



# PICTURED ROCKS NATIONAL LAKESHORE

By: Nathan Born, Chris Jehle, Nick Rappuhn, and Anna Watson



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# THE PARK

Pictured Rocks National Lakeshore was the first National Lakeshore ever in 1966. The Park is 40 miles of sandstone cliff along Lake Superior. Lake Superior is the largest fresh water lake by surface area and accounts for 10% of the world's fresh water.

01

Pictured Rocks National Lakeshore is the #1 attraction in the UP. Most visitation occurs in July and August.

02

The Chapel Loop Trail is the most popular hiking trail. Last year 74,000 cars went through that parking lot.

03



# THE ISSUE'S CONTEXT

There has been an increase in tourism to the Munising and Pictured Rocks National Lakeshore over the past couple of years. As an effect, the rate of climate change is increasing. By bringing awareness to the people who are doing the most damage, it can help lower the rate of permanent damage to the park and surrounding area.





# THE ISSUE'S HISTORY

## Lake Superior and Munising are warming

While erosion is always going to be natural within the park because of the sandstone, the process is being sped up by climate change. As explained to us in our expert interview, the ice along the rocks, like pictured below, create a barrier to winter weather, but with warming temperatures the rocks are now exposed all year round.

The reason Lake Superior is so clear and blue is because it is too cold for bacteria to grow. So with warming lake temperatures we are now seeing small patches of algae blooms. This is going to compromise the beauty of the lake that attracts the tourists.





[illegible]

**During the day of research, two kayakers were found dead, that's the reason for the jump in the negative words.**

**\*AS OF SEP. 23**



# PRIOR RESEARCH



\* Climate  
Friendly Park  
Program

STRATEGY 1: REDUCE FUEL USE AND GREENHOUSE GAS EMISSIONS FROM PARK FACILITIES AND OPERATIONS

STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

\* Lake  
Superior  
WaterShed

2012 WAS ALSO THE FIRST YEAR THAT MARQUETTE, MICHIGAN WAS FORCED TO CLOSE PUBLIC BEACHES DUE TO HIGH BACTERIA COUNTS DIRECTLY LINKED TO THE HIGH WATER TEMPERATURES OF LAKE SUPERIOR. A DRAMATIC DECLINE IN SNOWFALL HAS EXACERBATED DROUGHT CONDITIONS, IMPACTED LAKE LEVELS AND THREATENS REGIONAL ECONOMIC SUSTAINABILITY, SPECIFICALLY THE TOURISM AND SHIPPING INDUSTRIES

\* UW-  
Stevens  
Point

EXPLAIN AND APPLY DIFFERENT QUALITATIVE AND QUANTITATIVE METHODS AND TECHNIQUES FOR MEASURING AND MONITORING CLIMATE CHANGE IMPACTS ON TERRESTRIAL AND AQUATIC ECOSYSTEMS. ENGAGE, COMMUNICATE, AND BUILD RELATIONSHIPS FOR FUTURE COLLABORATIONS WITH TRIBAL NATURAL RESOURCE AND CULTURAL PROFESSIONALS, GOVERNMENTAL AGENCIES, AND COMMUNITY DECISION-MAKERS.

\* National  
Forest  
Service

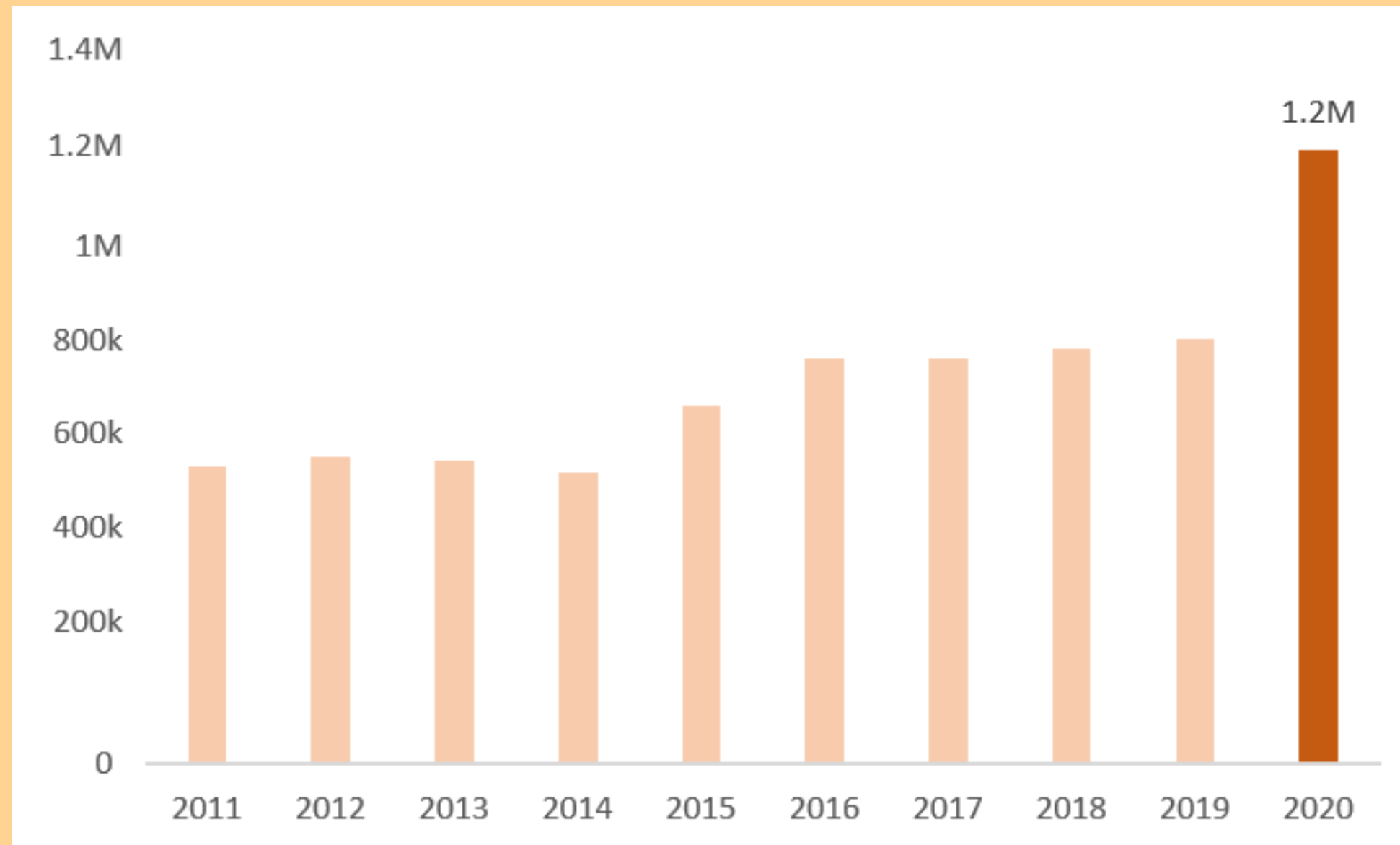
THE FOREST PRODUCTS INDUSTRY IS A MAJOR CONTRIBUTOR TO THE REGION'S ECONOMY. TEMPERATURE IS PROJECTED TO INCREASE ACROSS ALL SEASONS DURING THE NEXT CENTURY, WITH DRAMATIC WARMING PROJECTED IN WINTER.

*\*MOST IMPORTANT INFORMATION, TAKEN FROM THE MAIN RESEARCH ARTICLES/DOCUMENTS WE FOUND*



# HOW MANY VISITORS?

VISITATION HAS INCREASED BY  
**141%** IN THE LAST DECADE



IN 2020 THERE WERE **1.2M**  
VISITORS WHICH WAS AN INCREASE  
OF **40%** FROM 2019



# RESEARCH QUESTION

What do visitors and residents of the  
Munising area know and believe  
about climate change?





# OUR SURVEY

RESULTS  
AND  
ANALYSIS

**TOTAL RESPONSES: 280**

**RESIDENTS: 113**

**VISITORS: 167**

Our survey was posted around the Munising area, posted in Facebook pages relevant to the park and area, and sent to those who were known to have ties to the park



# DEMOGRAPHIC

 A LOOK AT WHO  
TOOK THE SURVEY 

COMMON AGES:

**35-44**

**55-64**

**65-74**

RACE:

**78%**

**White**

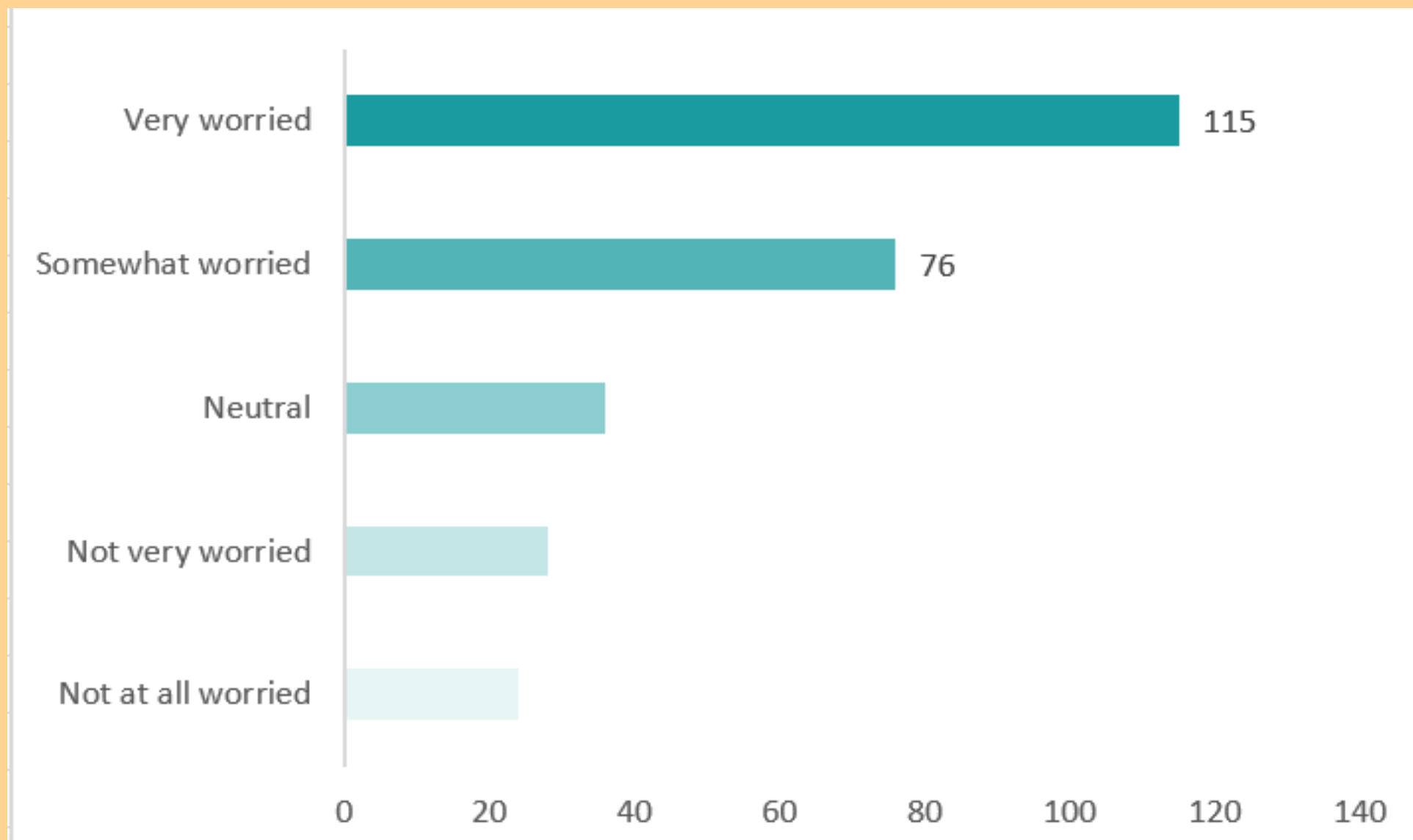
GENDER:

**63% Female**

**31% Male**



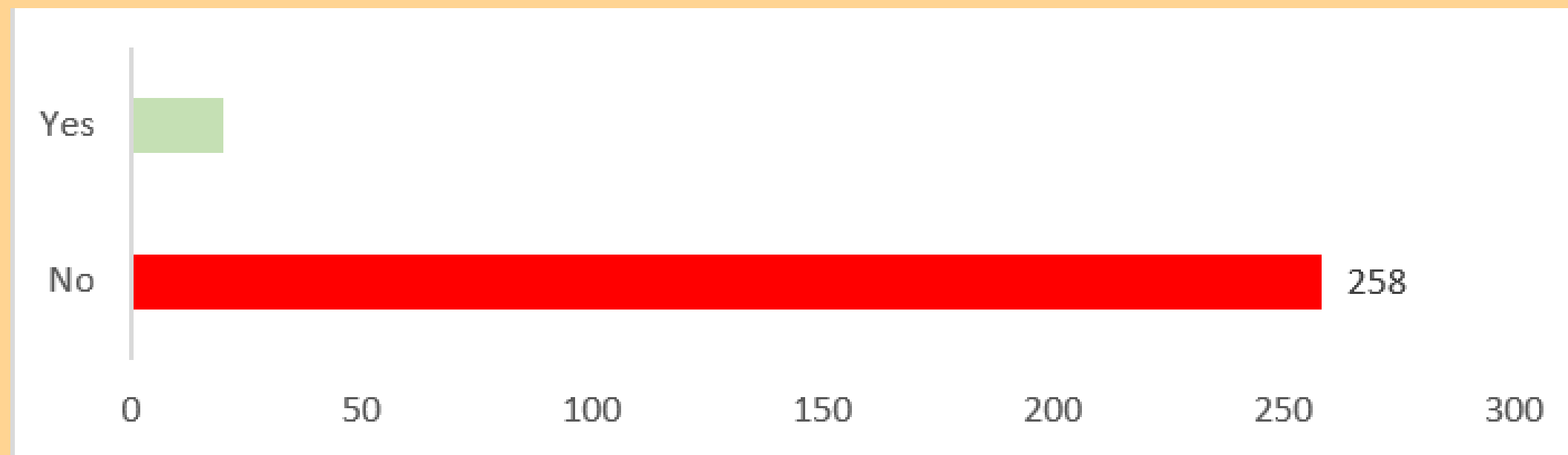
# HOW WORRIED ARE YOU ABOUT CLIMATE CHANGE?



- Of the total responses, 68% of them are worried about climate change.
- This percentage is from both the very and somewhat worried sections.
- The remaining 32% of people are either neutral, not very or not at all worried on the matter.



# HAVE YOU RECIEVED INFORMATION ABOUT CLIMATE CHANGE?

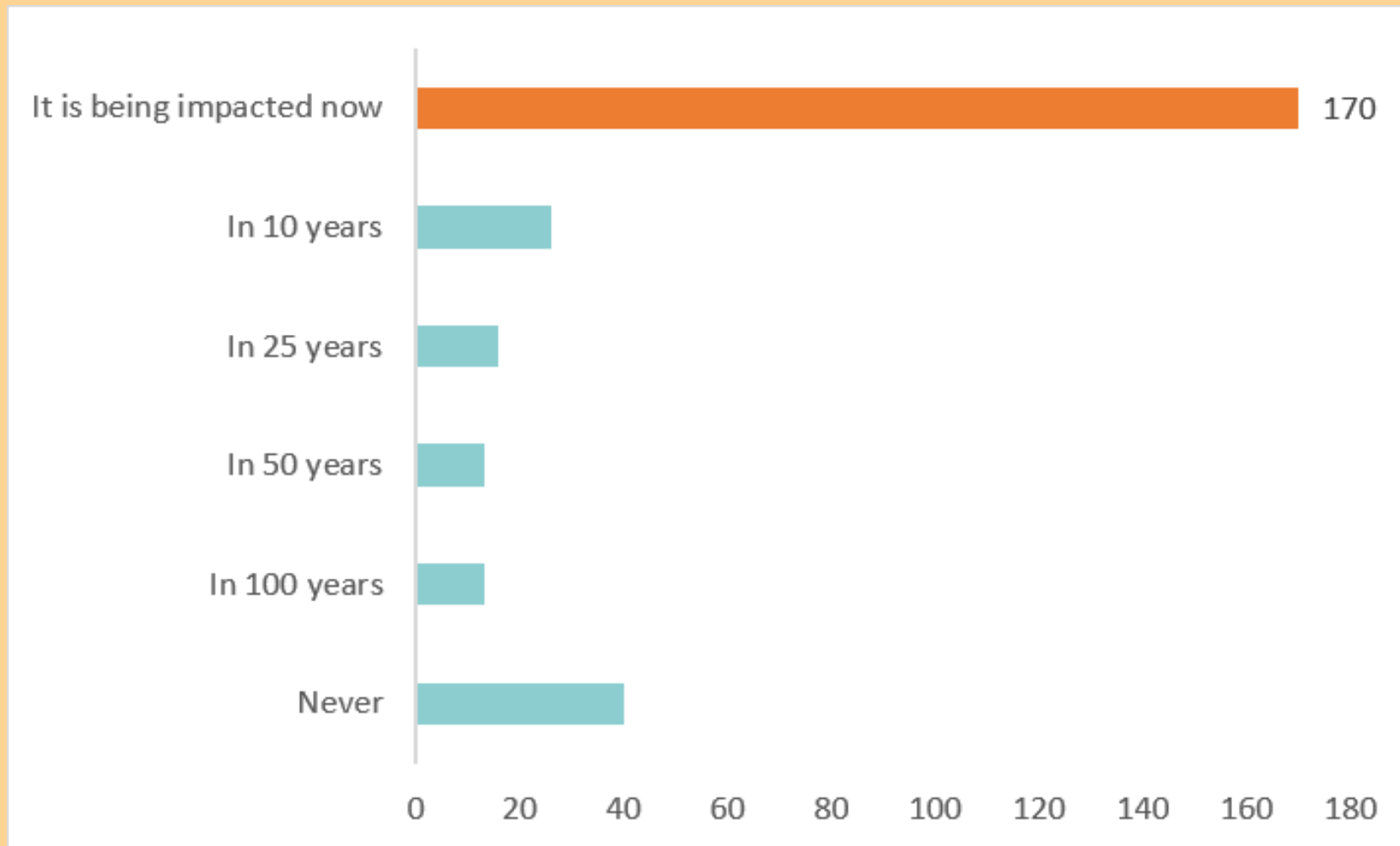


- 92% of the respondents have not received information on climate change
- 8% of the respondents have received information on climate change



# URGENCY OF THE ISSUE

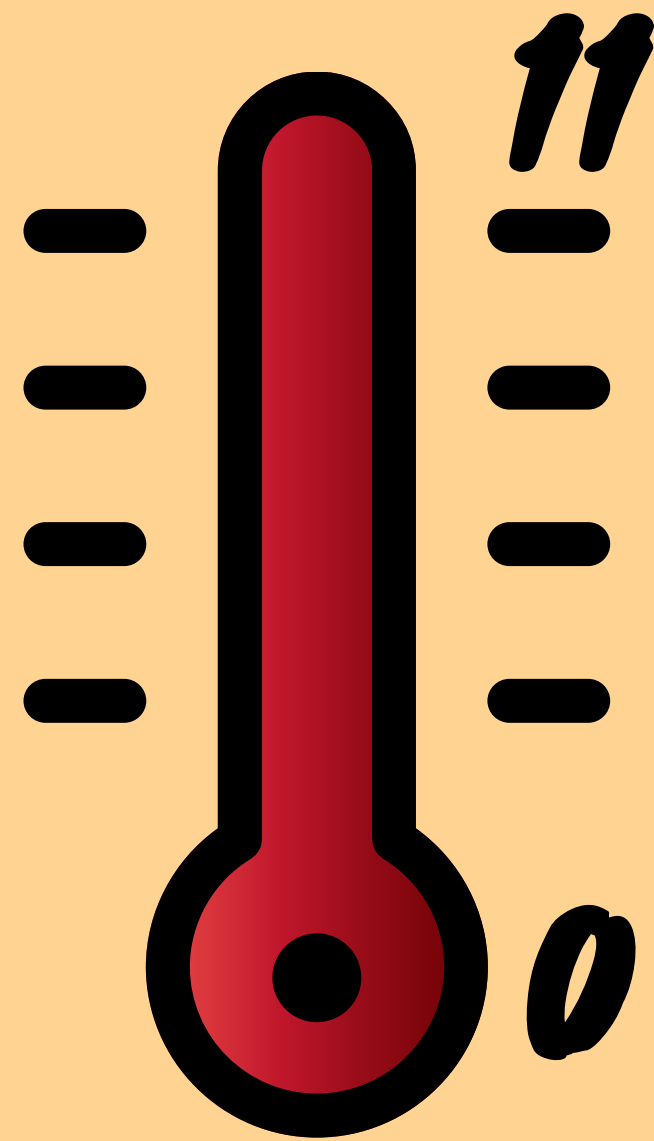
When do people think the park is going to be affected?



60% said it is being impacted right now. Even though the remaining 40% don't believe the park is being affected right now, the park should still make an effort to reach out to this group and provide the same resources it would give the group that agrees the park is being impacted today. In this instance, no one is a lost cause. We all need to work together.



# TEMPERATURE INCREASE



According to the Superior Watershed Partnership, the temperature of Lake Superior is expected to raise approximately 11 degrees in the next 10 years. This increase in temperature would speed up the process of algae blooming in the lake, erosion, decrease the whitefish population that thrive off of the colder temperatures for spawning, and also create a habitat for the extremely invasive zebra mussel to inhabit some areas of the lake and spread.



# WILLING TO HELP?

## 68% OF PARTICIPANTS ARE WILLING (AND WANT!) TO LEARN MORE INFORMATION

An overwhelming amount of our population wants to learn more information on climate change and specifically how it is affecting the Pictured Rocks National Lakeshore. Considering 92% of the population hasn't received any information, it's crucial that the park starts to provide some sort of educational material posthaste.





# WILLING TO HELP?

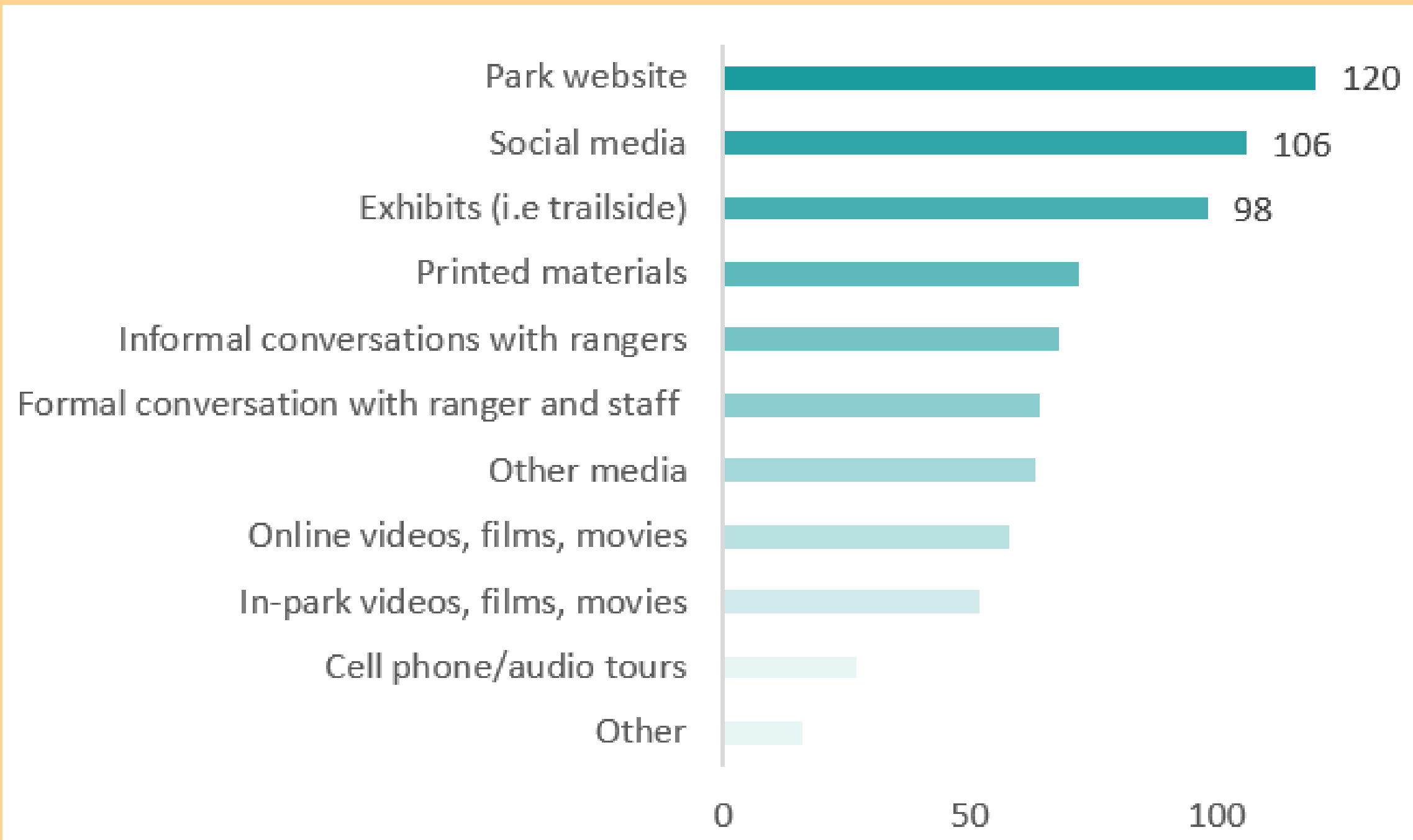
## **50%** SAID THEY'D PAY A PARK FEE

Half of the surveyed population said that they would pay a park fee. When asked how much they were willing to pay to enter the park, the average answer was between \$5.00 and \$20.00. If each of the 74,000 cars that traveled through the Chapel Loop Trail parking lot this last year alone, paid just a \$10.00 park fee, the park could have made \$740,000. This money could have gone toward maintenance, staffing, signage, and so many more things that the park is in need of. The National Parks Service in Washington D.C. is currently working on establishing a park fee for Pictured Rocks National Lakeshore. The going rate for national park fees average about \$20.00, so the fee will most likely be close to that number.





# RECOMMENDATIONS



When asked 'where they would like to receive more information on climate change within the park', there were three overwhelming answers. The three recommendations on the following slides are based on the top three answers shown here.

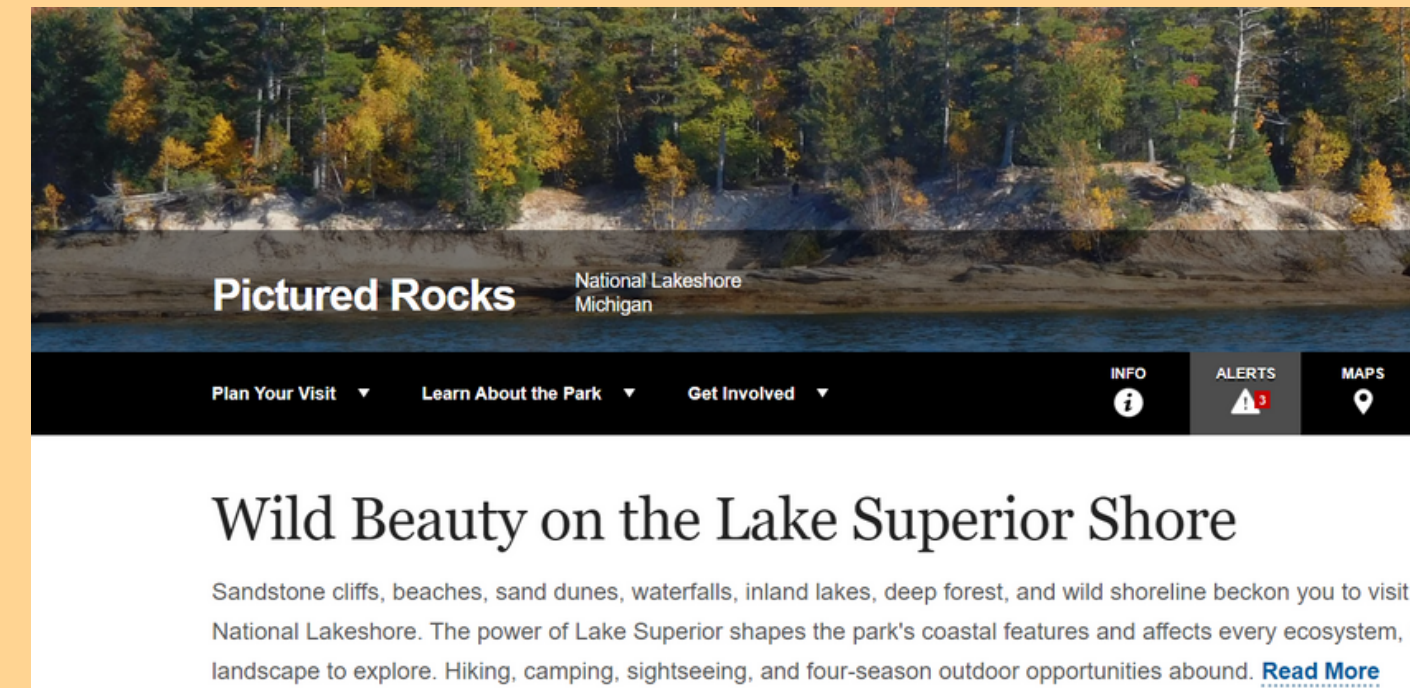
**01** UPDATE NPS WEBSITE      **02** SOCIAL MEDIA CAMPAIGN      **03** CREATE TRAIL SIGNS



# RECOMMENDATIONS

## WEBSITE UPDATE

The National Parks Service needs to update their website to include more information on Climate change, as well as the things currently affecting Pictured Rocks specifically. Putting this information directly on the park page will make it easily accessible for anyone who wants to view it. In addition to information and statistics, the website update should include a page about what people can do to limit their impacts on the park while visiting. Tips specific to each park could help tremendously rather than a blanket set of recommendations for national parks as a whole.





# RECOMMENDATIONS

## CLIMATE FRIENDLY PARKS AUDIT

Pictured Rocks National Lakeshore has been apart of the Climate Friendly Parks Program since signing their agreement in 2008. Since the signing, there have not been audits of parks or updates to the agreements. Considering things have changed quite a bit since then, the Pictured Rocks Park Service should conduct an interior audit to gauge how things are going and make updates to their action plan. Much of the public is not aware the program even exists. By making the audit and actions made, available to the public, this should generate a good amount of not only owned media for the park, but earned as well. This all-in-all will make visitors more aware of what the park is going through.

[NPS.gov](#) / [Home](#) / [Mitigate the Cause](#) / [Climate Friendly Parks Program](#)

### Climate Friendly Parks Program

#### About

The Climate Friendly Parks (CFP) Program is one of many initiatives supporting the National Park Service (NPS) [Green Parks Plan](#). The program provides parks with the tools and resources to address climate change and ensure the most sustainable operations across the agency.



With distinctive locations and unique, protected resources, national parks are places where the effects of climate change are particularly noticeable. When the NPS was established in 1916, it was granted responsibility for preserving and protecting the significant resources within national parks for current and future generations to enjoy. Today, as the effects of climate change accumulate and we better understand its long-term impacts, the need for sound environmental stewardship and forward-thinking resource management is more relevant than ever.

To provide national parks with comprehensive support to address climate change within both park boundaries and surrounding communities, the CFP Program has established the following goals:

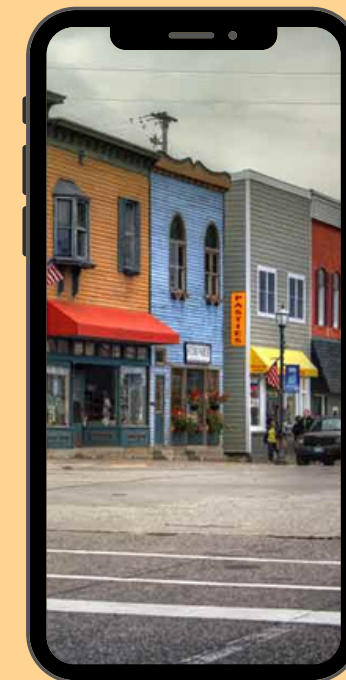
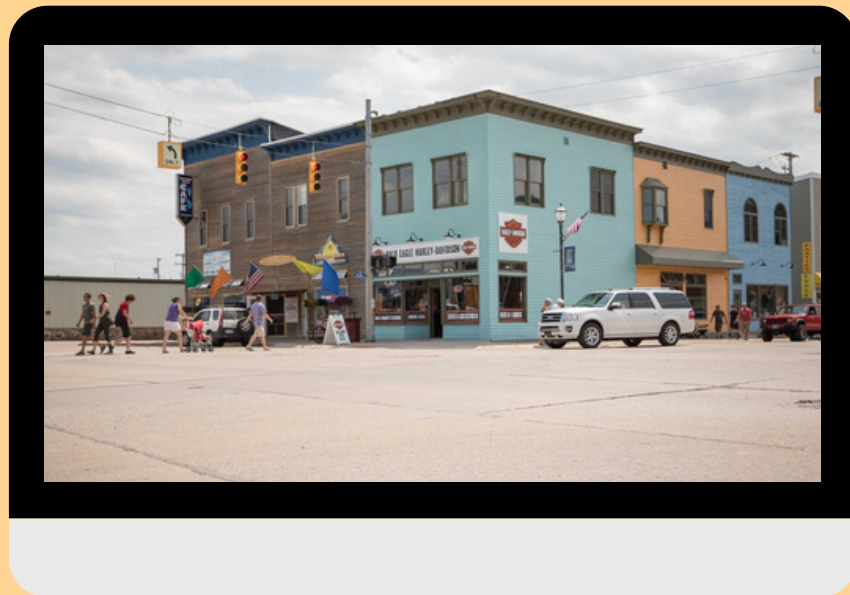
- Measure park-based greenhouse gas (GHG) emissions

# RECOMMENDATIONS

## PICTURED ROCKS NPS INSTAGRAM

THE SOCIALS HAVE VERY FEW POSTS REGARDING CLIMATE CHANGE OR ITS EFFECTS. SEPTEMBER 17 WAS THE LAST TIME THEY HAD A POST ON INSTAGRAM TO DO WITH CLEANING UP THE PARK WHICH WAS THE CLOSEST THING TO MAKING CHANGE.

TWITTER AND TIKTOK ARE THE FASTEST GROWING AND MOST EFFECTIVE WAYS TO REACH THE YOUTH.







# RECOMMENDATIONS



- Create trail signage to indicate what path to take on Chapel Hill Loop
- Reduce amount of social trails, with trail markers, to help improve wildlife integrity.
- Include climate change information on signage to help inform visitors about the issue

# CONCLUSION



The amount of people concerned about climate change continues to increase but there are little to no resources available. By making resources available to the public and increasing awareness of the issues facing the park, visitors will hopefully help in the effort to continue making Pictured Rocks National Lakeshore something to enjoy for many generations yet to come.



# WORKS CITED

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- PIRO\_CFP\_Action\_Plan\_508Compliant.Pdf, n.d.;
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**SPECIAL THANKS TO ALL RESEARCH PARTICIPANTS!**