

# Adaptation of Vermont State Park Visitors to Climate Change

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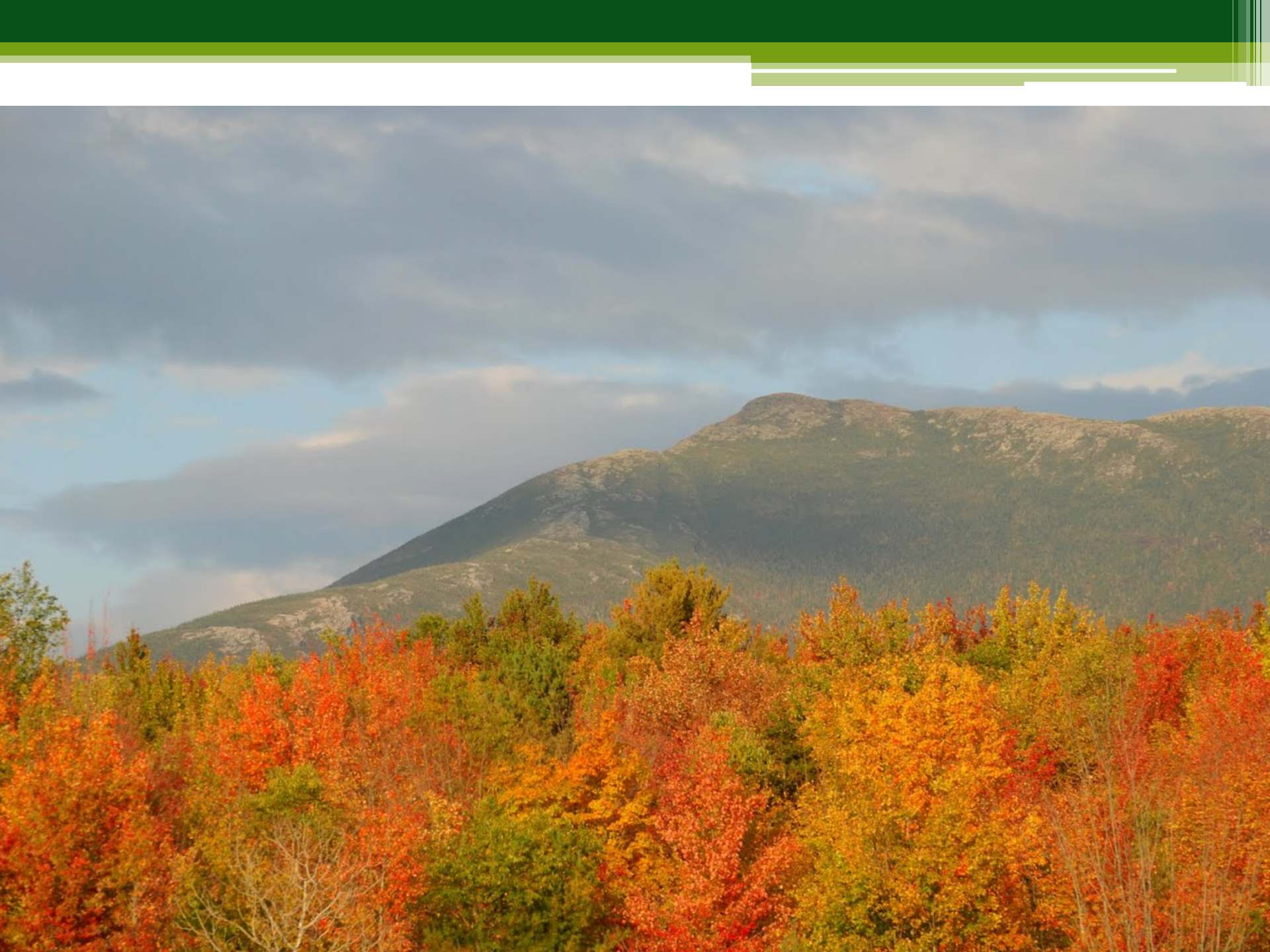
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# Ahh, Vermont State Parks...

- 52 state parks in all regions of the state
- Over 1 million visitors in 2015
- Visitation has been increasing since 2008
- Funding is largely fee-based
- An important economic driver for Vermont
- Important provider of outdoor recreation opportunities



BALANCING ROCK





# Background

- Climate change is an increasingly important issue in Vermont and around the world
- Research suggests visitors are adapting their behavior (e.g., activities, amount, location, and timing of recreation)
- State park managers wish to continue to provide high quality opportunities
- Changes in recreation behavior may require changes to state park facilities and programs
- Since the Vermont State Park budget is highly dependent on entrance and camping fees, changes in visitation may impact the budget

# Methods

- Survey of a representative sample of state park visitors at three Vermont State Parks
  - Elmore State Park
  - Underhill State Park
  - Woodford State Park
- August 1 through Columbus Day weekend, 2015
- One questionnaire per group, 18+ years old
- Incentives (free single day admission, armload of firewood)
- 92% response rate, yielding 394 completed questionnaires

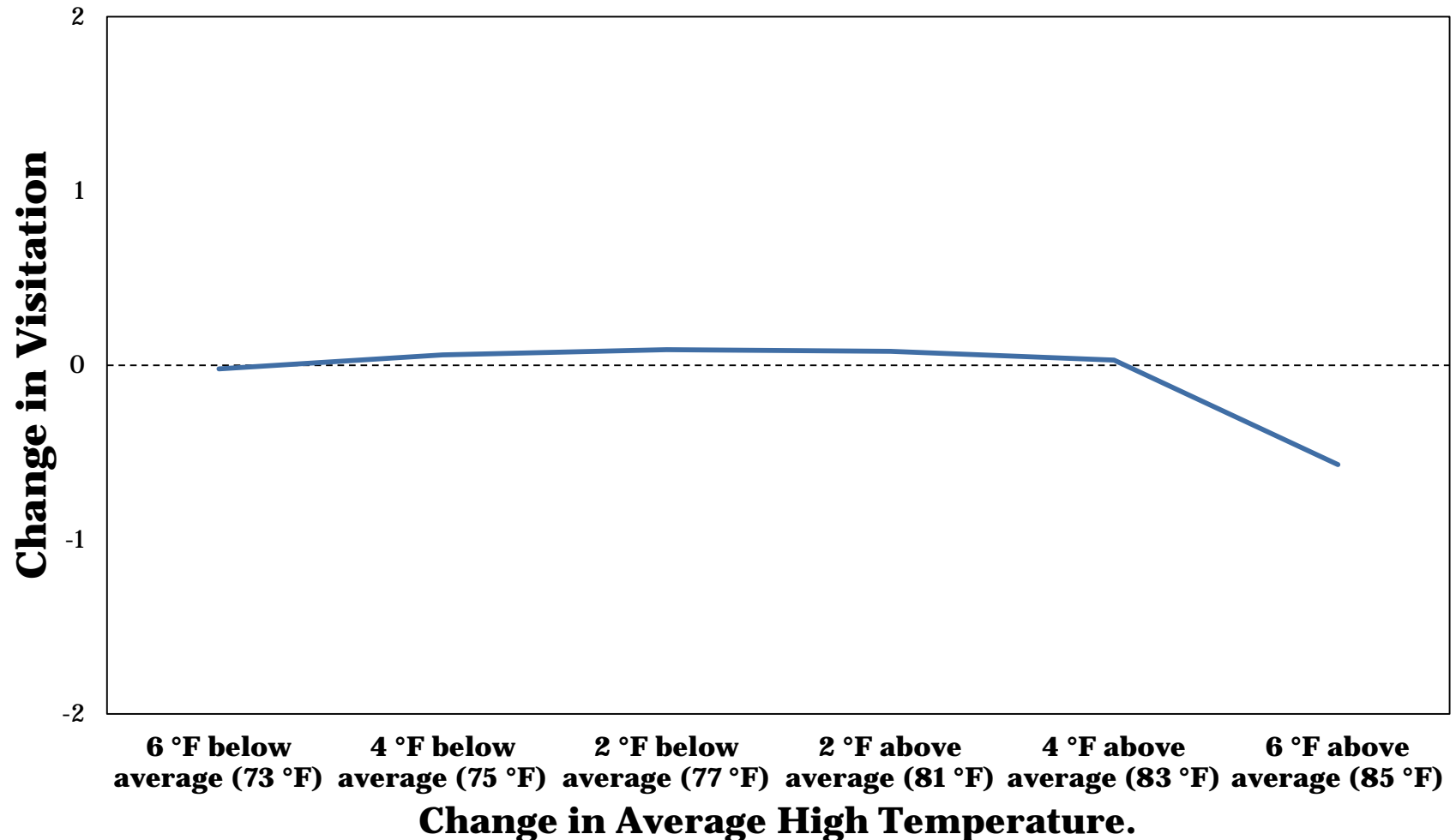
# Results

# Primary Activities

Primary Activity	Percent
Hiking	42.2
Tent Camping	26.6
Swimming	9.9
RV Camping	6.5
Other	4.8
Nature Walks	2.4
Boating	1.9
Fishing	1.3
Sightseeing in the Local Area	1.3
Mountain Biking	1.1
Picnicking	1.1
Road Biking	0.8
Nature Programs	0.0

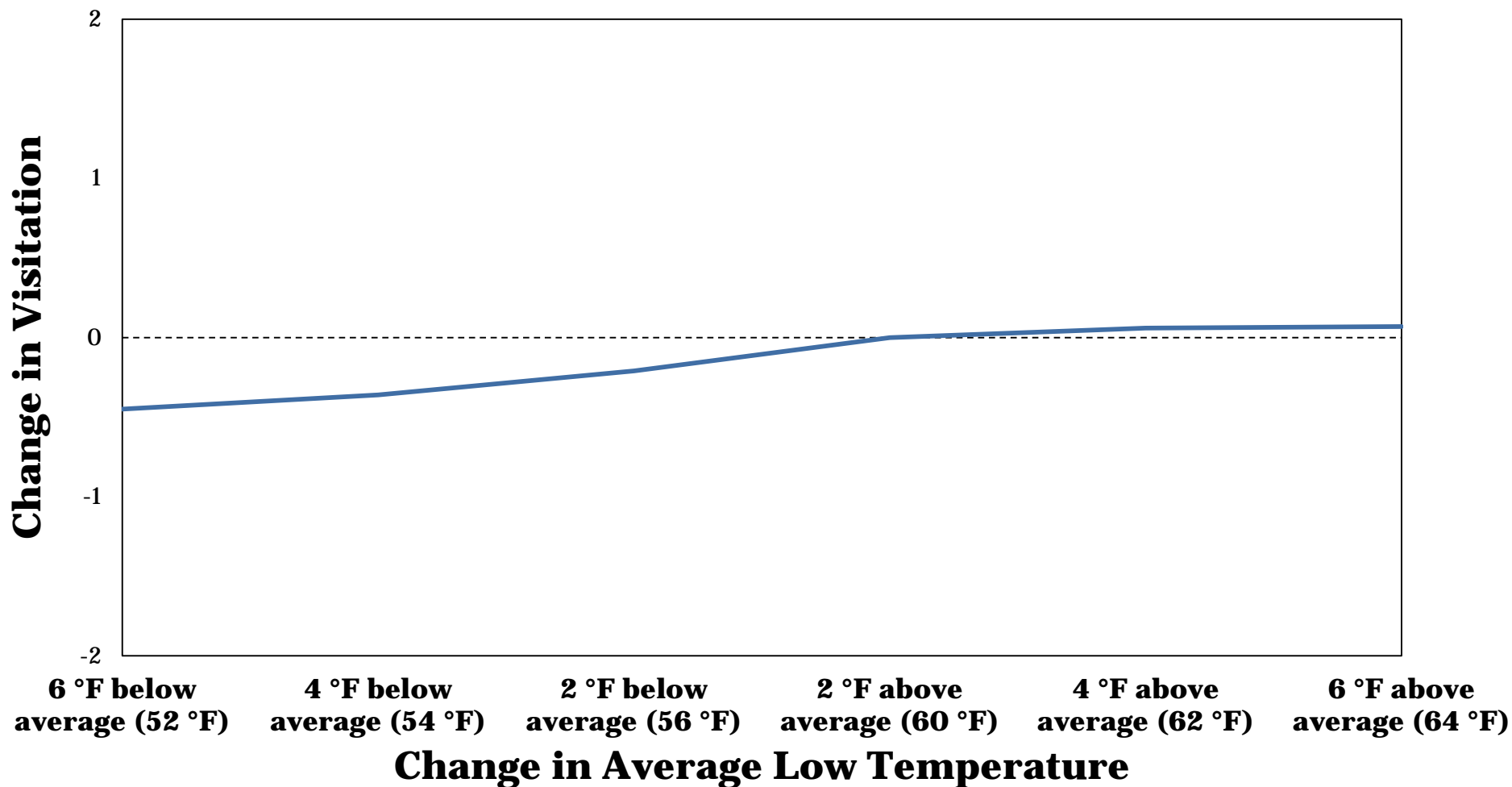
# Changes in Vermont State Park Visitation

## Average High Temperature



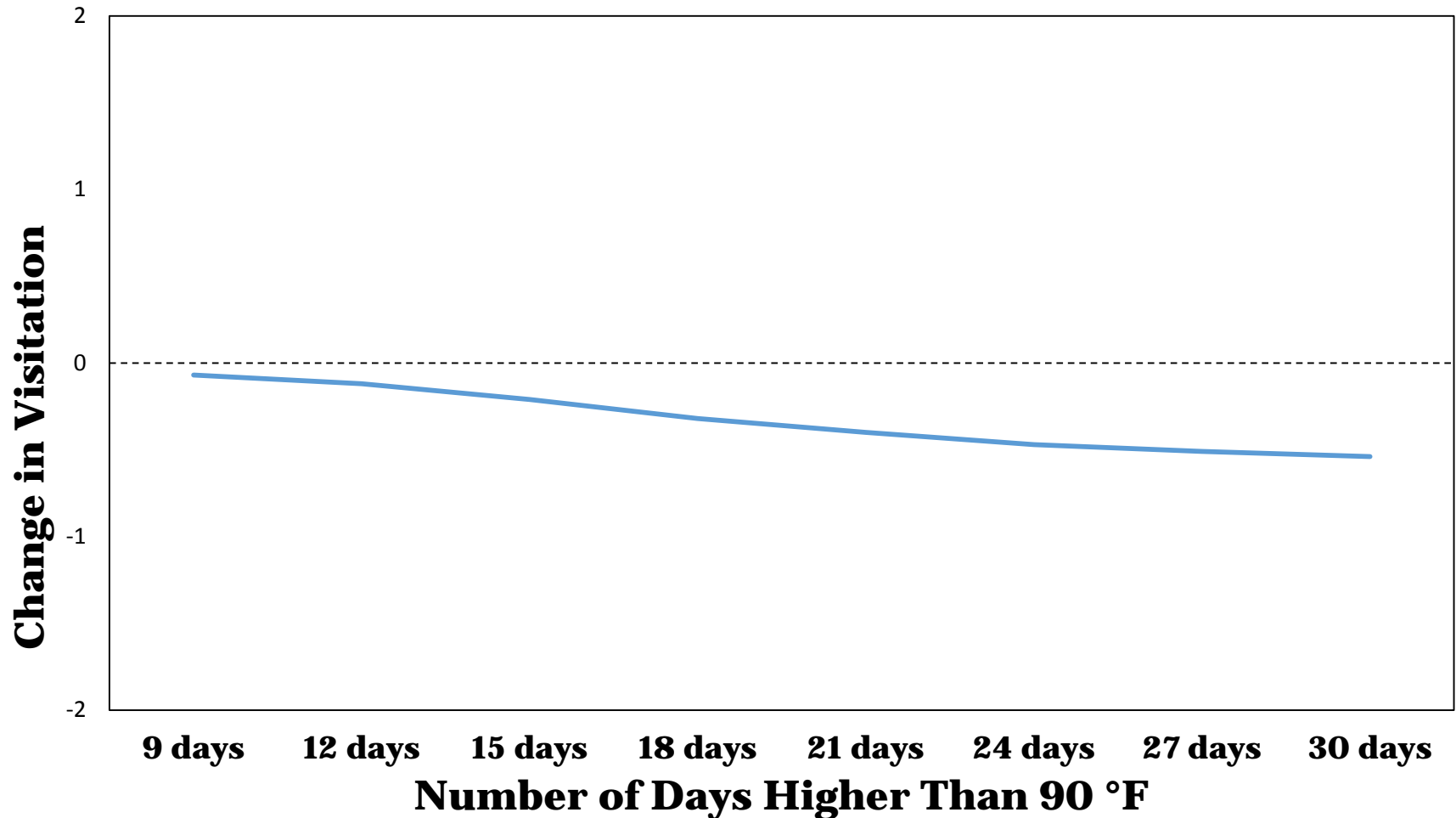
# Changes in Vermont State Park Visitation

## Average Low Temperature



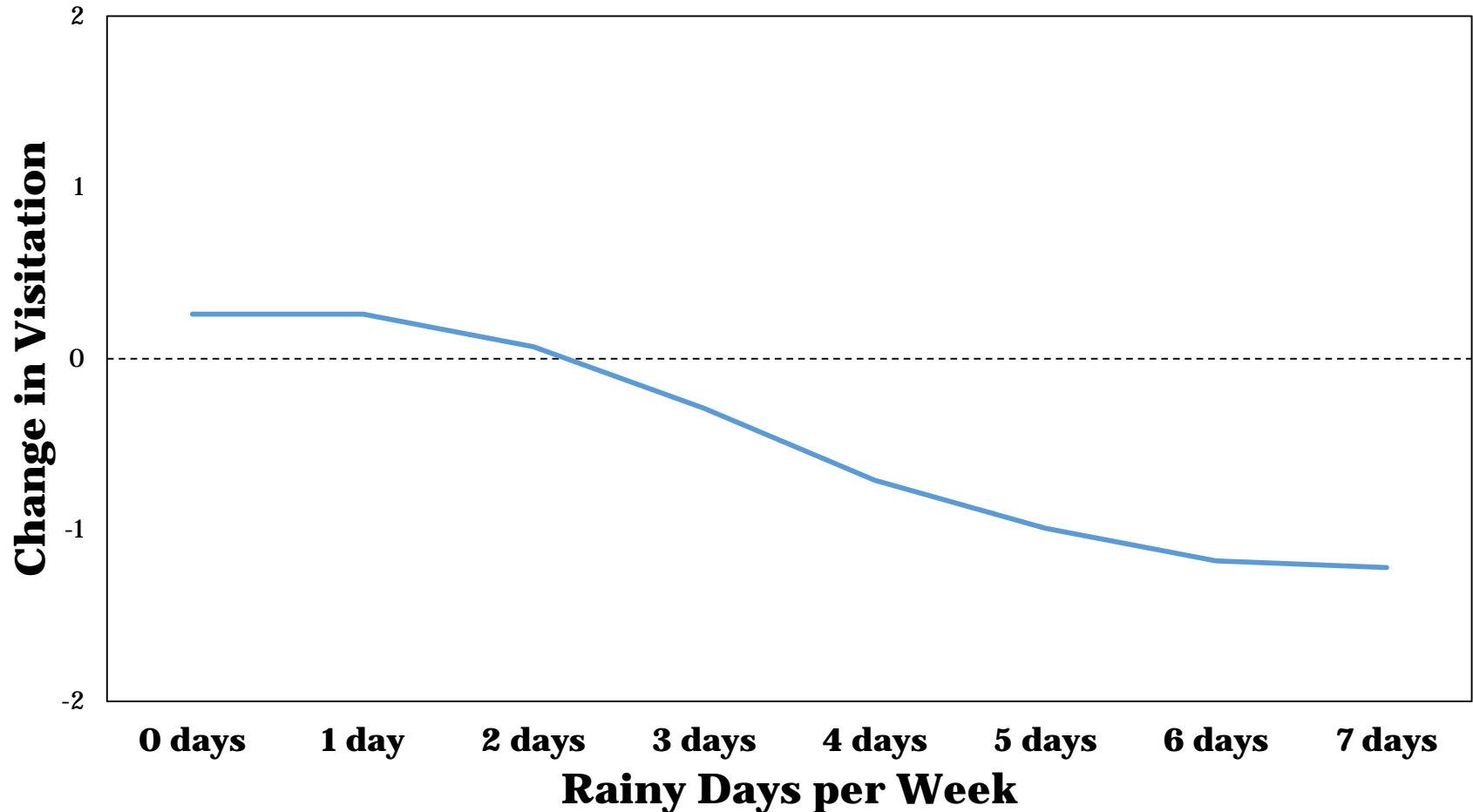
# Changes in Vermont State Park Visitation

**Average Number of Days per Year Higher Than 90 °F**



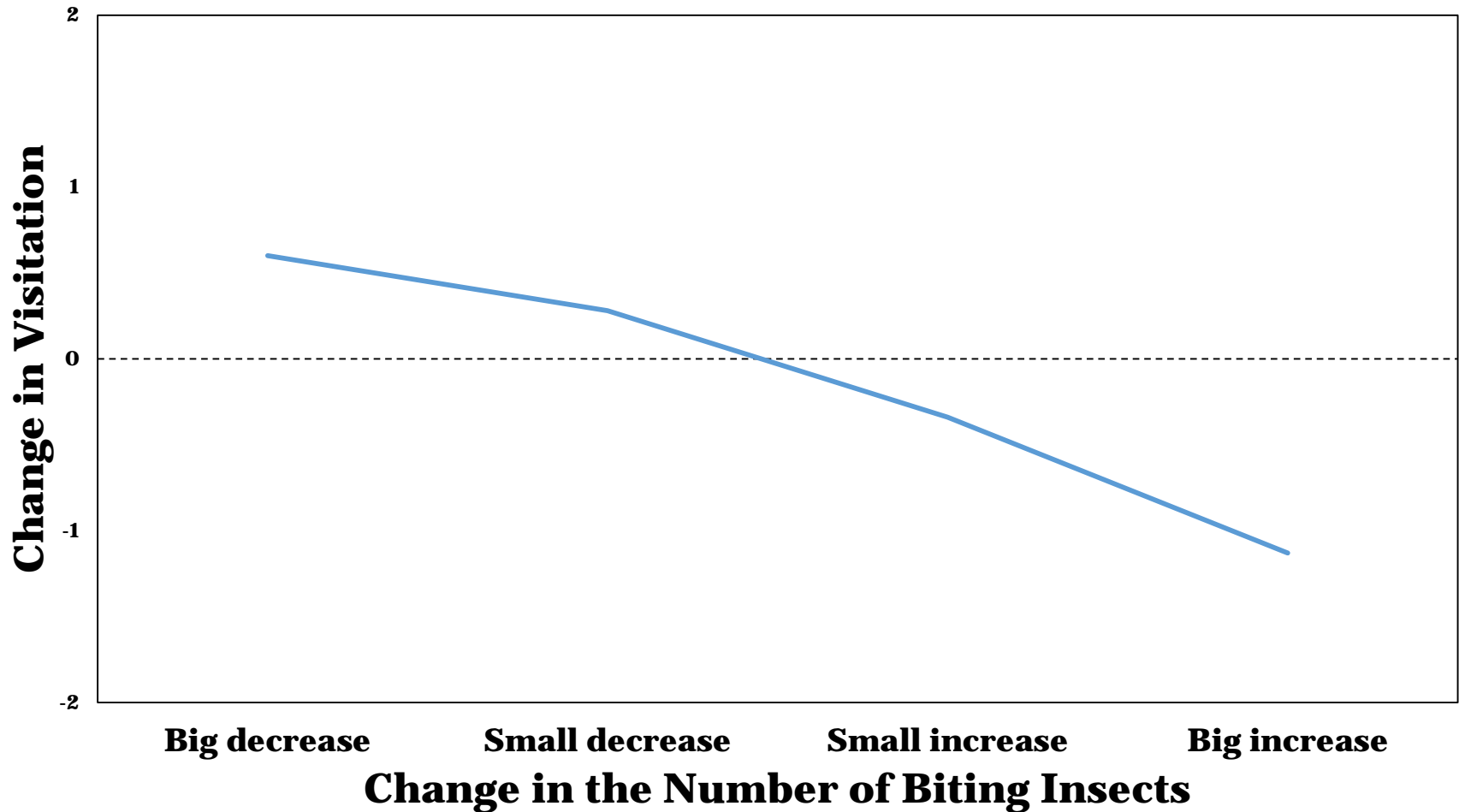
# Changes in Vermont State Park Visitation

## Average Number of Rainy Days per Week



# Changes in Vermont State Park Visitation

## Number of Biting Insects



# Spatial and/or Temporal Displacement

	Would you choose to visit different Vermont State Parks?			Would you choose to visit different Vermont State Parks?			Would you visit earlier or later in the season?		
	More Parks in the North	More Parks in the South	No change	More Parks at Higher Elevation	More Parks at Lower Elevation	No change	Earlier in the Season	Later in the Season	No change
> Daytime temp.	<b>43.4</b>	3.0	53.7	<b>40.7</b>	4.6	54.6	<b>31.0</b>	<b>33.0</b>	43.4
> Nighttime temp.	<b>34.6</b>	6.2	59.2	<b>33.3</b>	4.6	62.0	<b>25.6</b>	<b>27.9</b>	48.7
> 90 degree days	<b>47.6</b>	4.1	48.4	<b>44.5</b>	3.8	51.6	<b>30.5</b>	<b>30.2</b>	45.4
> Rainy days	4.4	15.6	80.0	4.4	19.6	76.0	5.6	9.4	75.1
> Biting insects	<b>30.7</b>	4.9	64.4	<b>32.0</b>	4.4	63.5	18.0	<b>25.1</b>	53.6

# Changes in Activities

	<b>Increase in Daytime Temp.</b>	<b>Increase in Nighttime Temp.</b>	<b>Increase in 90 F+ Days</b>	<b>Increase in Rainy Days</b>	<b>Increase in Number of Biting Insects</b>
<b>RV Camping</b>				Decrease	Decrease
<b>Tent Camping</b>	Mixed	Mixed	Decrease	Decrease	Decrease
<b>Hiking</b>	Decrease		Decrease	Decrease	Decrease
<b>Road Biking</b>	Decrease		Decrease	Decrease	Decrease
<b>Mountain Biking</b>	Decrease		Decrease	Decrease	Decrease
<b>Swimming</b>	Increase	Increase	Increase	Decrease	Mixed
<b>Boating</b>	Increase	Increase	Increase	Decrease	Mixed
<b>Fishing</b>				Decrease	Decrease
<b>Picnicking</b>				Decrease	Decrease
<b>Sightseeing</b>				Decrease	Decrease

# Comparisons to National Polls – Is the climate changing?

You may have noticed that climate change has been getting attention in the news. Do you think that the climate is changing?

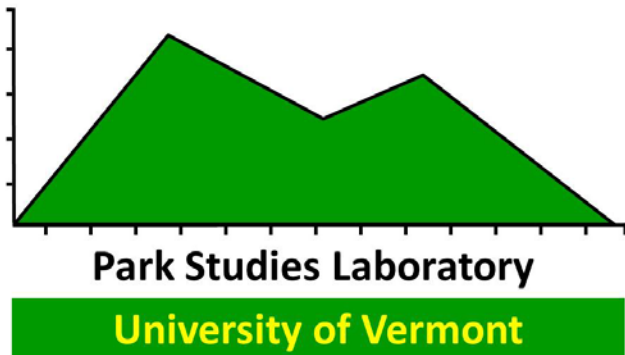
	<b>VT Percent</b>	<b>Non VT Percent</b>	<b>US Percent*</b>
<b>Yes</b>	87.0	92.6	67.0
<b>No</b>	6.2	0.9	16.0
<b>Don't Know</b>	6.8	6.5	18.0

\*US Percent from 2015 Yale/Gallup poll

# Summary & Conclusions

- Alternative manifestations of climate change are likely to alter use of Vermont state parks:
  - Amount of use
  - Recreational activities
  - Spatial distribution of use
  - Temporal distribution of use
- Most respondents believe that climate change is real, is caused by a combination of natural and human forces, that it has already begun, and that the U.S. should reduce emissions of greenhouse gases.

# Thanks!



[www.uvm.edu/parkstudieslaboratory](http://www.uvm.edu/parkstudieslaboratory)



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Questions?



# Visitor characteristics

	Vermont State Parks
<b>Previously visited this VSP</b>	53%
<b>Previous visits (mean)</b>	8.6
<b>Previously visited other VSP</b>	75%
<b>Percent campers/overnight visitors</b>	68%
<b>Visits to VSP in a typical year</b>	6.3
<b>Reside in Vermont</b>	40%
<b>Age (mean)</b>	42
<b>College degree or &gt;</b>	67%