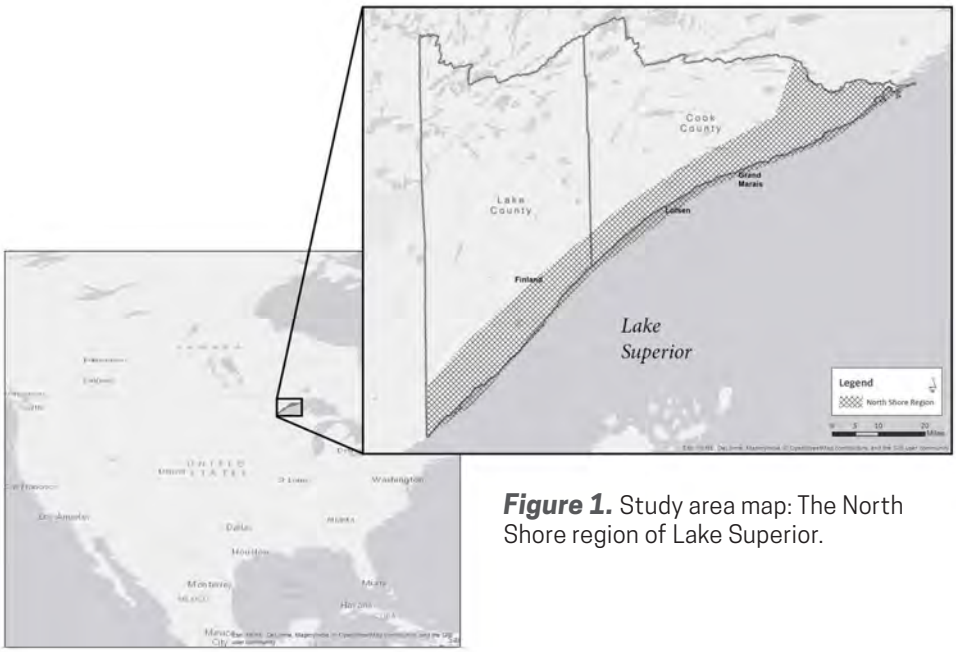

Figure 1. Study area map: The North Shore region of Lake Superior.

As many outdoor recreation experiences rely on particular environmental conditions (Dubois & Ceron, 2006), the study area may become increasingly vulnerable to different types of impacts that could affect seasonal visitation patterns and the tourism economy. The North Shore region has experienced recent disruptions to its recreation and tourism system, such as an extreme flooding event in 2012 that damaged infrastructure, causing significant summer traffic delays and reduced access to trails. Additionally, the region has also experienced delayed and reduced snow events that have limited the availability of some winter recreational activities. Thus, changes in precipitation, temperature, and heat index or wind-chill values can influence the quality of recreational activities (e.g., increased fire risk and smoky conditions for camping and hiking) or ability of tourists to participate in desired recreation opportunities (e.g., adequate snow for skiing and snowmobiling, sufficient ice depth for winter fishing, summer cold-water fishing). Alternatively, the observed and projected warming trends could be viewed positively for those winter visitors interested in sightseeing and hiking, as well as summer visitors interested in fishing in the North Shore's rivers earlier and later in the year.

Data Collection

Data presented in this paper are part of a larger study (see Bitsura-Meszaros et al., 2015) and represent a subset of data collected via an on-site visitor-intercept survey. The survey instrument was administered to visitors (those who live outside of the study region for 10 or more months per year) aged 18 or older who voluntarily chose to participate during either the winter or summer tourism season. All protocols and instruments were approved by the primary author's institutional review board for research with human subjects.

Survey sampling occurred during the winter (January and February 2015) and summer (July and August 2015) tourism seasons. For both seasons, a modified

random sampling approach was utilized. Tourism amenities and recreation areas (e.g., trailheads, scenic waysides, local businesses) were identified then randomly selected as a sampling location for either 2-3 days (winter season) or 4-5 days (summer season) of the sampling period. Time blocks assigned to sampling locations were modified to account for the hours sampling locations were open to the public. A total of 25 sampling locations were identified altogether (14 for the winter and 19 for the summer, 8 sites were utilized during both seasons). All visitors to the sampling location were given the opportunity to participate, except during high-volume visitation periods, when every third group was selected. When intercepted, research assistants requested that the individual with a birthday closest to the day's date complete the questionnaire. For eligible individuals that declined participation a non-response bias check was performed.

To convey potential alterations to environmental and climatic conditions from climate change, the survey instrument provided information about average conditions during the past five years next to a projection of possible future conditions (modeled for the region by project collaborators). Winter conditions included averages of snow depth, ice thickness at inland lakes, daily high temperature, daily low temperature, daily maximum wind-chill, daily minimum wind-chill); summer conditions included percentage of inland streams with brook trout and percentage of inland streams with small mouth bass, as well as percentage of days in the month above the average high temperature (71°F), above average heat index (80°F), with "very" or "extremely" high fire risk, and with greater than one-quarter inch rainfall.

Visitor attributes were ascertained through demographic measures of age, gender, income, and destination loyalty (i.e., the number of years visiting the North Shore for recreational purposes; Park, 1996). Trip characteristics were measured through visitors' responses to two items: the size of their travel party and the length of their current trip. Seasonality (whether the respondent was intercepted in winter or summer) was also documented in the dataset as a trip characteristic.

Place meanings questionnaire items were derived from an established measurement scale used to quantitatively determine place meanings by outdoor recreationists (Davenport et al., 2010) and forest landowners (Smith et al., 2011; Smith et al., 2012). A total of nine place meaning items were presented to visitors. The place meaning items were measured with a five-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree).

To assess risk perceptions, we modified items used by Leiserowitz (2006) and Yang, Kahlor, and Griffin (2014). Specifically, we tailored our risk perception items to measures of perceived impact from the projected changes to the region's environmental and climatic conditions on (1) visitors' own health and safety, (2) visitors' future trips to the North Shore, (3) recreation infrastructure on the North Shore, (4) nature on the North Shore, and (5) the North Shore's tourism economy. The risk perception items were measured with a five-point Likert-type scale (positively impact, slight positive impact, neutral, slight negative impact, and negative impact).

Simple WTP was measured through an item with the dichotomous response categories of 'yes' or 'no'. To make the question more tangible, we framed the WTP scenario to reflect a situation that is common in the U.S. (i.e., a fund generated by the purchasing of a specialized motor vehicle license plate):

> Consider if there were an opportunity to contribute to a fund (either public or private) for a North Shore organization to plan and adapt recreation and tourism resources to climate change. We are interested in knowing whether or not you would contribute to such a fund. For example, the MN Department of Natural Resources has a designated license plate that can be purchased for $30, these funds support the purchase of critical resources and lands, and to improve habitat for fish, wildlife, and native plants. Would you pay $30 for a designated license plate to support climate change planning and adaptation efforts on the North Shore?

The donation amount of $30 was selected as this is the contribution fee associated with existing specialty license plates available for purchase in the state of Minnesota at the time of the survey. If respondents indicated they would pay the $30, they were then prompted to denote the maximum they would be willing to pay from a predefined list of values.

Data Analysis

All data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 24. Two principal component analyses (PCA) with Varimax rotation were conducted to create factor scores for the place meanings measurement scale (9 items) and the climate change risk perceptions measurement scale (5 items). PCA factors are computed to determine whether items intended to measure a similar phenomenon are correlated (DiSefano, Zhu, & Mindrila, 2009; Norusis, 2008; Vyas & Kumaranayake, 2006). For both factor analyses we excluded cases of missing data in a pairwise fashion (used all data available even if variables within cases were missing) to minimize data loss (Peugh & Enders, 2004). Loadings greater than 0.7 were used to assess convergent validity (i.e., determine that an item "fit" well within the conceptual factor and should not be removed from the factor) and estimated components with an Eigenvalue greater than 1 were saved as factor (component) scores (i.e., the Kaiser-Guttman criterion, Jackson, 1993). For maximum WTP bids, we recoded responses into a binary variable (i.e., those who were willing to pay to $30 and those who were willing to pay greater than $30). For both simple and maximum WTP, we used binary logistic regression to explore drivers of visitors' WTP into a fund to support North Shore climate change planning and adaptation efforts via a specialty license plate (hereafter, "climate adaptation planning").

Results

A total of 2,250 surveys (852 for winter, 1,398 for summer) were used in this analysis (61% response rate). Non-response bias testing revealed winter respondents differed significantly from non-respondents in their average number of trips taken per winter season to the North Shore (respondents made two trips on average and non-respondents made four trips on average, $t = 4.279$, $p < .001$) and their age (respondents were significantly younger, particularly in the 18- to 24-year-old category, and non-respondents tended to be older, particularly in the 65+ category, $\chi^2 = 24.625$, $p < .001$). For the summer season, there were significant differences between respondents and non-respondents for age (respondents were younger than non-respondents, $\chi^2 = 32.33$, $p < .001$) and trip purpose (respondents' primary purpose was to recreate at the site

at which they were intercepted while non-respondents were typically recreating at multiple sites or were on a business trip, $\chi^2 = 23.06$, $p < .001$).

Descriptive statistics (Table 1) characterize the sample population for those who were and were not willing to pay $30 (middle columns) and those who would pay a maximum of $30 and those would be willing to pay more than $30[1] (right columns). One additional variable, "residency," is also presented[2] to provide context that more than two-thirds of the sample were in-state visitors.

Simple WTP $30: Respondent Profile

Both respondents who were, and those who were not, willing to pay $30 for a specialty license plate to support climate adaptation planning tended to be middle-aged (between 35-64 years old), Minnesota residents, and traveling in an average group size of three people. Both groups also had similar average household incomes (between $60,000 and $80,000). Those willing to pay $30 had slightly greater destination loyalty (19 years) and trip duration (four nights) than those unwilling to pay $30 (15 years and three nights, respectively).

Respondents not willing to pay $30 typically agreed with the place meaning items but agreement levels tended to be weaker than for those willing to pay $30. Risk perceptions for those not willing to pay $30 were typically neutral; in other words, respondents not willing to pay $30 perceive that climate change will have no impact on their self and aspects of their North Shore trips. Those willing to pay $30 typically held slightly negative perceptions of potential climate change impacts.

Maximum WTP ($30/ >$30): Respondent Profile

Respondents willing to pay a maximum of $30 and those willing to pay more than $30 for a specialty license plate to fund climate adaptation planning had similar age, gender, income, and trip characteristics (Table 1). Those willing to pay a maximum of $30 had slightly shorter destination loyalty (their first trip to the North Shore occurred an average of 17 years ago) compared to those willing to pay more than $30 typically (they first visited the region 20 years ago on average). Responses also reveal that those willing to pay more than $30 reported slightly stronger agreement with all place meaning items and held stronger negative perceptions of future climate change risks (but still relatively neutral) than those willing to pay a maximum of $30.

Principal Component Analysis

Results of the PCA are presented in Tables 2 and 3. All nine items intended to measure place meanings loaded onto one component; a factor score representing this component was computed and saved for all observations (individual respondents) (Cronbach's alpha = 0.933). Similarly, all five items intended to measure risk perceptions of climate change loaded into a single component; a factor score representing risk perceptions was calculated and saved for all observations (Cronbach's alpha = 0.901).

[1]For those visitors willing to pay $30 ($n$ = 811), 49% were willing to pay a maximum of $30. For the remaining cases, 4% were willing to pay $35, 10% were willing to pay $40, 1% were willing to pay $45, 30% were willing to pay $50, 0.3% were willing to pay $55, 0.8% were willing to pay $60, 0.1% were willing to pay $65, 0.1% were willing to pay $70, and 5% were willing to pay $75. Because of the non-normal distribution and low cell count in some categories, these responses were transformed into a binary variable illustrating cases that were willing to pay either a maximum of $30 or more than $30 for the license plate supporting North Shore climate change adaptation planning.

[2]Minnesota residential status was obtained through a transformation of respondent-provided postal code data.

Table 1

Profile of North Shore (NS) Visitors' Simple and Maximum WTP for Climate Adaptation Planning Fund

	Simple WTP ($30)		Maximum Value WTP	
	No (*n*= 1,421)	**Yes (*n*= 811)**	**$30 (*n*= 397)**	**> $30 (*n* =414)**
Residency (% from Minnesota)	71%	82%	78%	80%
Visitor attributes				
Age (%)				
18-24	13%	11%	10%	11%
25-34	16%	18%	17%	19%
35-44	19%	21%	19%	21%
45-54	24%	21%	21%	21%
55-64	19%	20%	21%	19%
65+	9%	9%	9%	9%
Gender (% female)	54%	54%	55%	52%
Income (%)				
Less than $39,999	18%	17%	17%	14%
$40,000-$59,999	16%	12%	16%	8%
$60,000-$79,999	16%	15%	12%	15%
$80,000-$99,999	18%	16%	16%	12%
More than $100,000	32%	40%	33%	42%
Destination loyalty [Mean (*SD*)]	15.23 (15.55)	18.60 (15.61)	17.05 (15.45)	20.18 (15.71)
Trip characteristics				
Season (% summer respondents)	62%	62%	64%	61%
Party size (# of people) [Mean (*SD*)]	3.16 (2.08)	3.09 (2.05)	3.05 (2.18)	3.14 (1.92)
Trip length (# of nights) [Mean (*SD*)]	3.30 (3.50)	3.68 (3.79)	3.75 (4.40)	3.62 (3.10)

Table 1 (cont.)

Social-psychological variables				
Place Meanings [Mean (*SD*)][1]				
I identify strongly with the North Shore.	0.45 (1.06)	0.92 (0.99)	0.89 (0.94)	0.96 (1.03)
I feel the North Shore is a part of me.	0.24 (1.09)	0.72 (1.08)	0.66 (1.06)	0.79 (1.09)
I am very attached to the North Shore.	0.89 (0.95)	1.37 (0.77)	1.30 (0.79)	1.44 (0.75)
I get more satisfaction out of visiting the North Shore than any other place.	0.20 (1.03)	0.58 (1.03)	0.53 (1.01)	0.63 (1.06)
Doing what I do on the North Shore is more important than doing it in any other place.	0.05 (1.03)	0.47 (1.05)	0.41 (1.01)	0.53 (1.08)
No other place can compare to the North Shore.	0.22 (1.11)	0.64 (1.09)	0.57(1.04)	0.71 (1.35)
I feel a sense of pride in my heritage when I am on the North Shore.	0.19 (1.11)	0.57 (1.13)	0.51 (1.06)	0.64 (1.19)
The North Shore is a special place for my family.	0.57 (1.10)	0.96 (1.07)	0.91 (1.00)	1.01 (1.11)
Many important family memories are tied to the North Shore.	0.56 (1.18)	0.95 (1.14)	0.87 (1.07)	1.03 (1.19)
Risk Perceptions [Mean (*SD*)][2]				
Yourself (your health, safety, and security) during North Shore trips.	-0.05 (.087)	-0.10 (0.96)	0.00 (0.97)	-0.20 (0.94)
Your future trips recreating on the North Shore.	-0.01 (0.86)	-0.09 (0.96)	-0.01 (0.98)	-0.16 (0.94)
Recreation infrastructure on the North Shore (e.g., roads, trails, campgrounds, etc.).	-0.01 (1.02)	-0.13 (1.15)	-0.05 (1.14)	-0.20 (1.17)
Nature on the North Shore.	0.00 (1.21)	-0.24 (1.34)	-0.11 (1.30)	-0.37 (1.37)
The local tourism economy on the North Shore.	0.00 (1.04)	-0.20 (1.17)	-0.09 (1.14)	-0.30 (1.20)

[1] Responses measured on a 5-point Likert-type scale from -2 (strongly disagree) to +2 (strongly agree), with a midpoint of 0 (neither agree nor disagree).

[2] Responses measured on a 5-point Likert-type scale from -2 (negative impact) to +2 (positive impact), with a midpoint of 0 (no impact).

Table 2

Component Matrix for Principal Component Analysis of Risk Perception Items

Risk perception item	**Component 1**
Yourself (your health, safety, and security) during North Shore trips.	.802
Your future trips recreating on the North Shore.	.850
Recreation infrastructure on the North Shore (e.g., roads, trails, campgrounds, etc.).	.863
Nature on the North Shore.	.835
The local tourism economy on the North Shore.	.843
α = .901	

Table 3

Component Matrix for Principal Component Analysis of Place Meanings Items

Item	**Component 1**
I identify strongly with the North Shore.	.881
I feel the North Shore is a part of me.	.813
I am very attached to the North Shore.	.804
I get more satisfaction out of visiting the North Shore than any other place.	.892
Doing what I do on the North Shore is more important than doing it in any other place.	.789
No other place can compare to the North Shore.	.787
I feel a sense of pride in my heritage when I am on the North Shore.	.770
The North Shore is a special place for my family.	.852
Many important family memories are tied to the North Shore.	.794
α = .933	

Predicting Simple WTP

Results from both iterations of regression analyses are presented in Table 4 and simplified in Figure 2 to illustrate the significant predictors. Related to research question 1 (simple WTP), age was significantly associated with a WTP $30 for a license plate that would direct funds towards North Shore climate adaptation planning (p = .025), particularly within the 45–54 age group (p = .005). For this group, the negative relationship is moderate (β = -.612, Exp(β) = .543). The reference age category is over 65, indicating that younger visitors have lower probability of responding "yes" when asked if they would be willing to pay $30. Income was also significantly related to simple WTP $30 ($p$ < .001) across all income categories. [Exp(β) values range from .561 to .688]. These findings indicate that income groups below the reference category of $100,000 have lower probability (between .561 to .688 times less likely) of responding "yes" when asked if they would be willing to pay $30.

Place meanings were significantly (p < .001) and positively related (β = .548, Exp(β) = 1.730) to WTP $30; that is, visitors with stronger place meanings are 1.7 times more likely to be willing to pay $30 for a specialty license plate to support climate adaptation planning in the region. Risk perceptions were negatively associated with a WTP $30 ($p$=.039, β=1.107, Exp(β)=.997). As such, respondents who perceived climate change impacts as positive influences on the region (to their personal health and safety, their future recreational trips, recreation infrastructure, nature, and the region's tourism economy) are .899 times less likely to be willing to pay $30 to support regional climate adaptation planning.

Table 4

Results of the Binary Logistic Regression Comparing North Shore Visitors' WTP and, if so, WTP $30 or More than $30.

Variables	Binary logistic regression: WTP (N/Y)				Binary logistic regression: If Yes, $30 or >$30			
	β	S.E.	*p* value	Exp(β)	β	S.E.	*p* value	Exp(β)
Age[a]			**.025**				.190	
18-24	-0.358	.263	.174	0.699	0.480	.408	.239	1.616
25-34	-0.126	.229	.583	0.882	0.442	.354	.211	1.556
35-44	-0.329	.220	.135	0.719	0.410	.342	.230	1.507
45-54	-0.612	.218	**.005**	0.543	-0.005	.335	.987	0.995
55-64	-0.201	.219	.359	0.818	-0.155	.326	.635	0.856
Gender	0.020	.105	.849	1.020	-0.153	.162	.345	0.858
Income[b]			**< .001**				<.**001**	
Less than $39,999	-0.374	.172	**.030**	0.688	-0.553	.263	**.036**	0.575
$40,000-$59,999	-0.480	.167	**.004**	0.619	-1.251	.275	**<.001**	0.286
$60,000-$79,999	-0.556	.163	**.001**	0.573	-0.248	.256	.334	0.781
$80,000-$99,999	-0.579	.154	**< .001**	0.561	-0.686	.245	**.005**	0.503
Destination loyalty	0.001	.004	.854	1.001	0.015	.006	**.020**	1.015
Season	0.064	.112	.569	1.066	-0.100	.175	.565	0.904
Party Size	-0.029	.027	.285	0.972	0.042	.043	.319	1.043
Trip length	0.016	.016	.313	1.017	-0.006	.025	.795	0.994
Place meanings factor score	0.548	.063	<.**001**	1.730	0.087	.096	.367	1.090
Risk perceptions factor score	-0.107	.052	**.039**	0.899	-0.253	.078	**.001**	0.776
Constant	-0.003	.328	.993	0.997	0.203	.495	.681	1.225
R^2 Cox-Snell	.081				.076			
R^2 Nagelkerke	.110				.101			
Hosmer and Lemeshow statistic	.949				.660			
Wald chi-square	144.25				5.887			
Sig.	<.001				<.001			
Classification (%)	65.5				50.9			
N	1,711				660			

The results are robust to Bonferroni corrected *p* values for 0.05/*n*, where *n* is the number of hypotheses tested.
Reference categories used in the model:
[a] Age 65+
[b] Income > $100,000/year

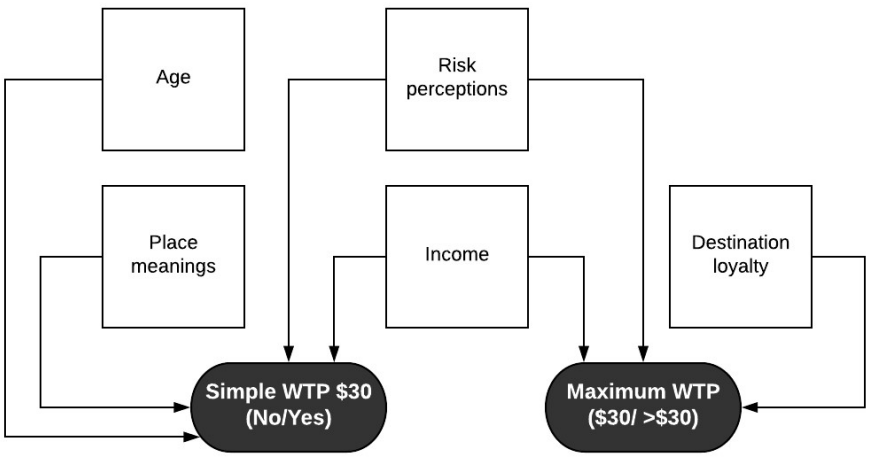

Figure 2. Factors that influence North Shore visitors' simple and maximum WTP for climate change adaptation planning on the North Shore of Lake Superior, Minnesota, USA.

Predicting Maximum WTP

Related to research question 2 (maximum WTP), income was a significant predictor, particularly for those visitors in the income brackets of < $39,999 ($p = .036$), $40,000–$60,000 ($p < .001$), and $80,000–$100,000 ($p = .005$). These relationships were moderate and negative [β = -.553, -.1.251, and -.686, Exp(β) = .575, .286, and .503, respectively]. Respondents in the lower income brackets have a lower probability of being willing to pay more than $30 for the specialty license plate to support climate adaptation planning in the region. Destination loyalty also emerged as statistically significant in the maximum WTP model ($p = .020$, β =.015, Exp(β) = 1.015), indicating that another year's experience in coming to the North Shore makes it 1.015 times more likely that a visitor will express a WTP bid greater $30 for the specialty license plate. Risk perceptions were significantly and negatively ($p = .001$, β = -0.253) associated with maximum WTP >$30 (Exp(β) = .776), indicating that as perceptions of climate change impacts are viewed more favorably, visitors are .766 times less likely to pay >$30 to support regional climate adaptation planning.

Discussion

Our findings reveal that income, risk perceptions, age, and place meanings are significantly related to visitors' WTP a nominal fee (i.e., $30) in support of destination-specific climate change planning and adaptation efforts. Additionally, income, risk perceptions, and destination loyalty are significant predictors of visitors' WTP more than $30 for a specialty license plate dedicated to climate change planning and adaptation. It is important to keep in mind that we contextualized our WTP scenario in a hypothetical situation (a specialty license plate) but one that is relatively common for funding environmental initiatives. Although the hypothetical scenario limits the study's generalizability, we believe that using a specific example enabled visitors to meaningfully consider whether or not they would financially support an effort to enhance the resiliency of a NBT destination.

Consistent with previous research, income emerged as having a moderate and positive relationship with both the nominal fee (i.e., $30) and maximum WTP (e.g., Reynisdottir et al., 2008; Lamborn, Smith, & Burr, 2017). For example, More and Stevens (2000) found that half of low-income individuals (those earning less than $30,000 USD annually) were unwilling to pay user fees at a recreation area, while two-thirds of wealthier respondents were willing to pay access fees. While Stage (2010) suggested the costs and benefits of adaptation on topics such as climate change might not be best predicted by financial variables such as income, it may be that people who have greater income are more likely to own a vehicle and are willing to spend more on car-related accessories, such as a specialty-license plate. Additional research is needed to better understand the relationships between income and WTP for adaptation through a specialty license plate, especially given Laband, Pandit, and Sophocleus (2009) found mixed evidence of a relationship between per-capita income and sales of wildlife-related specialty plates.

Findings that visitors who are willing to pay for such a specialty license plate hold stronger beliefs that climate change will have negative impacts substantiate evidence on risk reduction and WTP (e.g., Pratt & Zeckhauser, 1996; Yang et al., 2014). When individuals perceive greater risks, they are willing to pay more to reduce those risks

(e.g., Viscusi & Zeckhauser, 2006). Future research should expand on how perceptions of climate change risks influence the likelihood that visitors and residents would fund planning efforts and the implementation of climate change adaptation or mitigation strategies. Some work, investigating the personal benefits received through the implementation of climate change adaptation strategies, has already occurred (Longo, Hoyos, & Markandya, 2012).

Influences of Simple WTP

Regarding research question 1, we found that younger visitors were less willing to pay $30 for a specialty license plate to support destination-specific climate adaptation planning. However, other research has documented younger individuals as being more willing to pay. For example, Hamed and others (2016) inferred that older survey respondents may consider the WTP scenario more seriously than younger respondents and that younger generations are generally more concerned about (and, therefore, more willing to pay for) environmental issues. Our study suggests younger visitors may not express environmental concern through a WTP $30 for a license plate that would direct funds towards climate adaptation planning. Further research is warranted to explore whether younger visitors are willing to pay some amount that is less than $30 (but greater than zero) or if younger visitors are more interested in other mechanisms for supporting climate change adaptation. The mechanism presented in our hypothetical WTP scenario (specialty license plate), may not be relevant to, or feasible for purchase by, younger individuals who may not yet own vehicles, a consideration supported by Laband and others' (2009) who found a negative relationship between the proportion of wildlife plates sold and the proportion of the population in the 18-to-24 age group.

We also found place meanings to be positively related to simple WTP $30; specifically that a segment of visitors (i.e., visitors who most strongly identify with, depend on, and have familial connections to a place) would support funding climate change adaptation policy in a NBT destination. This finding contributes to a growing body of research that examines place meanings with contingent valuation methods related to WTP for natural resource conservation (e.g., Chung et al., 2011; Hoyos et al., 2009) and climate change mitigation (e.g., Longo et al., 2012) or adaptation (e.g., Zhai & Suzuki, 2009). Our finding that strong place meanings results in a WTP for locally-focused climate change planning is also related to the psychological distancing effect in climate change concern and action research. For example, Spence and others (2011) demonstrated that reducing psychological distance to a problem (e.g., climate change) increases concern about and willingness to act on that problem.

Influences of Maximum WTP

Regarding research question 2, we found that in addition to income and risk perceptions, visitors' destination loyalty was significantly and positively related to maximum WTP > $30 for a specialty license plate dedicated to climate adaptation planning. This finding builds on existing recreation and WTP literature such as Williams and others' (1999), who documented recent participation in (and payment for) outdoor recreation opportunities as being positively correlated with increased WTP. Our study builds on the tenet that not only recent but also long-term participation in nature-based recreation and tourism increases the likelihood of visitors' WTP for environmental management. Moreover, repeat visitors may have a personal experience with climate change risks and hazards (Lujala et al., 2015; Spence et al., 2011; Weber,

2010) in NBT destinations, which may increase their concerns for addressing climate change impacts through contribution to a climate change adaptation fund. However, additional research is needed to further explore the role of destination loyalty in enhancing climate adaptation funding mechanisms, as the difference between years visiting for visitors' willing to pay $30 and or >$30 was slight.

Management Implications

Our findings may provide decision-makers in NBT destinations with the insights necessary to incorporate visitors into a regional climate adaptation strategy. Strong place meanings appear to be a useful determinant of whether visitors would pay for climate adaptation, while destination loyalty at a NBT destination increases the maximum visitors are WTP into a climate adaptation fund. Additionally, heightened risk perceptions—specifically, visitors who perceive negative impacts from changing environmental and climatic conditions in a NBT destination—can help distinguish those who are likely to pay and willing to pay more for climate change planning and adaptation efforts. Developing destination-marketing efforts that foster place meanings (e.g., increasing attitudinal loyalty; Lee, Graefe, & Burns, 2007) and increase the salience of negative climate risks may enhance the likelihood of visitors' acceptance of climate adaptation funding initiatives.

Our findings suggest those visitors WTP $30 or more can be characterized as "dedicated" (i.e., strong place-based connections and substantial use history) and "climate-informed" (i.e., risk perceptions that indicate awareness and concern) visitors, who are typically older adults within income brackets that likely both enable repeat visitation and the purchase of specialty license plates. Investing in interpretive programs that increase the knowledge, awareness, and self-efficacy of climate change impacts to a NBT destination may enable substantial investment by these dedicated visitors to climate adaptation initiatives. The challenge will be luring these dedicated visitors into visitor centers to learn more about climate change risks to the NBT destination, as interpretive services have been found to only indirectly impact future visitation intentions (e.g., Lee, 2009). Partnering with local tourism businesses to market new exhibits or interpretive talks could be a viable option for attracting dedicated visitors back to visitor centers within a NBT region but may require reciprocal marketing of partnering businesses (Saxena, 2005). Regardless, recreation and tourism system planners should consider the potential fiscal contributions of such dedicated visitors when assessing climate mitigation and adaptation costs.

Limitations

The large sample size in this study may have influenced the statistical significance of relationships between predictor variables and WTP. Additionally, the findings of this study are limited in their generalizability to other NBT destinations. Individuals that participated in the survey tended to be older and wealthier as evidenced in the mean values for those attributes. Furthermore, the sample used for this analysis revealed that both groups were coming to the North Shore for 15 years or more, on average. Further research is needed to explore the WTP for climate change planning and adaptation efforts in NBT destinations among visitors who do not have strong historic visitation patterns. Lastly, there are likely to be climate change belief and risk perception dynamics inherent to the largely American sample population (e.g., the "Six Americas" report, Leiserowtiz et al., 2011) within our study; in other countries where climate change

beliefs and risk perceptions may be different, findings may also diverge from what was found with North Shore visitors.

Conclusion

Building on the idea of "acting locally" to adapt to climate change (Ireland & McKinnon, 2013), it is important to understand how visitors may support and contribute to climate change adaptation efforts. For the North Shore NBT region, a loyal visitor with strong place meanings and negative perceptions of climate change impacts is most likely to commit to the sustainability of the region's environmental conditions through a license plate contribution funding mechanism. Future research is needed to determine if these characteristics have similar effects in other NBT destinations, especially to identify WTP determinants in localities where first time or out of state visitors are prominent. It will also be of interest to explore the nature of other potential funding mechanisms for adaptation planning, such as taxes, fees, voluntary contributions, or memberships to environmental or planning-related organizations.

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