Exploration of Increased Visitor Use Motivations and Impacts on the Visitor Experience as well as on the Natural Resource

A Field Project

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This is to certify that I have examined this copy of a Master's Plan B Research Project by

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Dedication

I dedicate this achievement to my father and my mother, who with love and effort have accompanied me in this journey, without hesitating at any moment of seeing my dreams come true, which are also their dreams.

To my brothers Imran and Faisal, and to all those who made this achievement possible: love and Unlimited gratitude.

Abstract

This exploratory study investigated the surge in nationwide usage of protected natural areas in the USA, that aimed to understand the driving forces behind the increasing visitor numbers. The research addressed whether the rise in visitor use was influenced by advertising, COVID-19 lockdowns, or other factors, with a focus on natural areas along the North Shore of Lake Superior in Minnesota. By exploring visitor motivations and their perceived impacts (through online and in-person survey), gauging perspectives of nature area park managers (through online survey) to assess their perspectives on the impacts of increased visitor use and assessing impacts on charter fishing businesses to understand changes in visitor patterns and associated effects on recreational businesses (through online survey), the study provided a comprehensive understanding of the dynamics at play. With a 92.9 % response rate from 158 participants overall, the research highlighted the nuanced dynamics of outdoor recreation, emphasizing the need for adaptive management strategies to balance visitor experiences with environmental preservation. The results showed diverse visitor motivations and importance of balancing visitor preferences with environmental preservation in campground management. Park Managers faced complex challenges managing recreational lands during COVID-19, necessitating strategic planning and adaptive management. The Lake Superior charter fishing industry demonstrated resiliency and adaptability necessitating ongoing efforts to address challenges and leverage opportunities.

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Chapter 1: Introduction

Background

A little over half of US citizens (51%) engaged in outdoor recreation including hiking, camping, fishing, canoeing, and many other outdoor activities, at least once in 2018, according to the Outdoor Foundation's 2019 study on participation trends (*2019 OUTDOOR PARTICIPATION REPORT - Outdoor Industry Association*, n.d.). Additionally, since the end of World War II, Americans have traveled more frequently for leisure, as seen, for instance, by the sharp rise in the number of visitors to US National Parks. In 2019, there were over 90 million visits to national parks annually, which was extremely close to the top bound predicted by Bergstrom, Stowers, and Shonkwiler (2020). Consequently, in the field, management of the National Parks were getting ready for record-breaking visitors in 2020 when the COVID-19 pandemic struck. Despite the pandemic, 7.1 million more Americans engaged in outdoor recreation in 2020 than they did in 2019 which was the highest participation rate (53%) on record (*2021-Outdoor-Participation-Trends-Report.Pdf*, n.d.).

The World Health Organization (WHO) proclaimed the Coronavirus COVID-19 pandemic on March 11, 2020. As the COVID-19 virus wreaked havoc on communities and prompted a government shutdown, outdoor areas turned into safe havens for people to interact socially, advance their physical and mental health, stay in touch with loved ones, and recover from screen fatigue. The COVID-19 pandemic in general and specific to COVID-19-related restrictions at outdoor recreation places in particular had an impact on recreational visiting behavior in a number of ways. First, people needed to reschedule or postpone planned trips if a location, such as a National or State Park, was totally shut down for a period of time owing to COVID-19. Second, due to perceived risks of catching or transmitting the COVID-19 virus, users were reluctant to

access recently reopened sites or sites that were never fully shut down. People were also persuaded to cancel or reschedule planned vacations to outdoor leisure areas if this perceived risk was severe enough. Third, people proceeded with any scheduled visits to locations that were open or made alternate visits from closed to open sites provided perceived dangers did not rise to a threshold that caused them to cancel. The value of their experiences was a reflection of the overall COVID-19 constraints as well as other site quality factors like accessibility and traffic density. We also saw that the pandemic had an impact on time restrictions and time of use. People had extra time for leisure activities now that many of them worked from home or were unemployed. At the same time, access to various indoor recreational activities (including movie theaters, museums, and shopping centers) was limited. This encouraged greater outside recreation, which was found to be safer than staying indoors (though this realization only occurred later in the summer of 2020, and some may still have been resistant to taking risks with outdoor recreation).

The COVID-19 epidemic had a significant impact on economic activity, according to numerous accounts in the popular media, including some details on decisions regarding leisure and tourism in the USA (Avel, n.d.)*ECONOMIC IMPACT 2022*). There was a lot of information about how people felt about public health and safety measures and estimates of the direct economic implications of the epidemic were emerging (Fantozzi 2020; IBISWorld 2020; Kochhar and Barroso 2020). Even by utilizing revealed preference data in the context of travel expense, studies were performed to investigate the impact of the COVID-19 pandemic on outdoor leisure visits and values. However, it was unclear if the sharp rise in visitor use in protected nature areas was the result of more campaigns encouraging people to spend time outside, COVID-19 stress, or if there were other factors causing increasing visits to outdoor recreation places. Additionally, neither the

positive nor negative effects of increased outdoor participation were well-documented or understood.

Purpose Statement

The goal of the study was to interview a cross-sectional sample of nature-based visitors, learn more about their reasons for going outdoors at various locations on the North Shore of Lake Superior in Minnesota. Additionally, this study aimed to determine the extent that increased visitor use was due to a response to COVID-19 restrictions or if this was a part of a trend of increased visitor use in protected nature areas over time. Also, the study aimed to understand to what extent the visitors knew about their impact on the environment while being outdoors. The study also considered to survey park managers and charter captains to understand the effect of COVD-19 on the businesses and if and how the increased outdoor participation is affecting the natural resources. Finally, the study's applications aimed to educate resource managers on how to manage visitor use and safeguard natural resources. Thus, the purpose of this study was:

1. To survey a cross-sectional sample of outdoor recreation visitors to determine their motivations & expectations for visiting the NE Minnesota Lake Superior North Shore to determine perceived impacts on the natural resource and the visitor experience.
2. To determine the extent that visitor increase is due to a response to COVID-19 restrictions or if it is a trend of increased visitor use in protected nature areas over time.
3. To inform resource managers regarding visitor use management and natural resource protection, through applications of the study.

Research Questions

The following questions guided this study:

RQ 1) What are the perceived reasons behind the sharp rise in visitor use in protected nature areas from 2020-2023?

A) What are the perceived motivations and expectations of the current front-country visitors' outdoor recreation experience?

B) How has the COVID-19 pandemic affected utilization, visitor expectations, and motivations?

C) How are the motivations and expectations of the front-county visitors perceived to be changing how facilities, lands, and waterways are managed?

RQ 2) What are the perspectives of Protected Nature Area Managers on the effects of visitors on local natural resources?

RQ3) What are the perceptions of patterns of client use and motivations of charter businesses during the COVID-19 pandemic?

Definition of Terms

This section defines the terminology used in this thesis in order to clarify their meanings. The terms are defined utilizing the Babbie (2011) and Creswell (2011) process for idea specification (2009). Each term is given a nominal description, and when appropriate, an operational definition that details the concept's measurement methodology is also given.

Expectation

Expectation is a probabilistic belief about the future that shapes and influences our perception, affect, cognition, and behavior in many contexts. Expectation is thus a concept that is extremely applicable to both basic and applied psychological fields. People can react to

confirmation or violation of expectations by either revising or retaining their earlier expectations in light of the new information.

Environmental Degradation

Environmental degradation is a process through which the natural environment is compromised in some way, reducing biological diversity and the general health of the environment. This process can be entirely natural in origin, or it can be accelerated or caused by human activities. Many international organizations recognize environmental degradation as one of the major threats facing the planet, since humans have only been given one Earth to work with, and if the environment becomes irreparably compromised, it could mean the end of human existence.

Front-country

Front-country is an area of the countryside that is relatively accessible rather than remote. It is composed of outdoor areas that are easily accessible by vehicle and mostly visited by day users. Developed campgrounds are also included in the front-country arena. Locations in the front-country are typically busier and draw a wider variety of visitors than those in the backcountry. The Leave No Trace Center for Outdoor Ethics states, "Studies have shown that the majority of outdoor use occurs along open space trails, in urban and state parks and in established campgrounds" (*Backcountry vs. Frontcountry - Silent Sports,* n.d.). The center has identified these locations and day-use areas as "front-country"

The Outdoor Industry Association (2019) finds there are three times as many car campers and five times as many day hikers as there are backpackers in the United States. Car campers and day hikers who visit city, county and state parks and trails, urban nature centers and land-managed areas near

cities, recreate in the front-country. They tend to stay fairly close to their vehicles when camping and hiking on the trails.

Motivation

Motivation is the process that initiates, guides, and maintains goal-oriented behaviors. It is what helps you lose extra weight, for instance, or pushes you to get that promotion at work. In short, motivation causes you to act in a way that gets you closer to your goals. In everyday usage, the term "motivation" is frequently used to describe why a person does something. It is the driving force behind human actions. Motivation includes the biological, emotional, social, and cognitive forces that activate human behavior.

Natural Resources

The naturally occurring assets that provide us benefits through the provision of raw materials and energy used in economic activity (or that may provide such benefits one day) and that are subject primarily to quantitative depletion through human use. They are subdivided into four categories: mineral and energy resources, soil resources, water resources and biological resources (Ushie, n.d.)

Nature-based Tourism

Nature-based tourism involves excursions to national parks and wilderness areas (protected nature areas), to developing countries where a large portion of the world's biodiversity is

concentrated (Olson et al. 2001: 936; WWF 2001; Christ et al. 2003: 5). It may also include an 'adventure tourism' element.

Protected Nature Area

"An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (Dudley, 2008)."

Visitor

A visitor is a person who visits an area of interest to explore the area. A visitor can hike, canoe, or hop aboard a boat, etc. to venture out in outdoor spaces. A visitor in this study is an overnight camper or a day explorer.

Visitor Experience

Visitor Experience is a personal response to any encounter during a visit, which may be influenced by both the external environment and a person's cognitive capacity (Packer and Ballantyne, 2016). Experience results from interaction with visible objects and actions as well as the intangible assets and psychological reactions (Pearce, 2011). Visitors' interactions with the destination's history, culture, recreation, and heritage are regarded as some of the most significant dimensions of tourism experiences (Gursoy et al., 2022). Understanding visitor's preferences, needs and requirements is the key to providing memorable experiences to visitors. Although the visitors' evaluation of experiences is inherently personal and subjective, the site authorities can

enhance visitors' experiences through carefully designed activities, events, and environments at sites (Packer and Ballantyne, 2016).

Limitations, Delimitations, and Assumptions

The limitations of the study on increased visitor use motivations and impacts on the visitor experience and natural resources included sample size, time, budget, and location constraints. These constraints influenced the generalizability and comprehensiveness of the findings, potentially limiting the study's ability to capture a diverse range of perspectives and account for variations across different contexts.

The delimitations included focusing on the motivations and impacts of increased visitor use, using a survey method to collect data from recent visitors, and studying a specific geographic location with known visitor use patterns. Assumptions included the positive impact of responsible visitor use on natural resources, the variety of reasons for visiting natural resources, and the influence of factors like visitor behavior and seasonality on impacts.

Significance

The exploration of increased visitor use motivations and impacts on the visitor experience as well as on the natural resource was significant for several reasons. First, it provided insights into the factors that motivated visitors to visit natural resources and the impacts of their use on the environment. This information can help to inform management strategies to mitigate negative impacts and enhance the visitor experience.

Second, the study helped to identify the types of activities that visitors engage in while visiting natural resources and how these activities affected the natural resource. This information

can be used to develop guidelines and regulations for visitor use that promote sustainable use of natural resources and minimize damage.

Third, the study provided valuable data to support decision-making processes for the management of natural resources. By understanding the motivations and impacts of visitor use, managers can make informed decisions about resource allocation, visitor capacity, and infrastructure development.

Finally, the study contributed to a better understanding of the relationship between visitors and the natural environment, and how this relationship could be sustained over time. As such, the exploration of increased visitor use motivations and impacts on the visitor experience and natural resource was significant for both the management of natural resources and the long-term sustainability of visitor use.

Chapter 2: Literature Review

Background

Outdoor recreation is important to American culture (*Outdoor Recreation Is an Essential Part of American Culture | USDA*, n.d.). It provides mental and physical challenges, promotes wellbeing, helps build lifelong skills, inspires inquiry and curiosity, inspires awe, and wonder for the natural world, and frequently provides a shift from daily routines (Riggs, 2017). A person's physical, mental, and spiritual health are all significantly improved by recreation (Pressman et al., 2009). Additionally, it builds pride in one's natural and cultural heritage as well as family and friendship bonds (White et al., 2016). One of the main ways that people engage with nature is through outdoor activity. The primary suppliers of locations, amenities, and landscapes for recreation in the USA are federal land agencies. In most of the cases, federal lands play a unique and major role in the provision of nature-based outdoor leisure activities (Smith, 2021). In the United States, federal lands occupy 640 million acres, or about 28% of the country's total geographical area (Vincent et al., n.d.). Nearly all federal land is open and available to the public for recreation. For example, some federal lands are used for mining or logging which are not conducive to recreational activities.

Demographic changes in the population, a decline in the amount of recreational land available per person, and changing conditions for recreational resources, which are partly influenced by climate change, will all have an impact on future participation in outdoor recreation and the related economic activity (Askew & Bowker, 2018). However, there has been a significant trend of increasing visitor use in outdoor recreation activities since 2015, especially in protected nature areas across the United States(*2021-Outdoor-Participation-Trends-Report.Pdf*, n.d.) (*2022-*

Outdoor-Participation-Trends-Report-1.Pdf, n.d.). This trend is leading toward overuse which is being perceived as degrading the natural resources as well as the visitor experience.

In this study, an overview of current trends in outdoor participation will be presented with the exploration of visitor use motivation which lead to our research topic - Investigating increased visitor use motivation and its impacts on the visitor experience as well as on the natural resource.

Benefits of Nature Based Recreation

Nature is a significant aspect of many people's lives, and the health and wellness advantages of nature-based activities are becoming more widely recognized across fields ranging from urban planning to medicine. Outdoor recreation is essential for a healthy mind, body, and spirit to cope with crises or disasters. Through physical connection with the natural world, outdoor recreation provides vital recreational ecosystem services such as stress release, socializing, and nature appreciation (Scholte et al., 2019).

Recreation is a healthy alternative to a positive attitude and provides opportunities for learning and a balanced and productive lifestyle (Davis, 2021). Being outside in nature that supports an active and healthy lifestyle, has shown to increase life expectancy, improve sleep quality and even reduce cancer risk. Most studies have found at least one beneficial relationship between nature-based recreation and mental health, such as improvements in affect, cognition, restoration, and well-being, as well as decrease in anxiety and depressive symptoms (Lackey et al., 2021).

Outdoor recreation encourages active lifestyles that reduce the risk of cardiovascular disease and other chronic health conditions (Lachowycz & Jones, 2011; Twohig-Bennett & Jones, 2018). Contact with parks and greenspace has also been linked to improved cognitive functioning (Bratman et al., 2012), attention restoration (Kaplan, 1995), stress reduction (Hunter et al., 2019),

subjective and emotional well-being (Capaldi et al., 2014; Larson et al., 2022), and positive social relationships (Jennings & Bamkole, 2019).

Also, participating in nature-based recreation is linked to pro-environmental behaviors. This connection could be explained in a variety of ways. Early research revealed that an emotional affinity for nature, which encouraged conservation efforts, could be explained in part by previous and present experiences in natural areas (Kals et al., 1999). Recent research indicates that leisure can influence pro-environmental behaviors directly or indirectly through place-based bonding (Larson et al., 2018). Through outdoor recreation, individuals are able to obtain a variety of nonmaterial benefits, such as educational opportunities, psychological restoration, and improved physical & mental health (Winter et al., 2020).

There is general understanding of the value of outdoor activity, particularly for physical and mental health and wellbeing, and a corpus of evidence-based research to support this (Bratman et al., 2012). Additionally, there is mounting evidence that exposure to or contact with the natural world has positive effects on humans. As a result, it is suggested that outdoor physical activity can combine these favorable effects and potentially have synergistic consequences (Lackey et al., 2019). In this context, professionals from a variety of professions have emphasized the advantages of outdoor activities, which frequently go beyond being physically active in a non-natural setting. Outdoor sports are linked to social benefits, such as the intra- and interpersonal development of young people, crime reduction, and active citizenship, in addition to the health-improving effects of physical activity and nature. This is because they offer distinctive opportunities within the natural and social environments. They help people feel more connected to nature, other people, and themselves, which has a variety of positive consequences all at once (Kals, 1999).

Historical Trends in Nature Based Recreation

In terms of the variety of activities and relative popularity, modern Americans' choices for outdoor recreation are different from those made by earlier generations of Americans. Through the 1960s and 1980s, more people participated in outdoor recreation. Activities including camping, canoeing, kayaking, and biking experienced significant growth, in part due to advances in equipment technology. While some activities saw a decrease in participation, new ones emerged (Cordell, 2012). Participation in outdoor recreation has increased from 48% in 2008 to 54% in 2021 (*2022-Outdoor-Participation-Trends-Report-1.Pdf*, n.d.). Similar trends have been observed on public lands controlled by the US Forest Service (USFS) and the National Park Service (NPS).

According to the USFS National Visitor Use Monitoring program, 150 million visits occurred in national forests between 2015 and 2019, a 5% increase over 2005-2009 (Warren, 2020). The NPS (2020) reported 327 million visits in 2019, a 16% increase since 2008. In the same year, there were 110.5 million visitors to national forests and 106.6 million visits to NPS units in the western United States (USDA FS 2020, USDOI NPS 2020). Increased participation and visits may not be equitable across all population groups. Visitors to national forests are predominantly White, with ethnic and racial minorities underrepresented (Winter et al., 2019). This tendency holds true for both adults and adolescents, with few youth from communities of color participating in outdoor recreation (*2022-Outdoor-Participation-Trends-Report-1.Pdf*, n.d.; Whiting et al., 2017). Other trends provide some hope in this regard. Hispanics (particularly young people) have shown a greater interest in nature than Whites, African Americans, and Asian-Americans, with African-Americans and Asian-Americans showing less interest than Whites (Kellert et al., 2017).

Climate change will affect different demographic groups differently as preferred outdoor recreation activities, places, and seasons vary. For example, numerous studies have shown that Latino recreationists choose developed day-use venues with amenities that may be impacted by

extended closures due to flooding or wildfire losses. When opportunity loss or deteriorating environments have unequal effects on a disadvantaged community, they are of particular concern (Winter et al., 2021). However, over all worldwide we are seeing more and more people taking nature-based recreation. A similar trend that came to light from Finland that has set a new one-month record for overnight stays by foreign tourists, with 0.73 million overnight stays recorded for non-resident tourists in December 2022 (Sarker, 2023). This represents an increase of nearly one quarter (25%) from December 2021. The number of nights spent by all tourists in Lapland was 12% higher in December 2022 compared to the same month in the previous year, with a total of 1.07 million overnight stays recorded for resident tourists, an increase of 5% from December 2021. These figures indicate that Lapland remains a popular tourist destination, particularly during the winter months when visitors can enjoy a range of winter activities and the region's natural beauty.

Economic Impact of Nature Based Recreation

Nature-based recreation has been praised as having a great impact on the economic progress of local people all over the world. Local people benefit from economic links with nature-based tourism through employment, by selling products and services to tourism companies and tourists, by owning tourism businesses, or through revenue sharing systems. The National Park Service (NPS) was created in 1916 with the directive to “promote and regulate the use of Federal areas known as national parks, monuments and reservations whose purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (Dilsaver, 1994, n.p.). While preservation was the NPS's original

motivation, NPS units across the United States have a considerable economic impact on states and local gateway communities.

In 2018, the National Park Service (NPS) recorded 318 million visitations across the park system in the United States. It was estimated that US$20.2bn in visitor spending for 2018 supported approximately 329,000 jobs – 268,000 within gateway communities – US$13.6bn in labor income, US$23.4bn in value added and US$40.1bn in economic output to the national economy (Hubbert, 2020; Thomas et al., 2019). As a result, any disruption in park visitation is likely to result in a financial loss for both the gateway communities and the parks themselves. According to *Outdoor America article*. www.iwla.org. (n.d.), the natural resources of America, namely its forests, bodies of water, and wildlife, offer myriad advantages to both the environment and to millions of individuals who partake in outdoor activities such as hiking, hunting, and other recreational pursuits. The vitality of the environment also serves as the backbone of the outdoor recreation economy, which has recently been valued at $862 billion in gross output within the United States, representing a comprehensive gauge of economic activity in the sector.

Furthermore, this industry supports 4.5 million jobs, creating a source of income for numerous households and driving revenue for local economies throughout the United States. These figures have been provided by the Bureau of Economic Analysis (BEA) under the aegis of the U.S. Department of Commerce in its 2021 report. In comparison to the 2020 figures, which suffered due to the pandemic's detrimental impact on related businesses, the 2021 economic indicators depict a substantial increase.

Impacts of Over Visitor Use

There has been a significant increase in outdoor recreation participation in last few years. Despite COVID 19, the numbers are increasing, and there are more and more people getting

outdoors *(Outdoor participation Report, 2022).* Increasing outdoor participation in recreational activities can result in a large influx of people into the local areas surrounding federal recreation sites. The number of tourists visiting a town can have numerous positive and negative repercussions, even though initial increases may result in great economic advantages. The costs that might be incurred by towns as a result of high rates of outdoor participation include traffic congestion, wear and tear on roads/trails and infrastructure, increased costs for public safety, noise pollution, and air pollution. Some local businesses may benefit from increased involvement in recreational activities, but the costs to the larger community may outweigh those benefits.

Over visitor use is a potential threat to the local Communities and ecosystems. High-volume tourism can damage the environment. Excessive entry into protected areas, especially when combined with high-impact activities such as hiking or camping, can be particularly harmful. Also, the visitor-use associated activities, such as bathing, dish washing, wastewater production, and stock animal use near lakes and streams, could cause degradation of water bodies near and around the campgrounds. Environmental stress can also arise from accommodating the needs of tourists: “Hikers assemble at the top of Angels Landing in Zion National Park, Utah, on a hot summer day when the early-afternoon temperatures remained over 100 degrees Fahrenheit, even in the shadows of the red peaks rising overhead. The harsh weather conditions, however, did not deter the hundreds of tourists who trudged into the chalky brown waters of the Virgin River. Thousands of visitors visit this canal year after year, despite the fact that this region and others across the American West are suffering from severe drought. Drought threatens the safety and sustainability of the beautiful vistas, fueled by the climate crisis and abuse of dwindling water supplies; at the same time, tourists and the enterprises that cater to them contribute to an unfolding

problem in the cherished regions that brought them there" *(*Guardian News and Media. (2022, September 11). *Tourism is sucking Utah dry. now it faces a choice - growth or survival?*).

One of the challenges for nature-based recreation generally, and most notably in the context of the natural environment, is the sustainable management of resources. For example, Monz et al. (2014) emphasizes that human activities can disrupt the biological and physical ecology, leading to ecological changes within parks and other protected areas that influence soil, vegetation, wildlife, air, and soundscape quality. For example, anthropogenic noise, or noise created by humans and their activities, is a new emerging impact within parks. (Barber et al., 2010). These disturbances, often combined with additional stressors, can ultimately lead to changes in the ecosystem, which compromises the priority of parks and protected areas: preserving nature. A major challenge for public natural resource managers and planners is to ensure that recreation opportunities remain viable and adapt to a changing population. The amount of recreational use that federal resources can support given the infrastructure in place is limited. For instance, there are only a certain number of camping spaces available at existing campgrounds, a certain number of vehicles can park at trailhead parking lots, and certain trails already have restricted, permit-only access. Existing federal buildings and lands might not be able to accommodate all the anticipated growth in recreational activities. The extent to which government resources can capture this anticipated increase in recreational engagement may be constrained by the capacities of federal opportunities.

Previous literature has analyzed the impacts of outdoor recreation in general like linking it to the social benefits, related to health, subjective well-being, crime, and education. Other reviews also dealt with the benefits of outdoor adventure activities (Chawla & Derr, 2012) or highlighted the specialties of physical activity in a natural environment (Bratman et al., 2012). From previous

research a list of outcomes relating to outdoor recreation were identified. Those impacts include but are not restricted to the following: (1) Physical and mental health and well-being; (2) Education and life-long learning; (3) Active Citizenship including social inclusion, integration, volunteering, stewardship, and community cohesion; (4) Reduction of crime and antisocial behavior. In the context of increased outdoor participation, insufficient environment knowledge, negative/spatial behavior, and an increasing disengagement between people and the natural environment, it raises the question if and how this increased participation in outdoor recreation is affecting the natural resource.

However, there is a gap in the evidence base to better understand what factors in first case are leading to this increased outdoor participation trend and or what motivates people to spend time outdoors and therefore guide the natural resource managers on visitor use and resource management in a sustainable way within the natural environment. This survey research used a set of three surveys to three groups of people in 2 time frames; 2022 & 2023. First survey was an online survey to nature area managers along the North Shore of Lake Superior in Minnesota to determine their perception of increased visitor use and its impact in the Spring of 2022. The survey had to be re-opened in Fall 2022 due to low response rate in Spring 2022. Second, was both online and in person survey to outdoor recreationists to understand their motivations and their perceived effects on the natural areas they visit. The in-person interviews were held for a three-day period 4 times over the summer of 2022 with the visitor audience at two campgrounds in Duluth, MN, not very far from the shore of Lake Superior. We also had online survey responses from the Day Tripper of Duluth (*a local outfitter)* clients. This has helped in better understanding patterns and trends in outdoor recreation participation among different groups of people. Finally, an online survey to charter fishing business owners to understand any changes in visitor use pattern and their

effects from the perspective of recreational businesses in the Spring 2023. This paved a good way to compare results from two different lenses; one being the outdoor recreation participant and the other being the management that provides and facilitates the recreation arrangements. The study has a response rate of 87.2% and completion rate of 92.9% with 195 respondents overall.

Purpose of the Study

The purpose of this study is to answer the questions below:

1. To survey a cross-sectional sample of outdoor recreation visitors to determine their motivations & expectations for visiting the NE Minnesota Lake Superior North Shore to determine perceived impacts on the natural resource and the visitor experience.
2. To determine the extent that visitor increase is due to a response to COVID-19 restrictions or if it is a trend of increased visitor use in protected nature areas over time.
3. To inform resource managers regarding visitor use management and natural resource protection, through applications of the study.

Chapter 3: Methodology

The purpose of this chapter was to describe the methods used to collect data for this study. Methods used were driven by the research questions which were:

RQ 1) What are the perceived reasons behind the sharp rise in visitor use in protected nature areas from 2020-2023?

A) What are the perceived motivations and expectations of the current front-country visitors' outdoor recreation experience?

B) How has the COVID-19 pandemic affected utilization, visitor expectations, and motivations?

C) How are the motivations and expectations of the front-county visitors perceived to be changing how facilities, lands, and waterways are managed?

RQ 2) What are the perspectives of Protected Nature Area Managers on the effects of visitors on local natural resources?

RQ3) What are the perceptions of patterns of client use and motivations of charter businesses during the COVID-19 pandemic?

Research Design

The research design was survey research. That is, all subjects were asked about their opinions toward their outdoor recreation experience or toward impacts on management of the outdoor recreation resources. Subjects were interviewed about their experience as they were visiting nature protected areas along North shore of Lake Superior in Minnesota to better understand their motivations and knowledge of their impact on the environment. The study also determined if increased visitor use was due to COVID-19 restrictions or was due to a trend over

time. Further, protected area managers and commercial providers (e.g., charter fishing captains) were also surveyed understand their opinions about how increased outdoor recreational use during the Covid-19 pandemic affected natural resources and recreational lands along Minnesota's North Shore and how the COVID-19 pandemic affected the Lake Superior charter industry in Minnesota. Five settings were used to collect data in this study in two time frames:

For 2022;

1. Participants at two camping sites in Duluth Minnesota *(Spirit Mountain & Indian Point Campground)*
2. Participants in silent sports in Duluth Minnesota *(through Day Tripper of Duluth, MN).*
3. Managers of Minnesota North Shore Lake Superior Protected Nature Areas.

For 2023;

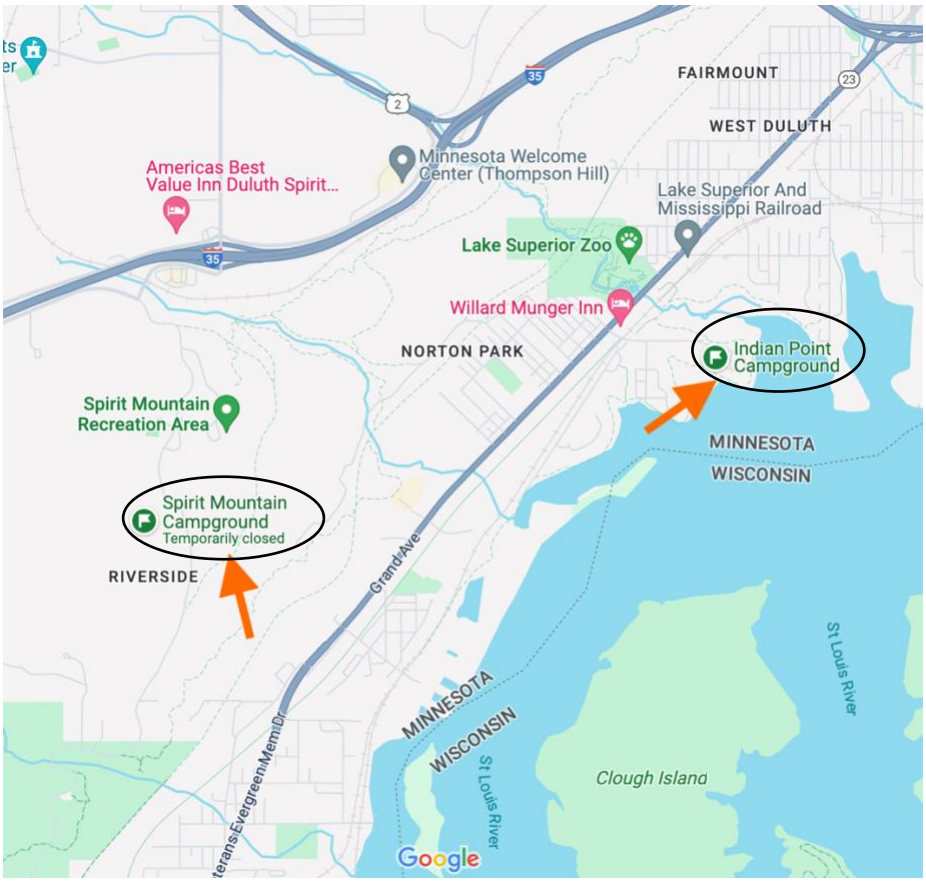
1. Charter fishing captains of Minnesota.

In the summer of 2022, I interviewed visitors at Spirit Mountain, Indian Point Campground, and Day Tripper of Duluth. Quantitative and qualitative data was collected through in-person interviews and using a 5-point Likert scale survey tool. There were 72 subjects who responded at Indian Point Campground and 30 subjects at Spirit Mountain who were surveyed in-person for a two-day period four times, with the estimated survey time of no more than 5 minutes (See Figure 1). The survey response rate was 97.6%. The responses from 20 subjects at Day Tripper of Duluth were collected online via Qualtrics for the same summer period. The trips

organized by Day Tripper of Duluth were strictly time bound and management at Day Tripper of Duluth agreed to send a survey link to their clients once they were done with their trip.

Figure 1:

Selected sites for visitor use survey



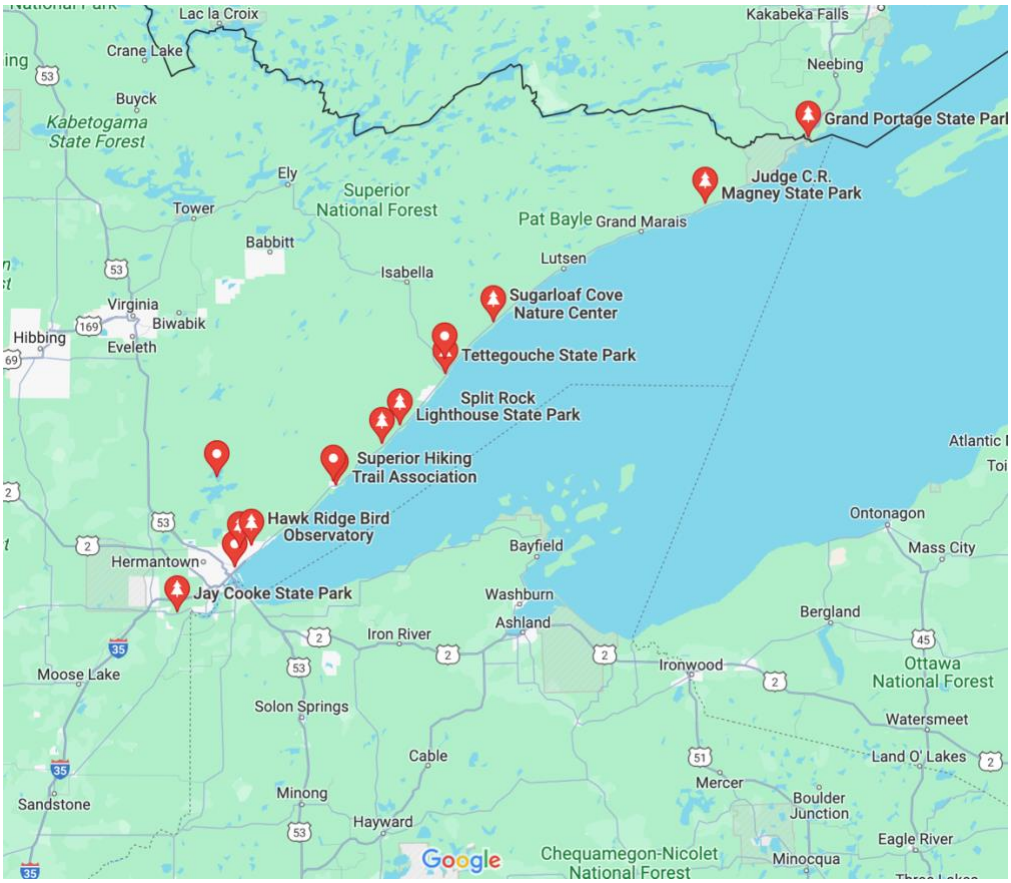
(*Google Maps*, n.d.)

The study also included an on-line survey for protected nature area managers of state parks, non-profit organizations, and state forest managers along the North Shore of Lake Superior to understand their perceptions of the impacts of visitor trends (See Figure 2). The Protected Nature Area managers were asked about their opinions on visitor use impacts on the natural resources and personnel related to management of the Protected Nature Area and focused more

specifically on Covid-19 related visitor impacts observed during 2020 & 2021 summer seasons. The responses from 16 park managers of nature protected areas were also collected online via Qualtrics.

Figure 2

Selected sites for nature area park manager survey



(*"Google Maps"*, n.d.)

In the summer of 2023, I surveyed Charter captains to get information on how COVID-19 has impacted their business. The charter captains were selected from the database list

already maintained by Minnesota Sea Grant's previous studies. I met a few of the charter captains in person to introduce them to the study before sending them the online survey.

Instrumentation

A thorough evaluation of the study design, validity and reliability and appropriateness for the research context ensured that a survey instrument was an effective tool for collecting data for this research. Designing unified survey instruments that addressed the specific needs of each stakeholder group while including overlapping questions for comparison was kept in mind. Three survey instruments (See Appendix A, B and C) were used to collect data in two different time frames:

1. For the land managers of protected nature areas for the Spring 2022
2. For the outdoor participants at the two camping sites and participants in silent sports through an online survey for Day tripper of Duluth for the Summer 2022.
3. For the charter fishing captains through Minnesota Sea Grant (MNSG) for the Summer 2023.

Visitor Survey

The survey for the participants consisted of 12 questions designed to explore research objectives (see Appendix A). The questions were designed to elicit responses related to participants opinions on their experience level, perceived impact on the resources, impact of increased user numbers on their visitor experience, and the extent that Covid-19 pandemic had impacted their participation in nature-based recreation and what they expected the campground to look like 5 years from the day of interview/survey to dive into the qualitative aspect of the study. The survey questions were carefully constructed to ensure that they were clear, concise, and relevant to the research objectives of the study. The survey was administered on an anonymous basis for the two camping sites (Indian Point and Spirit Mountain campgrounds) in Duluth Minnesota and the responses from the

participants in silent sports in Duluth Minnesota on daily basis on an excel sheet. The survey instrument used in this study was found to be an effective tool for collecting data related to the research objectives of the study. Visitors were surveyed four times throughout the summer of 2022. The dates were chosen to include weekends, Friday, Monday, and midweek to reach the range of visitors which may have different motivations and expectations based on the day of week that they were at the campground. Dates of surveys for 2022 were: 6-9 July 2022 (Wednesday – Saturday), 1-4 Aug 2022 (Monday – Friday), and 11-14 Aug 2022 (Friday – Sunday).

Park Manager and Charter Captain Survey

The survey for Protected Nature Area Managers on North Shore of Lake Superior and the charter fishing Captains, were designed to get an insight from the managerial point of view on the increased outdoor participation, aiming at how the visitor use was affecting the natural resource and understand any changes in visitor use pattern and their effects from the perspective of recreational businesses. Both these surveys (see Appendix B and Appendix C) were administered online, and participants were provided with clear instructions and guidelines to ensure that their responses were accurate and reliable. The survey data were analyzed using descriptive statistics to identify patterns, trends, and relationships in the data and compared to the data from the participants' point of view. The number of questions varied based on the response to each question by the respondents of the Nature Area and Charter Captain survey. On an average we had 15 to 20 questions on these two surveys.

Validity of all three instruments was conducted through Field testing using face content criteria through panel of experts knowledgeable enough on Outdoor visitor use research and management. Getting useful feedback by testing the survey in a "real world" setting aided in improving the survey items.

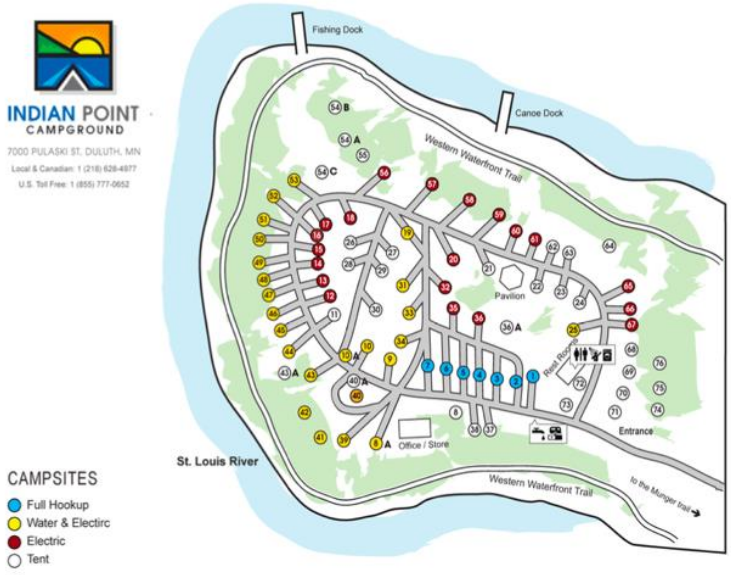
Population & Sample

The subjects of the visitor survey (N=122) were the individuals who engaged in recreational activities in natural environments that are designated as protected nature area. These individuals were outdoor enthusiasts who actively seek opportunities to explore and enjoy the natural beauty of these areas. They participated in various activities through RV (Recreational Vehicle) Camping, Car Camping and other silent sports which included hiking, sea-kayaking, mountain biking, fishing, or other forms of outdoor recreation. The subjects of the survey were selected through random sampling from the population of outdoor recreationists in nature protected areas on the campgrounds of Indian Point Campground and Spirit Mountain Campground. These nature-based recreationists were surveyed by me through face-to-face interviews. I visited each campsite on the campgrounds asking the recreationists if they were willing to participate in the survey without taking any of their personal details (like name, email, or telephone number). Indian Point campground and Spirit Mountain campground were selected as the data collection sites for this survey study for the reasons below:

1. Indian point campground caters to RV camping through tent camping and Spirit Mountain campground caters to car camping and RV camping, thus providing the range of visitors that were being sought for this study (See Figure 3).

Figure 3

Different Campsites at the Indian Point Campground



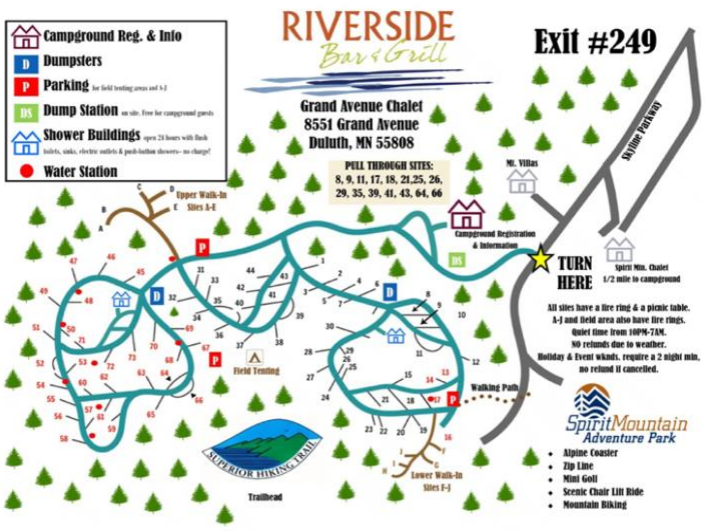
(*Campsites | Indian Point Campground, Duluth Minnesota*, n.d.)

2. Due to their accessibility, visitor diversity, popularity and potential management and conservation importance because of their unique ecosystem and proximity to recreational activities.

3. These campgrounds offer convenient access to wide range of outdoor enthusiasts, from different backgrounds and allowed me to collect diverse and representative data. Located in or near nature protected areas, these are popular destinations for outdoor activities, providing opportunities to gather insights from individuals actively engaged in outdoor recreation (See Figure 4).

Figure 4

Different campsites at the Spirit Mountain Campground



(*Campground - Spirit Mountain*, n.d.)

For the Visitor Survey

A sign for having a brief info about a survey being conducted on the campgrounds was used on the campgrounds after approval from the campground managers. This ensured that if any recreationists wanted to know more about my research and would voluntarily want to participate in the survey. I had aimed at a 150-sample size for Summer of 2022.

Moreover, an online survey with same set of questions was sent to Day Tripper of Duluth clients to collect data. Day Tripper of Duluth was chosen for data collection from silent sport recreationists due to its proximity to popular silent sport activities, the availability of equipment rental and services, visitor diversity and its connection to the local silent sport community. It allowed easy access to silent sport areas, attracting a diverse range of participants, including both experienced enthusiasts and beginners relying on rental services. Their engagement with the local silent sport community provided valuable insights into the preferences

and experiences of dedicated silent sport participants. Overall, it was an ideal setting to gather comprehensive data on silent sports.

For Park Manager and Charter Captain Survey

Eighteen nature Area managers along the North shore of Lake Superior were aimed to be interviewed through online survey to know about the visitor impacts observed during 2020 & 2021 summer seasons due to COVID-19. For the summer of 2023, I aimed to interview a population of no less than 28 charter captains operating in or near nature protected areas along North Shore of Minnesota. These charter guides offered nature-based experiences and activities within protected areas, making them important stakeholders in the conservation and management of these natural spaces. By studying the effects of the pandemic on charter fishing business, the survey assessed how COVID-19 had influenced visitor patterns, economic viability, and the overall relationship between nature protected areas and the outdoor recreation. This was again through an online survey via Qualtrics, and the charter captains were selected from the database list already maintained by the Minnesota Sea Grant in their previous studies. I met a few of charter captains in person to introduce them to the study before sending them the online survey.

Data Collection

For Summer 2022, I collected data for the visitor survey by visiting each campsite at the Indian Point and Spirit Mountain with a hard copy of the surveys, looking for recreationists willing to participate in the survey on voluntary basis so that they felt no pressure to participate if they did not want to. For participants who volunteered to participate, their responses were recorded on the spot. I used EXCEL to input data collected through face to face interviews with visitors at the two campgrounds within 48hrs of the survey. Each data entry was reviewed for accuracy to ensure that the information was entered correctly in the excel for analysis like Double-checking data

entry/Cross-verifying with original survey forms/consistency checks/second pair of eyes before uploading it in the SPSS. Indian Point Campground was coded as Location one, Spirit Mountain was coded as Location two. Multiple-choice questions with multiple selections were marked as one for each selected item and 0 for each unselected item. Qualitative data from open-ended questions were recorded word-for-word.

The data from the Day Tripper of Duluth in Summer 2022, data from the nature area park managers in Spring 2022 along with data from the charter captain survey in Spring 2023 was collected online through Qualtrics that was exported directly to SPSS after cleaning it making sure that only complete survey responses were analyzed to reach maximum accuracy.

Data Analysis

The data collected from all the three surveys was statistically analyzed to draw meaningful research conclusions using the statistical software SPSS V 29.0. Then the descriptive statistics using measures of central tendency and including means, standard deviations, frequencies, and percentages was computed to summarize the survey responses. Each question on the survey to be analyzed through SPSS was themed based on Recreation type, Location/Distance from home, return visits, Motivation, COVID Relief, Expectation, Impact, Level of Experience, and 5 years in Future. For qualitative data analysis, thematic coding approach was used where two or three broad themes were chosen based on the responses for a couple of open-ended survey questions. These themes served to support quantitative data analysis and interpretation.

To identify patterns and trends across datasets, a comprehensive research approach was achieved by collaborating data analysis involving data from the recreationists at the campgrounds and Day Tripper of Duluth and the stakeholders from different backgrounds (Charter Fishing guides and Protected Nature area Managers). By designing a unified survey instrument that

addressed the specific needs of each stakeholder group while including overlapping questions for comparison was helpful. Also, by integrating the findings into a comprehensive report, a holistic understanding of the interactions between recreationists, nature protected are managers and charter fishing guides was achieved, leading to an informed decision making and sustainable management strategies.

To interpret the findings, descriptive statistics through SPSS was used to summarize the main features of the quantitative data, that helped me in understanding the characteristics of my data set before moving on to more advanced analysis. This showed ways in which nature recreationists responded to their motivation and expectation, relation to COVID-19 and how those responses were situated within the existing outdoor literature and strategies and practices framework related to the impact on the environment.

For qualitative data analysis, thematic coding approach was used where two or three broad themes were chosen based on the responses for the open-ended survey questions. These themes served to support quantitative data analysis and interpretation.

Chapter 4: Results

This research employed three distinct survey instruments across three population samples to investigate the research questions. In this chapter the outcomes derived from the face-to-face survey conducted with visitors, as well as the self-administered survey distributed to charter captain guides and park managers are detailed. The findings, encompassing both quantitative and qualitative data from all three surveys is explained.

Visitor Survey Findings

This section within the chapter presents the findings from a face to face survey conducted with 122 visitors in the summer of 2022 that provides valuable insights into the multifaceted landscape of visitor demographics, motivations, and expectations, offering a holistic view of the campground experience and guiding considerations for future enhancements.

Demographics

The visitor survey sample included 122 participants from two campgrounds (Indian Point and Spirit Mountain) and one local outfitter (Day tripper of Duluth). Indian Point represented 59% of the participants, Spirit Mountain 24.6%, and Day Tripper of Duluth 16.4% (See figure 5). Recreational engagement varied, with 49.2% participating in Recreational Vehicle (RV) with motorized vehicles, 14.8% in sea kayaking tenting, 12.3% in recreation tenting, 11.55 in RV, and 12.35 in other activities like biking, hiking and unique combinations like RV with a bike, or a truck with a tent (See figure 6).

Figure 5

Visitor Demographics

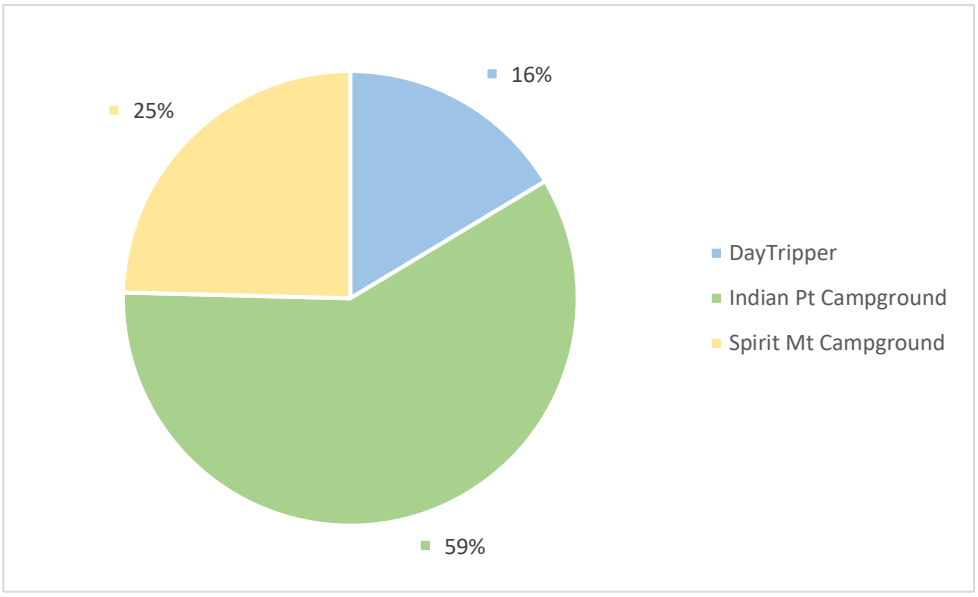
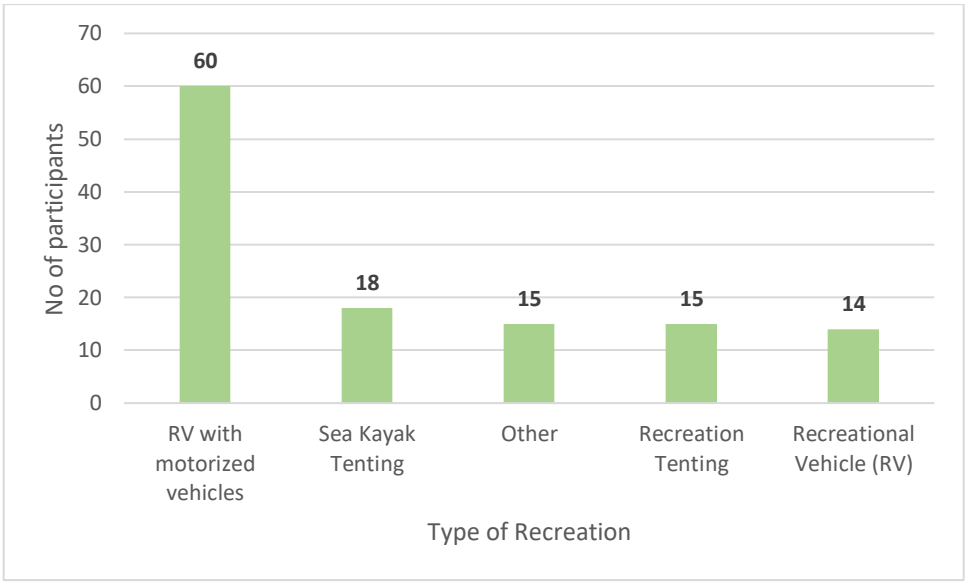


Figure 6

Visitor Recreation Type



Visitor Travel Patterns

Most of the individuals who visited these campgrounds travelled distances ranging from 101 to 200 miles, constituting. 45.9%(n=56), whereas 41.8%(n=51) covered distances exceeding 200 miles. A smaller fraction, 6.6%(n=8), traveled within the range of 51-100 miles, 2.5%(n=3)

were locals within a 50-mile radius, and 3.3%(n=4) came from international locations to reach these campgrounds (See figure 7). Nearly, half of the participants (49.2%) identified as first-time campers, 18% (n=22) as second-timers and 32.8% (n=40) as individuals who had camped or visited these campsites three or more times (See figure 8).

Figure 7

Distance travelled by the visitors to reach the campground

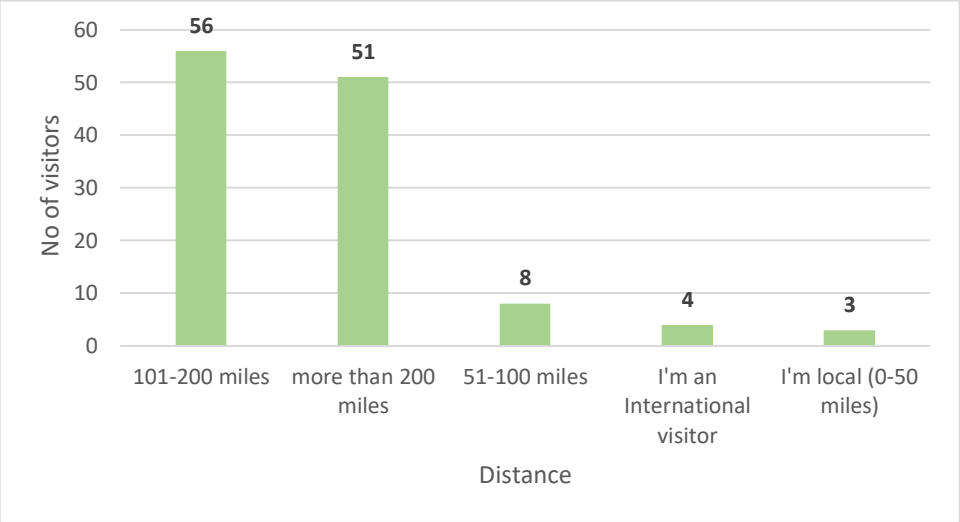
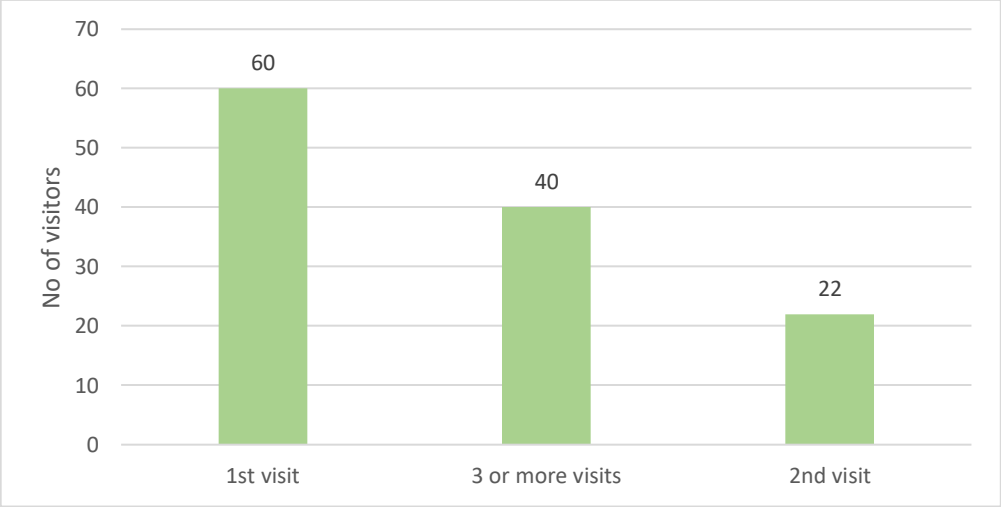


Figure 8

No of visits to the campground

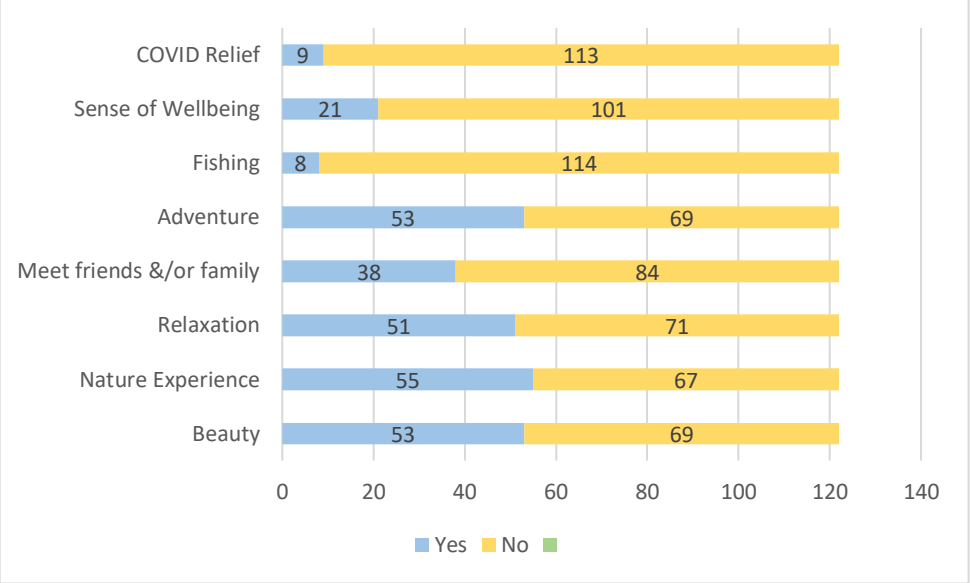


Motivations

The motivations for choosing to stay at the campgrounds were diverse, with respondents reporting beauty (43.4%), nature experience (45.1%), relaxation (41.8%), adventure (43.4%), and meeting family and/ or friends (31.1%) being significant factors (See figure 9). Some participants reported motivations like fishing (6.6%), well-being (17.2%), and seeking relief from COVID-19 (7.4%). Other reasons included personal circumstances like injury, childhood memories, proximity to biking trails, convenience, and various events like airshows, bike races, weddings, concerts, and festivals. Practical considerations such as campground amenities, pet-friendliness, location, affordability, and proximity to shopping and adventure parks were also mentioned.

Figure 9

Visitor motivations for outdoor recreation activity



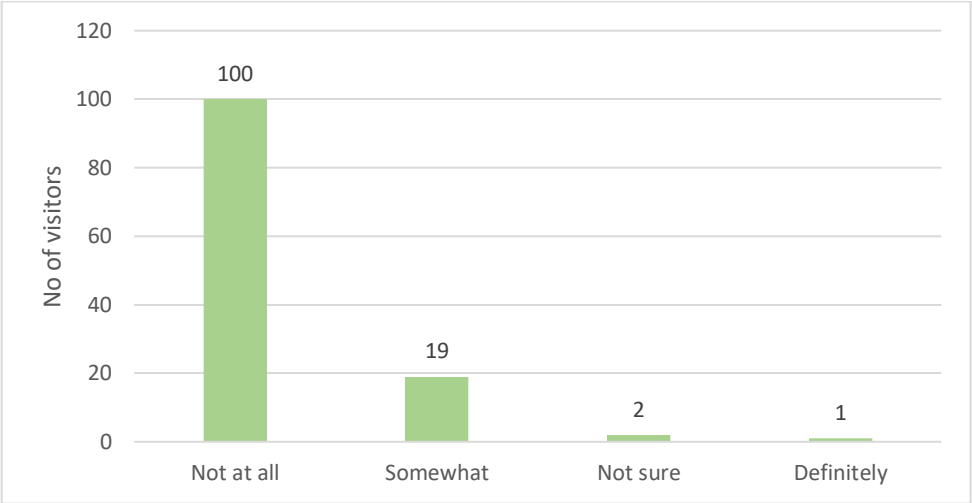
COVID-19 Influence

Despite COVID-19 pandemic, the majority (82%) reported that their camping choice was not at all influenced by the pandemic, while a smaller percentage (15.6%) mentioned camping

somewhat as a relief from the pandemic (See figure 10). Few respondents (0.8%) definitely reported camping as a relief from pandemic, and some were uncertain (1.6%).

Figure 10

COVID-19 Influence on camping choice

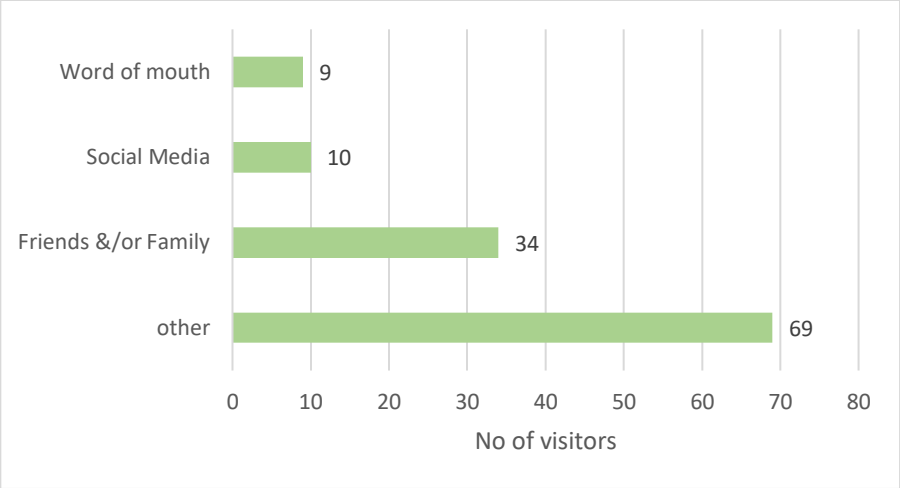


Information Sources

Regarding information sources about the campgrounds, approximately 28% learned about them through friends and/or family, 7.4% through word of mouth, 8.2% through social media, and 56.6% through other means, that comprised of online searches on Google, local knowledge, RV site applications (Campendium App), counselor references, and familiarity as a Duluth native (See Figure 11). This sheds light on the varied information sources for campgrounds, emphasizing the importance of both traditional and digital channels in influencing visitor decisions that can guide campground management and marketing efforts to better meet the informational needs of their target audience.

Figure 11

Information about campground

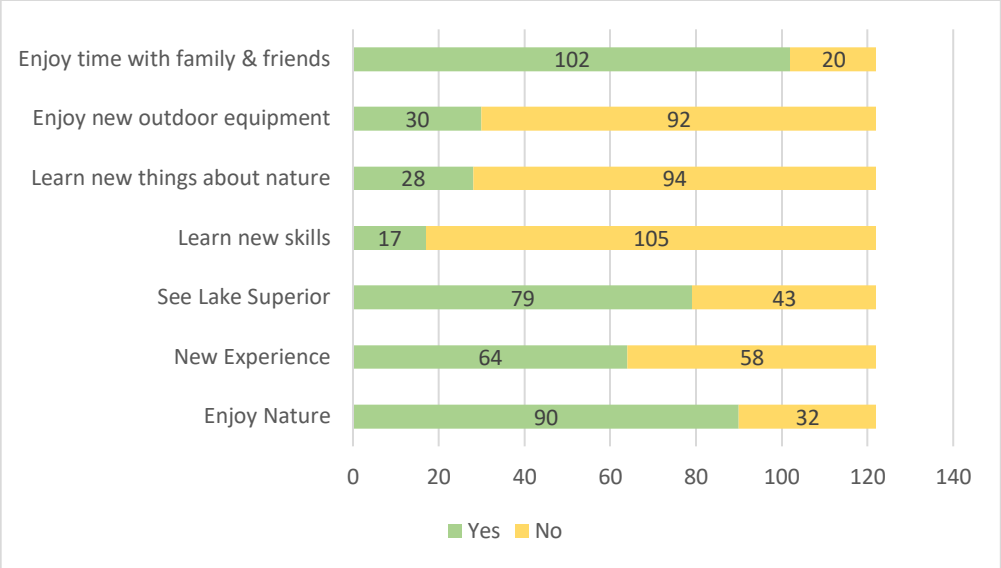


Expectations and Impact

The expectations of visitors to these campgrounds were diverse, with a majority expressing the desire to enjoy nature (73.8%), showcasing a strong appreciation for the natural surroundings and 52.5% seeking new experiences. View of Lake Superior were anticipated by 64.8%, and 83.6% looked forward to spending quality time with friends and/ or family. A smaller proportion (13.9%) aimed to learn new skills (fishing, sea kayaking, camping), indicating a blend of recreational and education aspirations. Additionally, 23% looked forward to learning new things about nature, and 24.6% anticipated enjoying new outdoor equipment (See Figure 12).

Figure 12

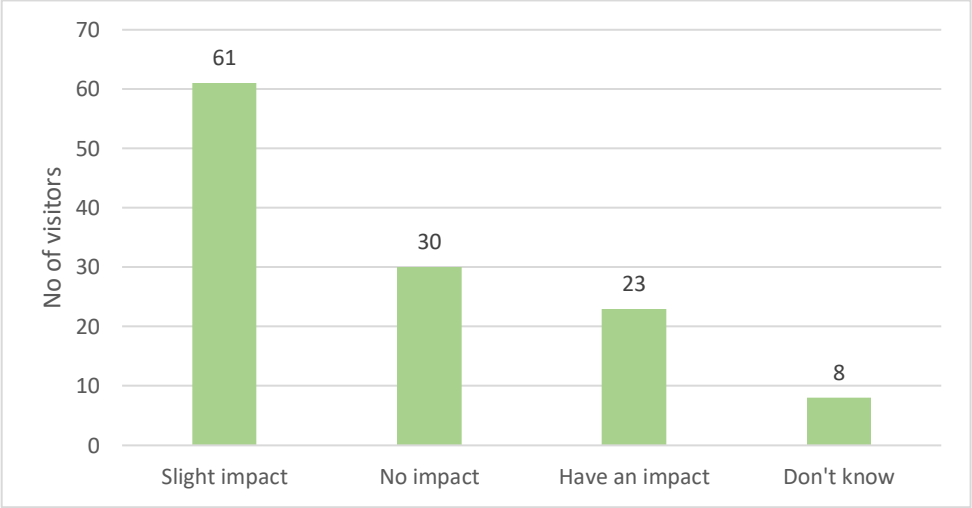
Visitor expectations



Environmental impact awareness was notable, with 24.6% feeling their activities had no impact on the land and/or waters, while 50% acknowledged a slight impact. 18.9% reported having an impact, 6.5% were uncertain, and none reported a significant impact (See Figure 13).

Figure 13

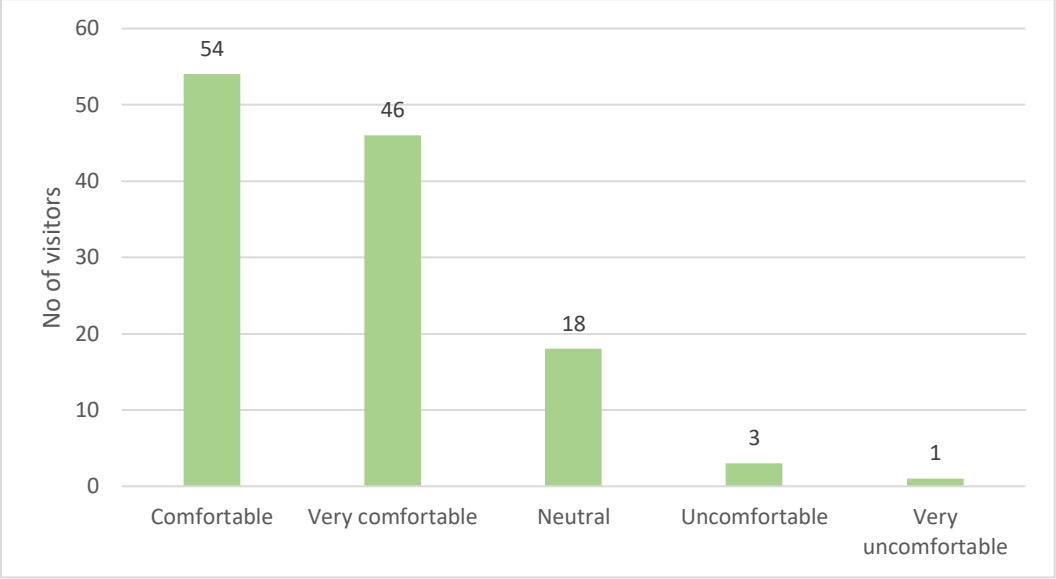
Visitor Perceived Environmental impact awareness



In terms of comfort level with the current number of visitors using the campgrounds varied. 37.7% were very comfortable, 44.3% were comfortable, 14.8% were neutral, 2.5% were uncomfortable, and 0.8% were very uncomfortable (See figure 14).

Figure 14

Level of comfort



These findings offer valuable insights into the nuanced expectations, environmental consciousness, and comfort considerations that shape the campground experience for visitors. Respondents who reported being uncomfortable mentioned reasons like people being loud, no privacy, between the campsites, etc.

Experience Level and Future

The survey results revealed diverse levels of outdoor experience among campground visitors, with 41.8% considering themselves advanced, 44.3% intermediate, 11.5% beginners, and 2.5% having no experience (See figure 15). A significant majority (68%) expressed a strong interest in repeating camping trips in the next five years, 29.5% reported somewhat interest and a small minority (2.5%) expressed no likelihood of future camping trips (See figure 16).

Figure 15

Visitor perceived outdoor experience level

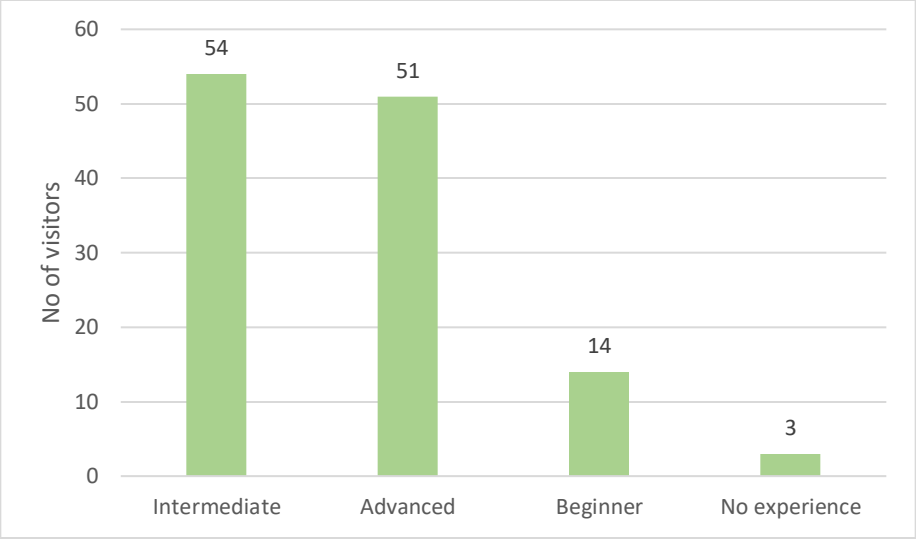
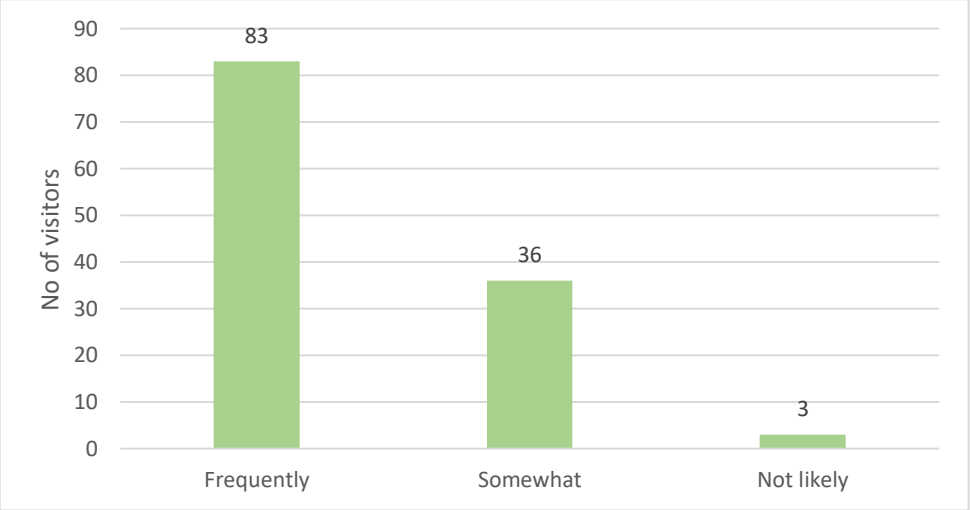


Figure 16

Visitor interest in repeating the camping trips 5 years from now



Future Expectations

Visitor expectations for the campgrounds in the next five years were multifaceted, with various comments emphasizing preferences for minimal changes, improved amenities like electric connectivity and better showers, more greenery, and considerations for factors such as nature trails fishing docks, and recreational equipment availability (See Figure 17). The diverse responses

underscore the importance of maintaining the campground's natural appeal while accommodating specific needs and preferences voiced by visitors.

Figure 17

Visitor expectations for the campgrounds in the next five years

These findings provided an invaluable insight into the diverse visitor motivations, complex visitor expectations, and environmental consciousness of campground visitors, revealing a range of recreational activities and travel patterns, emphasizing the importance of understanding, and catering to varied visitor preferences. Additionally, the findings collectively contribute to a holistic understanding that could inform effective management strategies, ensuring a sustainable balance between visitor experiences and the preservation of the natural environment.

Park Managers Survey Findings

This section within the chapter presents the findings from the survey conducted with 11 Nature area park managers. The aim was to gain insights into the multifaceted landscape of

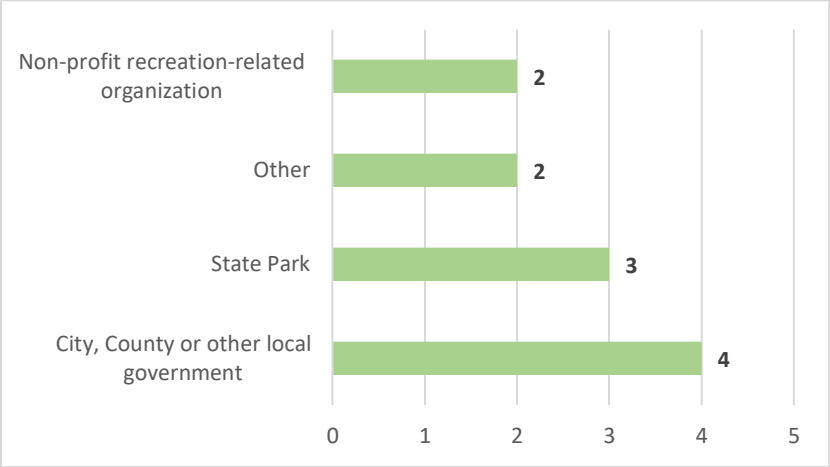
challenges and opportunities inherent in the management of recreational lands experienced during the unprecedented backdrop of the COVID-19 pandemic.

Demographic Overview

The nature area park managers survey group involved 11 park managers each providing unique insights into the management of recreational lands. Twenty seven percent of participants were from State Parks, 18.2% (n= 2) from Non-profit recreation-related organizations, 36.5% (n= 4) from city, county, or local government, and 18.2% (n= 2) associated with other organizations such as State Trials and Waterways (See figure 18).

Figure 18

Nature Area Park Managers Organization Type

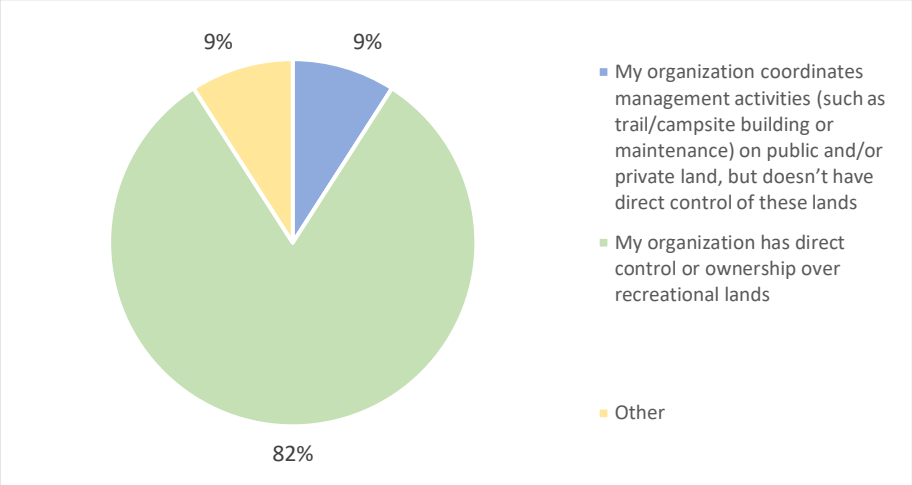


Regarding control over recreational lands, 81.8% (n= 9) of park managers reported that their organizations had direct control or ownership over such lands. A smaller percentage, 9.1% (n=1), indicated their organizations coordinated management activities (such as trail/campsite building or maintenance) on public and/or private land without direct control of these lands, and

another 9.1% (n=1) stated that their organizations controlled and managed public lands open to recreational activities and had a co-management agreement with a Tribal Nation (See figure 19).

Figure 19

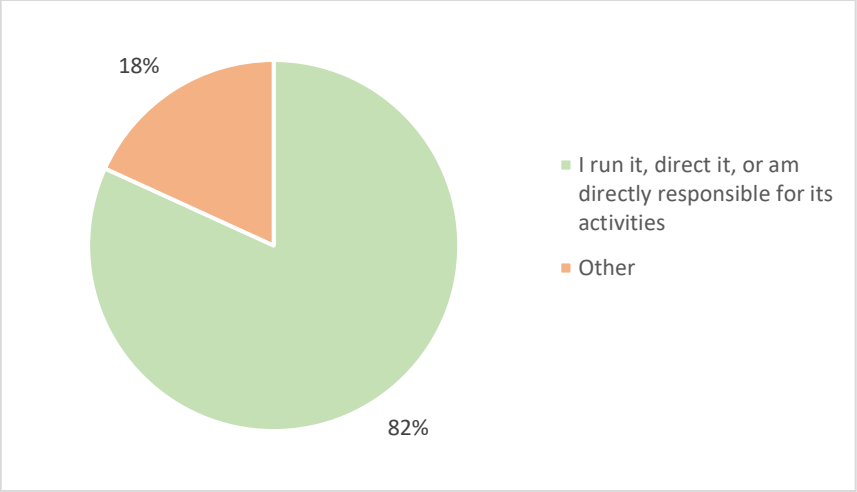
Nature Area Park Managers Organization involvement



The roles within these organizations were exemplified by 81.8% (n=9) of respondents holding positions where they run, direct, or are directly responsible for organizational activities whereas other 18.2% (n=2) reported alternative roles like fisheries supervisor or interpretive naturalist (See figure 20). Moreover, the survey provided insights into the staffing structure, revealing a spectrum from 0 to 18 employees, with a mean of 5.73 and a standard deviation (SD) of 5.479. This variation underscores the differing organizational sizes and operational capacities among the surveyed park managers.

Figure 20

Nature Area Park managers' roles within the organization



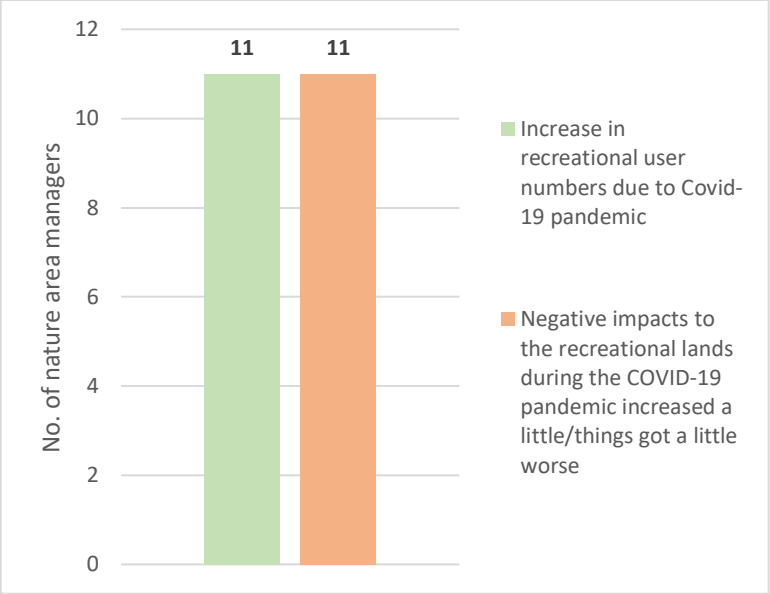
This lays a foundation for understanding the context in which park managers operate, emphasizing the need for tailored management strategies based on organizational structures and roles. Subsequent sections delve into the impacts of the COVID-19 pandemic on recreational lands, negative and positive consequences observed, and the adaptive measures employed by park managers to address emerging challenges. Additionally, this section will present associations between specific recreational activities and their impacts (e.g. backpacking was negatively impacted by Covid-19 pandemic), providing a holistic view of the complexities faced by park managers in maintaining the sustainability and integrity of recreational spaces.

COVID-19 Impact and associated challenges

The impact of the Covid-19 pandemic on recreational lands, indicated that all respondents perceived a surge in recreational users during the pandemic. This increase was coupled with negative consequences observed by all respondents, reflecting a general worsening of impacts to managed lands (negative) during the pandemic (See figure 21).

Figure 21

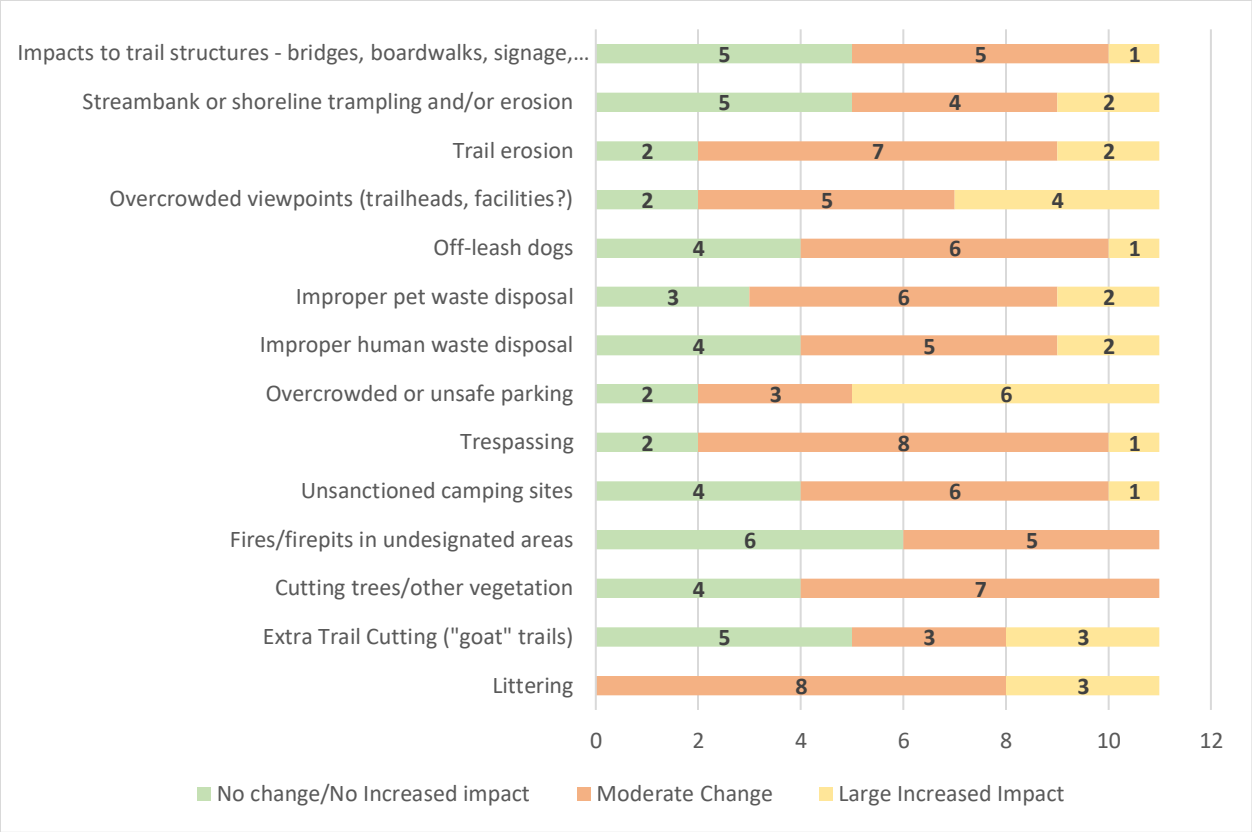
COVID-19 impact and associated challenges



Notable findings include a “moderate” increase in littering reported by 72.7% (n= 8), substantial impacts on extra trail cutting (“goat” trails) by 27.3% (n= 5), cutting trees/other vegetation by 63.6% (n= 7) and notable changes in fires/firepits in undesignated areas, unsanctioned camping sites, trespassing, overcrowded or unsafe parking, improper human waste disposal, improper pet waste disposal, and off-leash dogs (See Figure 22).

Figure 22

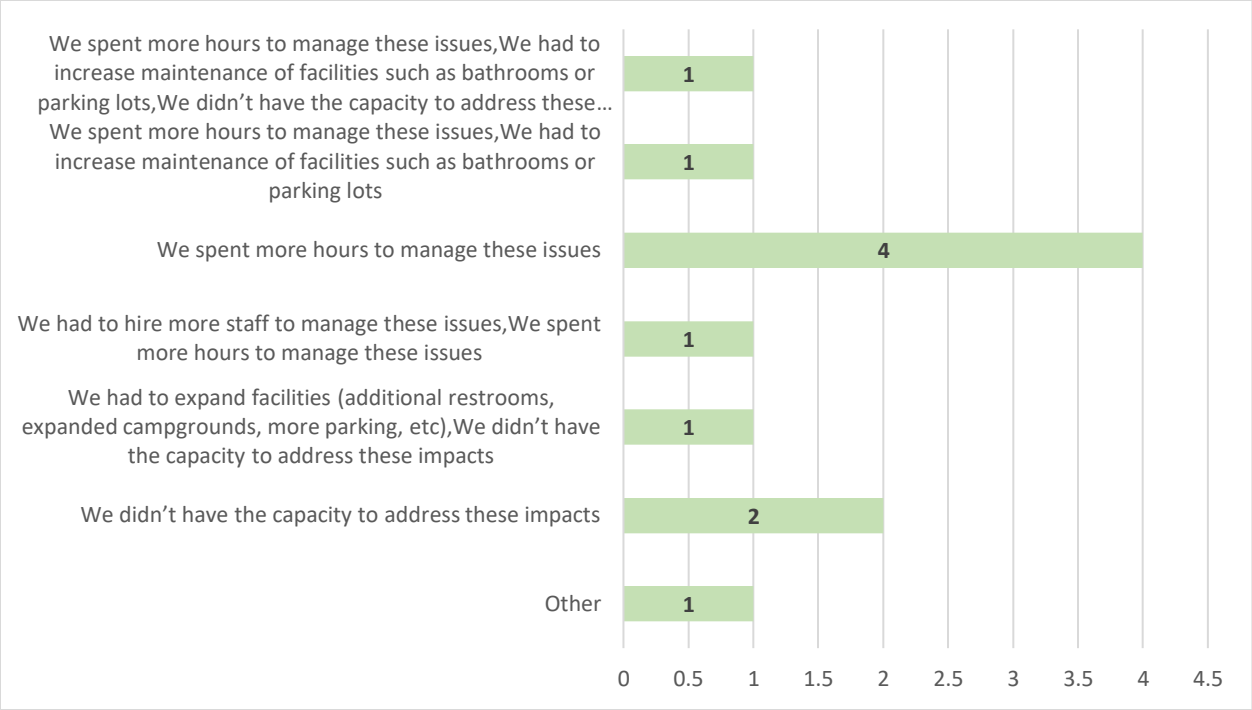
Negative Impact of increased visitor use during COVID-19



In response to these challenges, 9.1% of park managers reported hiring more staff, while 63.6% increased work hours to address the financial impact on their organizations through these issues. All managers reported an upswing in volunteer involvement to combat the negative impacts. However, expansions of facilities or maintenance structures were infrequently reported, with 9.1% expanding facilities (additional restrooms, expanded campgrounds, more parking, etc.) and 18.2% increasing maintenance facilities such as bathrooms or parking lots (See Figure 23). Notably, 63.6% did not feel adequately prepared to address any of the negative impacts, indicating potential gaps in organizational readiness.

Figure 23

Financial implications of the negative changes for the park management

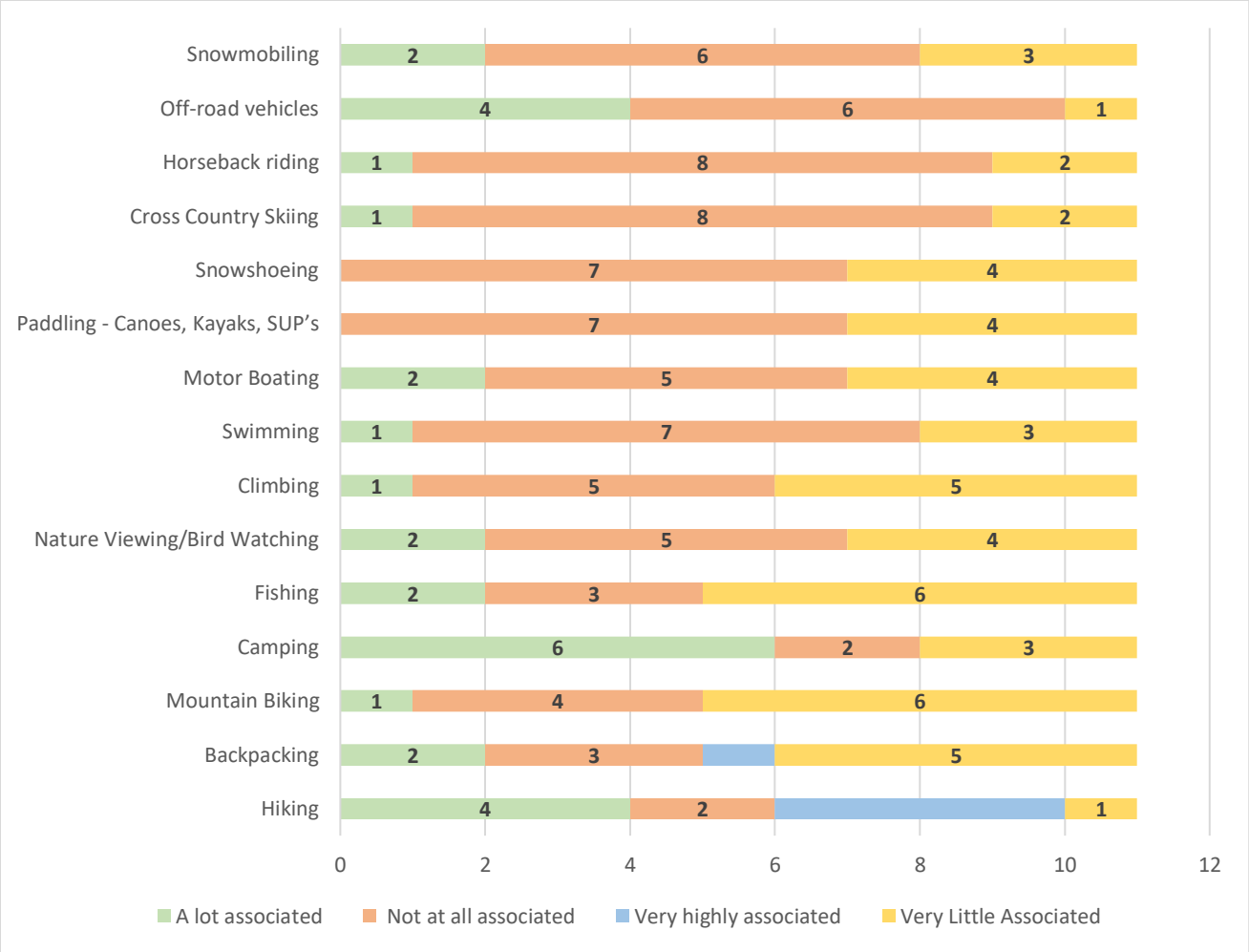


Recreational activity association with the Negative Impacts

Associations between specific recreational activities and negative impacts was assessed, revealing varied perceptions among park managers. Hiking, backpacking, and mountain biking showed mixed associations, while camping, fishing, and nature viewing/bird watching were frequently linked to negative impacts. Activities such as swimming, motor boating, paddling, snowshoeing, cross-country skiing, horseback riding, off-road vehicles, and snowmobiling demonstrated diverse associations, emphasizing the complexity of managing impacts across a spectrum of recreational activities (See figure 24).

Figure 24

Activity association to negative impacts



Positive Impacts during COVID-19 pandemic

Positive impacts resulting from the heightened recreational activity during COVID-19 pandemic were also identified through this survey. 27.3% of respondents reported increased funding from user fees, underscoring a financial benefit for a subset of organizations. Despite the surge in recreational use, all 11 park managers unanimously reported no additional funding from their parent agencies, signaling a potential gap in financial support at a broader organizational level. Furthermore, 18.2% reported a growth in membership, while 27.3% successfully expanded their outreach through educational programs. Volunteer engagement saw a modest uptick at 9.1%. Most notably, 72.7% of park managers witnessed a positive shift in user demographics (women,

historically excluded groups, etc.), indicating increased diversity in park utilization. Strategies employed to enhance inclusivity included creating diversity, equity, and inclusion (DEI) programs and utilizing social media for outreach and also, to influence user impacts by striving to reach diverse populations of park visitors. Additionally, recognition of the public's heightened awareness of the value provided by these organizations, alongside the revival of outdoor recreation activities and programs were other positive impacts reported. These positive impacts hint at both opportunities and challenges for park management, emphasizing the need for sustained community engagement and strategic planning beyond the challenges posed by the pandemic.

Minimizing negative impacts from recreational use

In proactively addressing or minimizing the negative impacts from recreational use, park managers reported employing a diverse array of strategies to strike a delicate balance between preserving natural landscapes and accommodating increased visitor numbers. 22.2% reported elevating the workforce by increasing the engagement of volunteers, harnessing the collective efforts of the community to address emerging issues. Concurrently, an equivalent percentage (22.2%) reported increasing number of paid staff, acknowledging the critical role that dedicated personnel play in ensuring the effective management of recreational areas. 36.4% reported intensifying education and outreach efforts directed at users to inform visitors about responsible recreation practices and also to foster a sense of environmental stewardship among the park-going community. Despite the escalating pressures, all park mangers refrained from imposing restrictions on permits or quotas, suggesting a commitment to maintaining access while dealing with the associated challenges. The other steps reported by park managers included engaging in discussions with trail groups, implementing trail closures when necessary, enhancing security around waste disposal areas and diligently managing permits to strike a balance between

accessibility and sustainability. However, 22.2% reported not taking any specific steps, reflecting the nuanced and context-specific nature of management responses to the challenges presented by increased recreational use.

To mitigate negative impacts, park managers emphasized the organizational needs of education for users, staff training on managing visitor use, and to a lesser extent, more stringent regulations for participants. The majority recognized the need for more education for users, with varying degrees of perceived necessity. While a small percentage (9.1%) believed that no additional education was required, the majority acknowledged the importance, with 45.5% considering it somewhat needed and 36.4% indicating a great need for enhanced user education.

Comments from park managers highlighted diverse perspectives on the specific educational focus area. These included guidance on responsible outdoor behavior, trail etiquette, waste disposal practices, and the environmental impact of certain activities. Suggestions encompassed a range of educational tools, from naturalist programs and printed materials to online resources, signage, and social media campaigns. The emphasis was on fostering awareness and understanding among users to promote responsible and sustainable outdoor recreation practices.

Furthermore, park managers recognized the significance of staff training in managing visitor use with a notable 27.3% reporting it as a significant need. This recognition underscores the vital role of well-equipped park staff in implementing strategies that adhere to principles such as carrying capacity, visitor impact management, and adaptive management. As parks navigate the complexities of visitor management, investing in the continual education and training of staff emerges as key imperative for the sustainable stewardship of these invaluable public natural spaces.

In addition to education and training, some park managers suggested the implementation of more stringent regulations or requirements for recreational participants. While 36.4% believed no additional regulations were needed, 36.4% considered it a little needed, 18.2% found it somewhat needed, and 9.1% perceived a great need for stricter regulations.

Beyond these needs, park managers highlighted other requirements to reduce negative impacts from recreational users, such as securing funding for conservation efforts, equitable distribution of recreational use, and improved facilities management. Clearer waste receptacles with signage and security cameras were also proposed, along with the creation of newer and better-maintained outdoor facilities designed for easier upkeep. These multifaceted approaches underscore the complex and varied strategies that park managers consider essential for sustaining and managing recreational areas effectively in the face of heightened demand and changing user behaviors.

The majority of the survey park managers (81.8%) indicated that they have not undertaken any preparation for a future scenario involving beyond-capacity use. In contrast, as smaller proportion (18.2%) reported having implemented specific measures to address such potential challenges. These proactive steps included the essential allocation of available resources, a reliance on effective communication strategies, and the exploration of new partnerships. Additionally, park managers highlighted the importance of size limitations, permitting applications for proposed events, and maintaining intended uses over specialized activities as part of their preparedness efforts.

Top 3 management concerns

Park managers were asked to respond qualitatively to identify management concerns of user impacts. The top three management concerns identified through a thematic coding approach were as follows:

1. Overuse of trails and maintaining infrastructure:

   Park managers highlighted the significant challenge of managing the overuse of trails, emphasizing the strain on infrastructure caused by the increased number of recreational users. Maintenance of trails and related amenities emerged as a pressing concern, indicating the need for sustained efforts to ensure the longevity and functionality of recreational resources.

2. Increased pressure on resources as climate changes:

   The survey revealed heightened concerns about the escalating pressure on natural resources due to increased recreational activities. Additionally, park managers expressed apprehension about the impacts of climate change on recreational seasons, suggesting a need for adaptive strategies to address the evolving environmental conditions affecting these areas.

3. Capacity to manage high visitor use:

   Park managers underscored the challenges associated with managing high visitor numbers. The lack of adequate staff and facilities to accommodate the surge in recreational use emerged as a critical issue. The overarching concern was the limited capacity to effectively manage the influx of visitors, emphasizing the need for strategic planning to address this ongoing challenge.

Other notable concerns included trail erosion, user expectations regarding services and quality, funding for resource conservation, and the need to balance demands of various user

groups. Challenges related to poor user behavior, adverse weather conditions, and conflicts among different types of recreational activities further contributed to the complex landscape of concerns faced by park managers. The multifaceted nature of these challenges highlights the intricate balance required for successful park management and underscores the importance of comprehensive strategies to address issues identified by park managers.

Charter Captain Survey Findings

This section within the chapter describes a comprehensive portrait of the Lake Superior charter fishing industry through the lens of 25 Charter Captains operating out of Duluth, Minnesota. From demographic profiles and operational patterns to the impacts of the COVID-19 pandemic, the findings illuminate the multifaceted strategies and challenges that shape this resilient sector along with the ongoing need for addressing inclusivity and environmental education within charter fishing experiences.

Demographics

The Charter Captain survey conducted included a population of 25 Charter Captains operating out of Duluth Minnesota on Lake Superior. The respondents consisted of 84% (*n*=21) active charter boat captains and 16% (*n*=4) captains holding licenses but being inactive (See figure 25). The distributions of business tenure revealed a mix of experience levels, with 40% (*n*=10) having operated for 6 to 10 years, while others spanned from newly established businesses to those with over two decades of experience (See figure 26). The average age of the surveyed charter captain was 45.52 years, showcasing a middle-aged profile (SD =13.207), with individuals ranging from 24 to 69 years old. Impressively, 96% (*n*=21) of the surveyed captains had charter fishing as their primary focus. This comprehensive overview set the stage for a comprehensive understanding of the charter boat industry in the surveyed region.

Figure 25

Types of charter boat captains

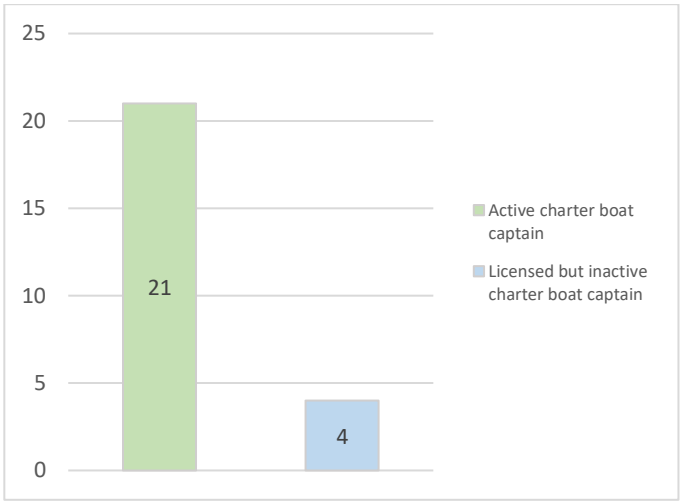
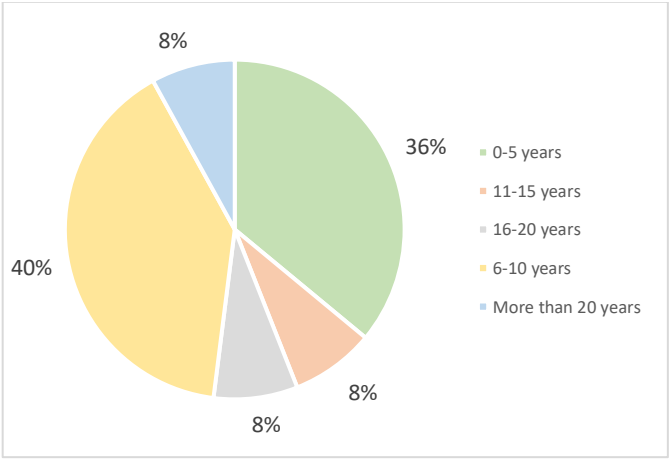


Figure 26

No of Years charter captains have been in business

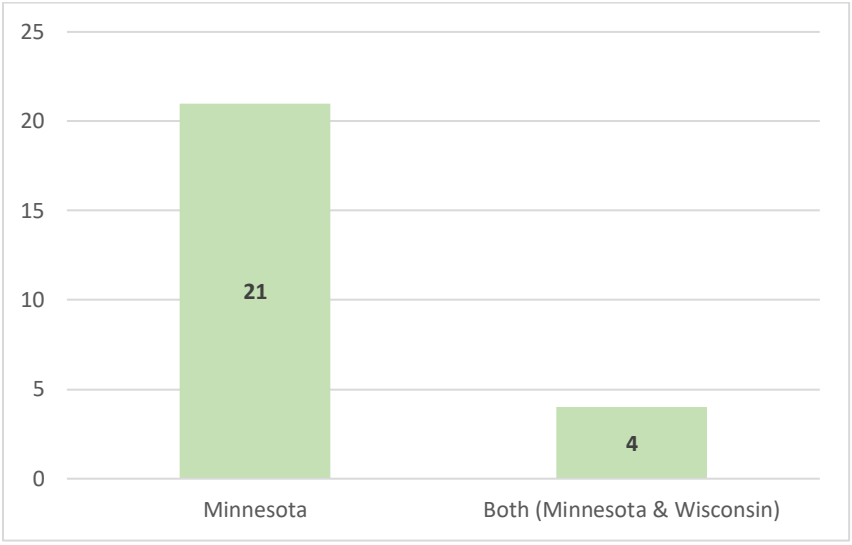


The survey results highlighted trends and patterns among the charter captain guides. A notable portion, 72% (n=17) reported that they were not affiliated with any association, indicating an independent sector within the charter boast industry. Among those associated, 24% were members of the Lift Bridge Fishing Association, while a smaller fraction, 4% belonged to both the Lift Bridge and Fish North MN associations.

Geographically, 84% (n=21) of the charter captain guides primarily operated in the state of Minnesota, with the remaining 16% (n=4) operated trips in both Minnesota and Wisconsin. Lake Superior emerged as the focal point for charter fishing (See figure 27), with all 25 captains reporting it as the main location for their charter fishing trips.

Figure 27

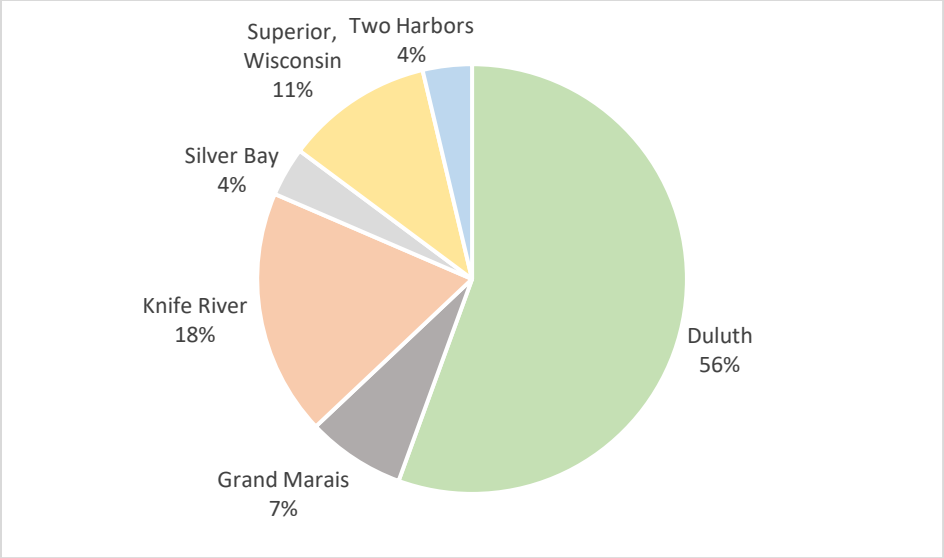
Operational fishing state for charter captains



Departure locations for the charter trips were variable, with Duluth being the predominant choice for 60% (N=25) of the charter captains. Other departure points included Knife River (20%), Superior, Wisconsin (12%) and Grand Marais (8%). Two Harbors and Silver Bay were less frequently chosen, each reported by 4% of the charter captains (See figure 28). These variations in departure locations illustrate the dispersed operational bases of charter boat captains in the Lake Superior region, reflecting the diverse geography and potential fishing grounds available to them. This also lays the foundation for further exploration into the factors influencing their choices and business strategies.

Figure 28

Departure Location for charter trips



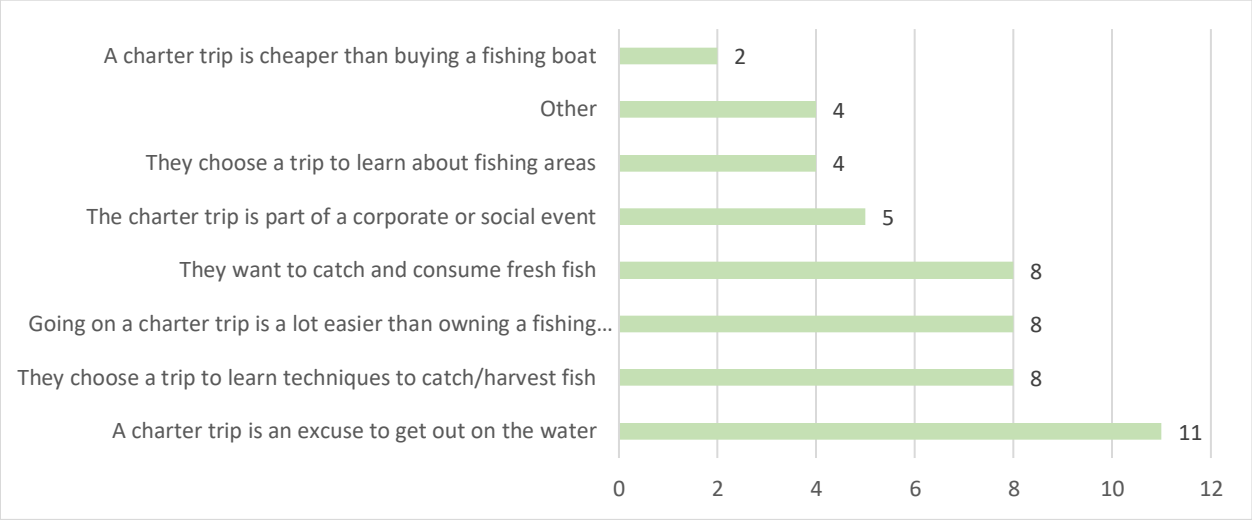
Client Motivations

Clients' motivations for choosing charter trips as perceived by charter captain guides were driven by a spectrum of considerations, as revealed in the survey results (See Figure 29). While 8% emphasized the cost-effectiveness of charter trips compared to buying a fishing boat, and (32%) of charter captains found the convenience to go on a charter trip than owning a fishing boat. Learning opportunities played a role, with 16% expressing an interest in learning and understanding about the fishing areas and another 32% seeking to acquire techniques for effective fish harvesting. The recreational allure of being on the water emerged strongly, as 44% considered charter trips an excuse for enjoying the aquatic environment. Additionally, 20% incorporated charter trips into corporate or social events, showcasing the diverse ways in which clients engage with this experience. Culinary aspects also played a role, with 32% expressing a desire to catch and consume fresh fish. Beyond these motivations, some charter captains (16%) identified other reasons influencing clients' choice of charter trips, expanding on the diverse motivations included some clients viewed charter trips as a compelling activity while in Duluth; seeking both recreation and the expertise of a captain and crew to enhance their experiences on Lake Superior.

Furthermore, a notable number of families were drawn to charter trips as a unique and exciting activity, contributing to the appeal of fishing on the Great Lakes. Additionally, a significant portion of clients was reported to be vacationers keen on exploring and understanding the distinct experience of fishing on Lake Superior, looking for unique experiences on the Great Lakes during vacations. The multifaceted nature of these motivations highlighted the dynamic appeal of charter trips in catering to a broad spectrum of client preferences and desires.

Figure 29

Client motivations for choosing charter fishing trips



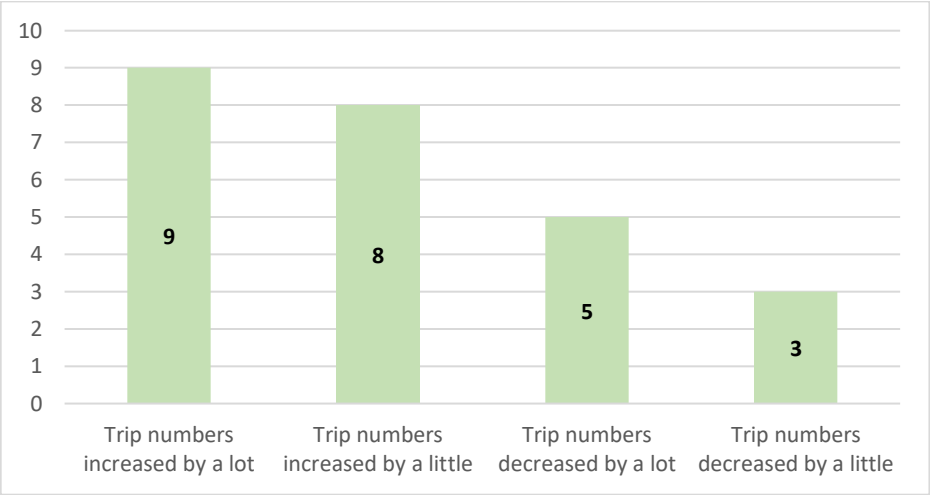
Change in Trip Numbers due to COVID-19

Charter captain guides experienced notable shifts in the number of charter trips between the 2019 and 2022 seasons, with 36% (n=9) reporting a substantial increase and 32% (n=8) reporting a moderate rise. In contrast, 20% (n=5) observed a significant decrease, and 12% (n=3) saw a more modest decline in trip numbers (See figure 30). Importantly, the majority of the charter captain guides, constituting 64% (n=16) of the surveyed sample, attributed these fluctuations primarily to the impact of COVID-19 pandemic. These findings underscore the dynamic nature of

the charter industry, with external factors, particularly the global pandemic, that played a pivotal role in shaping the demand and trends within the charter boat sector over the specified timeframe.

Figure 30

Change in number of charter trips between 2019 and 2022 season

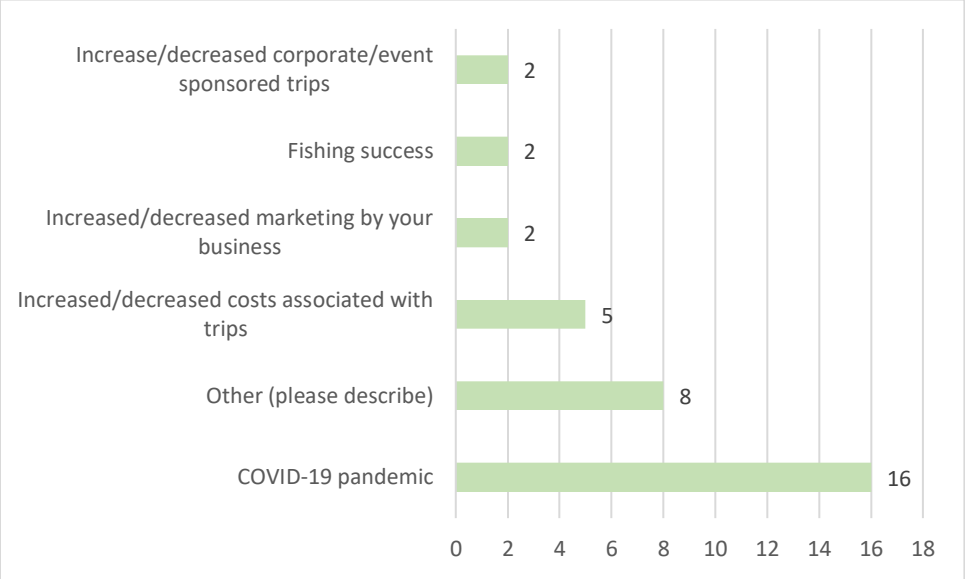


Factors contributing to change in trip numbers

The dynamics of charter trips among charter captain guides witnessed a nuanced interplay of factors according to the survey responses (See figure 31). For 8% changes in the number of trips were linked to shifts in their business marketing strategies, while 20% attributed fluctuations to altered costs associated with trips. An additional 8% pointed to fishing success and changes in corporate or event-sponsored trips. Notably, 32% cited various other reasons, emphasizing the complex interplay of diverse external influences on the industry. Challenges such as travel restrictions to Canada and the appeal of private outdoor experiences amid closures of other activities contributed to increased local business. Moreover, governmental restrictions, power outages at a port marina, and a general surge in interest during pandemic were cited, emphasizing the multifaceted nature of influences shaping the charter industry.

Figure 31

Reasons for change in trips number b/w 2019 & 2022 seasons



Factors affecting the price change of charter trips

The survey findings regarding changes in charter trip prices among charter captain guides revealed the industry's economic landscape. A substantial majority of 84% reported an increase in trip prices, while only 12% noted prices remaining the same and a 4% reported a decrease in prices. The factors influencing these changes were diverse, with fuel costs being the most commonly cited reason, reported by 92% of the charter captain guides (See figure 32). Labor, equipment/supplies, boat costs, and docking fees were also frequently mentioned as contributors, each cited by 36% to 52% of respondents. Maintenance and angler/client demand each accounted for 48%, while license fees were cited by 8% (See figure 33). Additionally, 12% reported other factors, such as inflation in general, that influenced the trip prices. These findings underscore the intricate web of cost-related considerations that charter captain guides navigated, reflecting the complexities of maintaining competitive pricing structures within the charter fishing industry.

Figure 32

Charter fishing trip price fluctuations

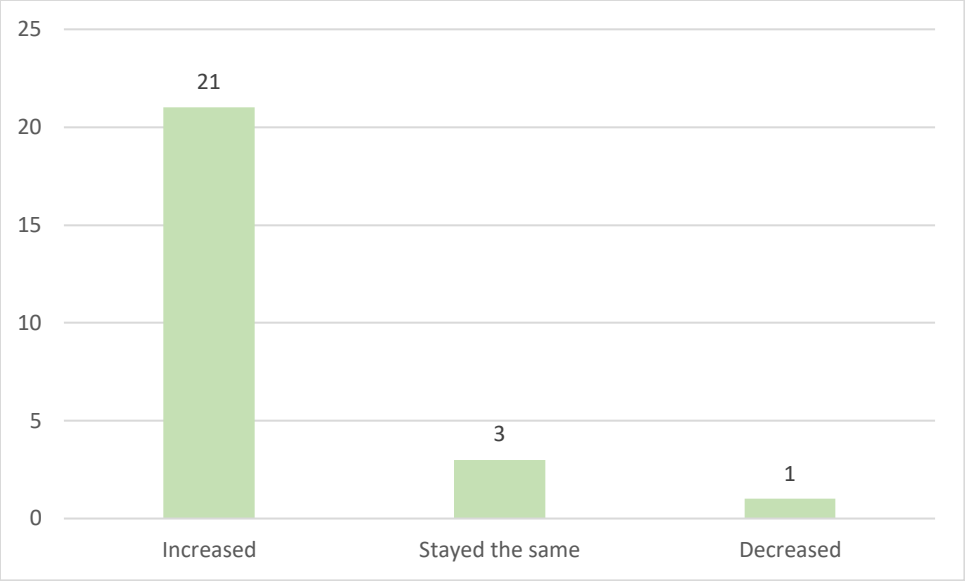
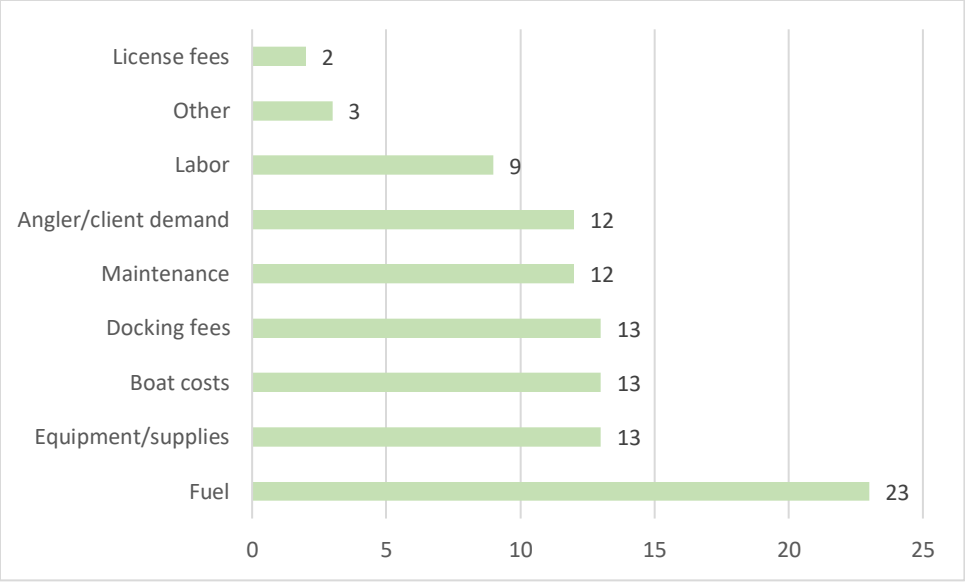


Figure 33

Reasons for change in charter fishing trip prices



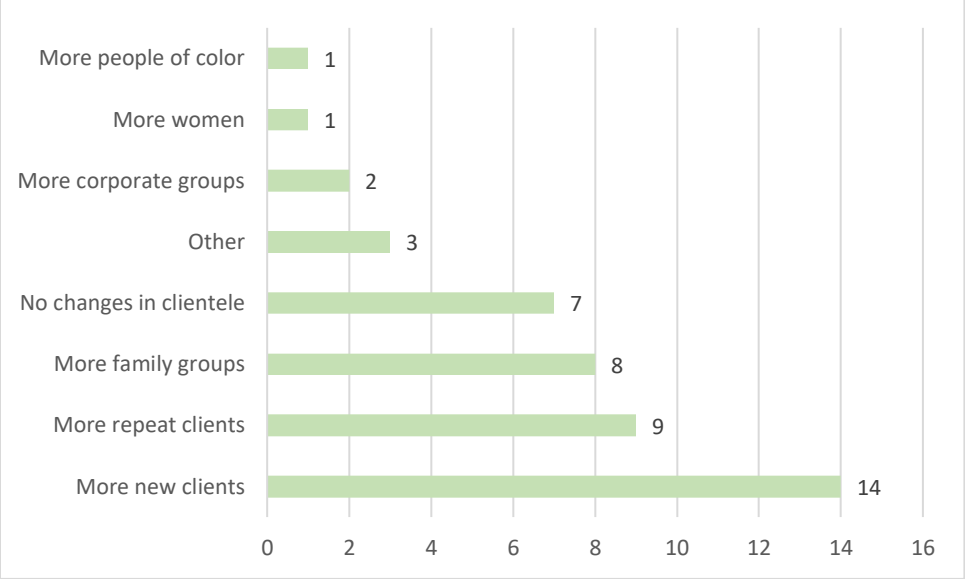
Change in Clientele and the associated reasons

The survey results shed light on the shifts in clientele for charter captain guides between the 2019 and 2022 seasons. 72% of the charter captain guides experienced changes in their clientele. Among those noting changes, 56% reported an increase in new clients, suggesting a potential broadening of their customer base. Additionally, 36% observed growth in repeat clients,

indicating sustained satisfaction and loyalty. There were also a reported increase in family groups (32%), corporate groups (8%), women (4%), and people of color (4%) during the 2022 seasons compared to 2019 (See figure 34). Other notable changes included a shift in clientele composition during the initial pandemic years with a significant portion of trips being booked by clients who would typically go to Canada but were restricted, and families seeking closer alternatives due to limitations in typical vacations. These findings provide valuable insights into the evolving demographics and preferences of charter trip clientele in response to external factors such as travel restrictions and changing vacation patterns, showcasing the industry's adaptability to changing circumstances.

Figure 34

Changes noticed in charter fishing Clientele



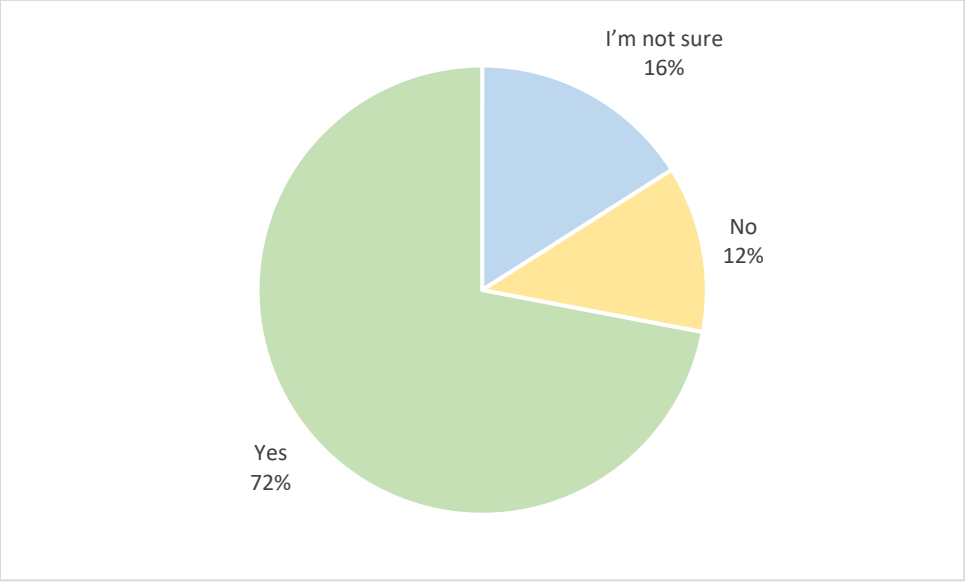
Role of COVID-19 pandemic on charter business

The survey findings reveal that 50% of the charter captains believed changes in clientele were related to the COVID-19 Pandemic, while 33% remined unsure. A significant majority of 72% of charter captain guides reported that the overall impact of the COVID-19 pandemic did

affect their business (See figure 35). Their perspectives on the pandemic's influence on their business varied. Some charter captain guides attributed business growth to excellent customer service and the nature of the industry, emphasizing that people, had extra time for leisure and money due to stay-at-home measures, and turned to fishing. The closure of Canadian border further contributed to increased demand for charter trips locally. Others highlighted challenges, including restrictions on trip bookings, Minnesota law limiting the number of people on boats, cancellations due to COVID, and increased cost from hotels to fuel contributing to a decline in trip numbers. The initial upswing in business at the onset of the Pandemic, spurred by individuals seeking outdoor activities, was succeeded by a subsequent decrease in bookings. This downturn made 2023 a difficult year for numerous charter captains. The diverse experiences underscore the resilience and adaptability of charter captains in maneuvering through the uncertainties imposed by the pandemic. Some seized opportunities for expansion, while others encountered significant challenges in maintaining their operations.

Fig 35

Effect of COVID-19 on charter fishing business

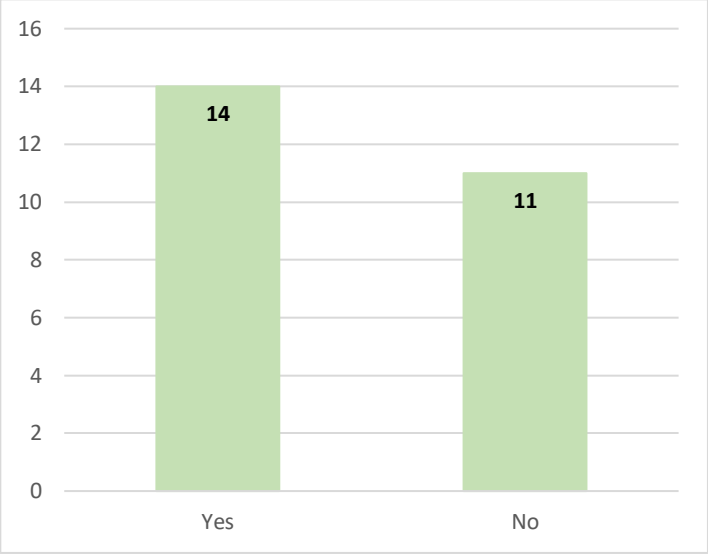


Diversity, Equity, and Inclusion in Charter Business

Charter captains reported employing various strategies to promote inclusivity and expand their clientele (See figure 36). The majority (56%) reported on targeting new clients, repeat clients, family groups, corporate groups, women, people of color, and other demographics through advertising channels such as Google ads, local radio marketing, social media, repeat customer contacts, and participation in sport shows. However, 27.3% expressed interest in learning more about engaging with these diverse groups.

Figure 36

Making fishing opportunities inclusive

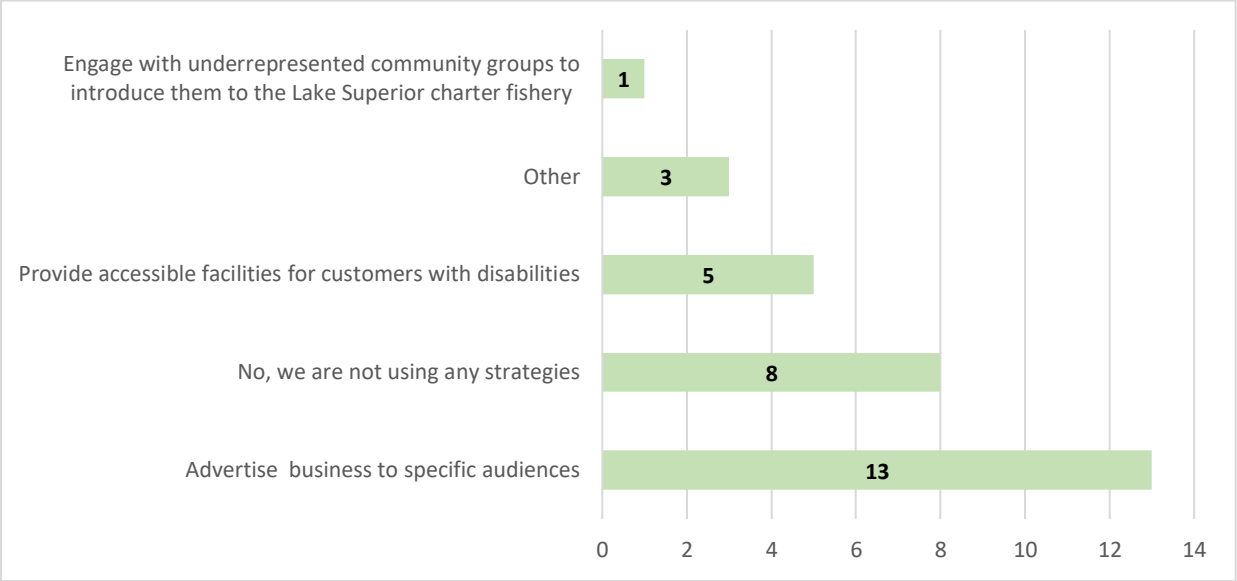


While 52% of charter captains advertised their business to specific audience groups, only 4% engaged directly with underrepresented community groups to introduce them to the Lake Superior charter fishery. Additionally, none offered discounts or subsidies to low-income families, seniors, and marginalized groups (See figure 37). Accessibility remains a concern, with 80% of charter fishing guides lacking facilities for customers with disabilities. Some charter captains emphasized the need for a new approach to fish populations, urging government agencies like the

MN DNR to address issues such as stocking and accessibility subsidies. Despite these challenges, some captains maintain a business-centric perspective, expressing a focus on getting their name out without specific targeting based on demographics. The varying approaches and perspectives highlight the complex landscapes of inclusively in the charter fishing industry.

Figure 37

Strategies used for making fishing available to new customers



Interest in engaging clients purposefully

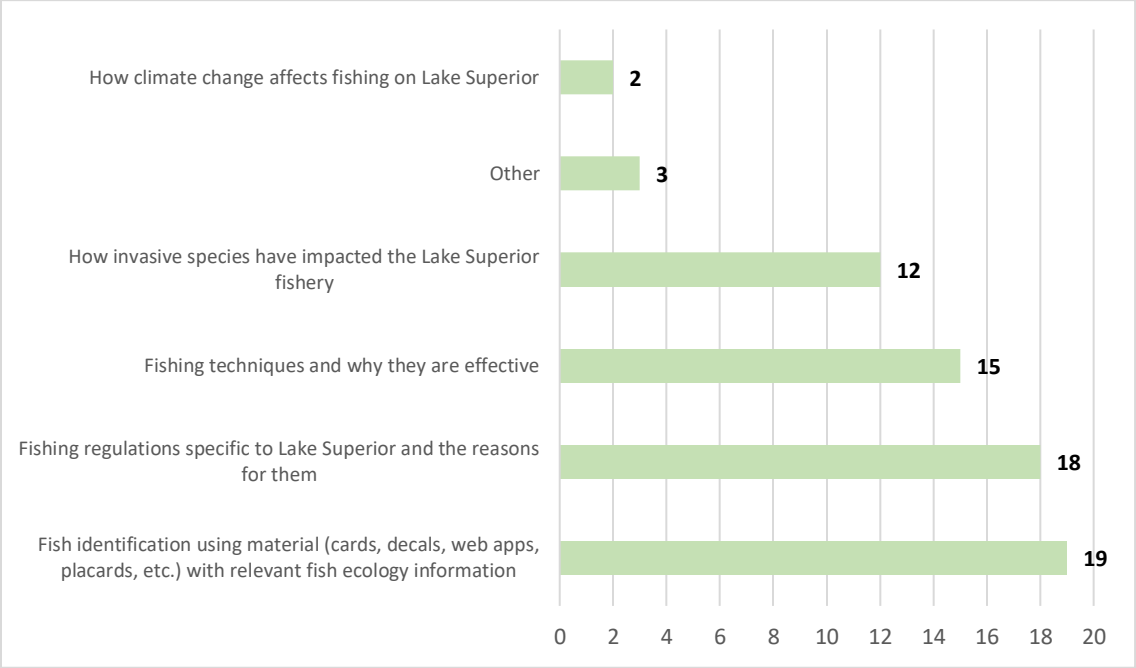
The majority of charter captain guides (92%) expressed a willingness to engage clients in learning more about the Lake Superior fishery during their charter fishing trips. Many captains showed interest in providing educational content, with 76% showing interest in discussing fish identification using materials like cards, decals, websites, and placards that include relevant fish ecology information.

Moreover 80% of the charter captain guides expressed interest in discussing fishing regulations specific to Lake Superior and explaining the reasons behind them. A substantial number, 60% are willing to discuss fishing techniques and explain their effectiveness to clients'

However, opinions varied regarding certain topics (See figure 38). For instance, 48% of charter captain guides were willing to discuss how invasive species have impacted the Lake Superior fishery, while 52% showed no willingness for this discussion. Similarly, only 8% expressed interest in discussing how climate change affects fishing on Lake Superior, while 92% showed no interest in this topic.

Figure 38

Topics of interest for charter Captains in engaging clients purposefully



Some charter captains expressed interest in diverse topics that captivated their clients. For instance, they recognized that people love learning about various fishing techniques in Lake Superior, finding fascination in the multitude of ways to catch fish. Additionally, certain captains were intrigued by explaining the operations of a Federal Fish Hatchery located just 4 miles from Lake Superior in Wisconsin. This hatchery, functioning as a Lake Trout super hatchery, raises questions about the transportation of millions of fingerlings to Lake Michigan, particularly by truck over extended durations (8 to 12 hours) and the associated challenges, including a high death

rate during transit. These findings highlight the varying degrees of interest and willingness among charter captains to incorporate in the fishing trip experience, encompassing both practical techniques and broader ecological aspects.

Other results specifically related to the Minnesota Sea Grant (MNSG) study

The majority of charter captain guides, 84% reported receiving the Minnesota Sea Grant steelhead-salmon identification decal/sticker in their mail. Of these, 85.7% displayed the decal to their clients, while 14.3% chose not to display it. In terms of customer requests, 27.8% reported customers requesting their own copy of the decal/sticker, while 72.2% did not receive any such requests. This information indicates varying levels of engagement and interest among both captains and clients regarding the decal/sticker. Some captains noted feedback on the decal, suggesting improvements such a having the fish face the same way and including additional information about depressing the anal fin for identification. One charter captain expressed desire for more information on the length-at-age distribution of Lake Trout. The captain believed that this information would be valuable to their clients, particularly in relation to mercury levels. This comment suggests a concern for providing clients with comprehensive information about the fish they target, with specific focus on potential health considerations such a mercury levels.

Feedback from captains varied, with some finding the decal a helpful tool for explaining differences between fish species to clients, while others questioned its necessity, asserting their familiarity with Lake Superior's fish. Despite differing opinions, 57.1% of charter captains expressed interest in a similar decal for Lake Trout, Siscowet, and/or Coaster Brook Trout identification.

In addition, 56% of the charter captains showed interest in attending the Minnesota charter Captain Conference coordinated by Minnesota Sea Grant (MNSG) with some commenting about dissatisfaction with the DNR's involvement in protecting Lake Superior.

Furthermore, 52% of charter captains reported regular use of water temperature or other date from buoys for planning charter trips, highlighting the significance if environmental factors in their operational considerations.

The overall results from the survey underscore the dynamic landscape of the Lake Superior Charter fishing industry, revealing a resilient sector adapting to the challenges posed by the COVID-19 pandemic. Captains exhibited diverse strategies to attract and educate clients, with a keen focus on clientele changes and economic considerations. As they navigate fluctuating trip numbers and pricing structures, the survey highlighted both the industry adaptability and the need for addressing inclusivity and environmental education in charter fishing experiences.

Chapter 5: Discussion

Having presented my findings from the data analysis in the previous chapter, I turn to the discussion of the findings through discussion of results, implications., recommendations for future research and conclusion in this final chapter.

Summary and Key Takeaways

The primary aim of this research was to examine the reasons perceived for the significant surge in visitor attendance in protected nature areas between 2020-2023, particularly considering the backdrop of the COVID-19 pandemic and to understand the perspective of recreational park managers and business owners (E.g.; Charter Fishing) on the effects of visitor on local natural resources. Utilizing face-to-face surveys conducted in the summer of 2022, involving 122 participants from specific campgrounds and an outfitter, the study delved into the demographics, motivations, and expectations of visitors. Also, the study utilized online survey responses from 11 park managers along the North shore of Minnesota in the Spring 2022 to determine their perception of increased visitor use and impact. Also, we had online survey responses from 25 charter captains in the Spring 2023 to understand any changes in visitor use pattern and their effects from the perspective of recreational businesses.

The results show that the number of visitors increased significantly during the given period of time, for a variety of reasons including beauty, time spent in nature, leisure, adventure, and social contacts. The COVID-19 pandemic caused problems, but visitors remained steadfast in their desire to engage in outdoor leisure. The study results underscores the challenges faced by park

managers during the COVID-29 pandemic, including a surge in users and negative impacts on recreational lands. This emphasizes the necessity of a comprehensive management strategy for campgrounds that skillfully strikes a balance between environmental goals and the changing expectations of the visitors. The Charter Captain survey results contribute to a nuanced understanding of the Lake Superior Charter Fishing industry in adapting to external factors, particularly the global Pandemic, emphasizing its adaptability, challenges, and opportunities. Positive impacts and strategies for mitigating negative effects from the nature area park mangers survey emphasize the importance of community engagement, education, and strategic planning. Here are the key takeaways from the research:

1. **Demographic and Recreational Engagement:**

The study revealed a diverse mix of visitors engaged in various recreational activities, with a particular focus on two campgrounds and one local outfitter. Recreational engagement varied, encompassing activities such as RV Camping, sea kayaking, hiking, and biking, etc. This diversity in activities underscores the multifaceted nature of front-country recreation.

2. **Influence of COVID-19 and Visitor Resilience:**

Despite the disruptions caused by the COVID-19 pandemic, the majority of visitors reported that the global health crises had little bearing on their decision to camp. This resilience suggests that outdoor recreation, even during challenging times, remains a significant aspect of individual's lives. Some visitors even viewed camping as a relief from the pandemic, emphasizing the therapeutic a restorative aspects of nature engagement.

3. **Motivations and Expectations:**

Visitor motivations were found to be diverse, ranging from seeking beauty and nature experiences to relaxation, adventure, and social interactions. Expectations included a desire to enjoy nature,

seek new experiences, and spend quality time with friends and family. The motivations identified align with the increased visitor use, suggesting that the attractiveness of protected nature areas lies in catering to a broad spectrum of recreational desires.

4. **Environmental Impact Awareness:**

A notable finding was the visitors' awareness of their environmental impact. Responses varied from perceiving no impact to acknowledging a slight impact on land and water. This awareness is encouraging, signaling a level of consciousness among visitors about their role in preserving the natural integrity of the campgrounds.

5. **Information sources and Decision-Making:**

Information sources influencing campground choices were diverse, highlighting the complexity of decision-making processes. Visitors relied on friends, family, social-media, and various other means to gather information about the campgrounds.

6. **Visitor Comfort Levels:**

Comfort levels with the current number of visitors varied, emphasizing the importance of managing visitor numbers to ensure a positive and comfortable experience for all taking into consideration the carrying-capacity of the area.

7. **Outdoor Experience and Future Intentions:**

The research captured diverse levels of outdoor experience among visitors, with a majority expressing a strong interest in repeating camping trips in the next five years, reflecting a positive outlook for future engagements.

8. **Future Expectations and Considerations:**

Visitor expectations for the next five years were multifaceted, emphasizing preferences for minimal changes, improved amenities, more greenery, and considerations for nature trails, fishing docks, and recreational equipment availability.

9. **Difference in park manager perceptions and visitor perceptions:**

The park manager perceptions are nearly opposite to that of visitor perceptions. This suggests a need to better understand the visitor motivations/expectations through various forms of education/communication.

10. **Scope to educate Charter Fishing captains on Diversity, Equity, and Inclusion (DEI):**

On one hand it seems that the charter captains can be a conduit for gaining knowledge about the resource and on the other hand, the responses from the Charter captains suggests a motivation for increased revenue and not necessarily true concern over diverse participants. Their reported desires vs their reported results and efforts are incongruent implying they may not know what inclusive means.

These key takeaways provide a comprehensive overview of the diverse visitor dynamics, motivations, and expectations, guiding future considerations for campground management and program development in protected nature areas.

Addressing the Research Questions

The findings delve into the nuanced motivations of front-country visitors, emphasizing he multifaceted nature of their preferences. The impact of the COVID-19 pandemic on visitor behaviors is explored, with a majority reporting that their camping choices were not influenced, signaling a robust interest in outdoor activities despite global challenges. It implies the need for an

adaptive management practices to meet changing visitor expectations while preserving the natural appeal of the protected areas. Here is how the research answers our research questions;

What are the perceived reasons behind the sharp rise in visitor use in protected nature areas from 2020-2023, despite COVID-19 pandemic?

The results demonstrate that despite the difficulties brought on by the COVID-19 pandemic, people's desire in outdoor leisure is strong and persistent. Increased visitor use in designated nature areas is probably influenced by the variety of motivations, including beauty, nature experiences, relaxation, adventure, and social connections. The pandemic, rather than hindering outdoor engagement, seems to have amplified the significance of these areas as a refuge and escape.

What are the perceived motivations and expectations of the current front-country visitors outdoor recreation experience?

Motivations included seeking beauty, nature experiences, relaxation, adventure, and socializing. This aligns with the increased visitor use, suggesting that the attractiveness of these areas lies in catering to a broad spectrum of recreational desires. The motivations and expectations align, reflecting a desire for a well-rounded outdoor experience that combines recreational activities with opportunities for relaxation and learning. This interplay between motivations and expectations shapes the visitor's use of campgrounds, creating a diverse and fulfilling outdoor experience tailed to individual preferences.

How has the COVID-19 pandemic affected utilization, visitor expectations, and motivations?

The discussion acknowledges the varying impact of COVID-19 pandemic on visitor choices. While the majority reported that their camping decisions were not influenced, a subset viewed camping as a relief from the pandemic. This nuanced response suggests that the pandemic

has not influenced visitor motivations, with outdoor settings offering a reprieve and a sense of normalcy during challenging times.

How are the motivations and expectations of the front-county visitors perceived to be changing how facilities, lands, and waterways are managed?

The discussion hints at the need for adaptive management strategies. The diverse motivations and expectations identified, along with recommendations for sustainable landscaping, educational initiatives, and community-building events, imply that facility, land, and waterway management align with the evolving preferences of visitors. The call for a holistic approach emphasizes the importance of managing these areas in a way that balances conservation with providing an enhanced and tailored visitor experience.

What are the perspectives of Protected Nature Area Managers on the effects of visitors on local natural resources?

The protected nature area managers, as revealed in the survey findings, express concerns about the substantial increase in recreational user numbers during the COVID-19 pandemic, leading to negative impacts on the local natural resources. These impacts include littering, trail cutting, and vegetation damage, with financial challenges and insufficient preparedness exacerbating the difficulties in addressing these issues. While acknowledging negative consequences, managers note positive shifts such as increased funding from user fees, and a more diverse user demographic. Challenges center around overuse of trails and infrastructure maintenance, heightened pressure on resources, and limitations in managing high visitor numbers. Mitigation strategies involve increased volunteer engagement, education efforts, and discussions with trail groups, emphasizing the need for sustainable practices and adaptive management to strike a balance between recreational demands and the preservation of natural ecosystems.

What are the perceptions of patterns of client use and motivations of charter business during the COVID-19 Pandemic?

The charter captains revealed the industry's responses to the challenges and opportunities presented during the COVID-19 pandemic by providing insights into the perceptions of client use and motivations within the business. The industry experienced notable shifts in client patterns, with changes in the number of charter trips and clientele demographics. Captains reported both substantial increases and decreases in trip numbers, with the majority attributing these fluctuations to the impact of the pandemic. Client motivations for choosing charter trips varied, encompassing factors such as cost-effectiveness, convenience, learning opportunities, recreational enjoyment, and the desire for fresh fish. The pandemic's influence on client motivations was evident with some seeking outdoor activities due to stay-at-home measures and travel restrictions, contributing to an initial upswing in business. However, challenges such as restrictions on trip number bookings, changes in regulations and increased costs also posed difficulties for the industry. Despite challenges, the captains demonstrated adaptability, employing various strategies for inclusivity and environmental education. This underscore the resilience and complexity of the Lake Superior Charter fishing industry, highlighting its ability to navigate evolving landscapes shaped by external factors, client preferences, and the ongoing need for inclusivity and education.

In summary, the findings address the research questions by revealing a resilient interest in outdoor recreation despite the pandemic, showcasing diverse motivations and expectations of visitors, and suggesting that the changing landscape of visitor motivations warrants adaptive management strategies for facilities, lands, and waterways in protected nature areas.

Proposed Recommendations (for Park Management)

Based on the comprehensive survey findings, several recommendations can be proposed to enhance the campground experience and address the nuanced needs of visitors. These recommendations can try to find a compromise between conserving the natural attractiveness of the campgrounds and satisfying the increasing expectations and tastes of the diverse visitor base.

1. The campgrounds' natural charm should be preserved and enhanced first and foremost, and any future developments should take into account the wide range of preferences that guests have indicated.

2. Encouraging visitor pleasure can be achieved by considering improvements to camping amenities, such as shower facilities and power connectivity.

3. In order to acknowledge the range of factors impacting decision-making processes, communication tactics should also be customized to target potential visitors through a variety of channels.

4. Given the varying levels of environmental impact awareness, educational initiatives can be implemented to promote responsible and sustainable recreational practices.

5. In order to guarantee that everyone has a positive experience, campground managers should also think about conducting regular evaluations of guests' comfort levels.

6. Additionally, working together with nearby companies and communities can promote a feeling of community involvement and support the campgrounds' general prosperity and sustainability. And to better utilize commercial operators for resource education and protection.

7. Furthermore, given the noticeable interest in picking up new abilities and learning about the environment, the campgrounds might look into holding workshops, educational programs, or

guided tours. This may enhance visitors' appreciation of the natural environment and general enrichment in addition to their recreational enjoyment.

8. The biological integrity of the area could be preserved by using conservation and sustainable landscaping strategies in response to the need for additional greenery. Given the interest in recreational activities like fishing and sea kayaking, enhancing facilities such as fishing docks and nature trails would likely be well-received. The management should also evaluate the feasibility of providing additional options for recreational equipment rental to cater to the diverse interest of visitors.

In tandem with these recommendations, fostering a strong community of campers could be achieved through;

1. Creation of social events or gatherings within campgrounds, promoting a sense of camaraderie among visitors.

2. Encouraging feedback mechanisms, such as suggestion boxes or online surveys, would provide ongoing insights into visitor experiences, allowing for agile adjustments to meet evolving expectations.

3. Collaborative partnerships with local businesses involved could result in better package deals, further enhancing the overall visitor experience and supporting local economy. Moreover, investing in technology for real-time updates on campgrounds availability, weather conditions, and safety protocols through mobile apps or websites would align with the contemporary preferences of tech-savvy visitors.

4. Finally incorporating inclusive policies and facilities, such as accessibility measures for individuals with disabilities or underrepresented groups, can contribute to a more welcoming and diverse camping environment. These multifaceted recommendations aim to not only address the

specific desires of current visitors but also proactively adapt to emerging trends and preferences, ensuring a sustainable and enjoyable campground experience for years to come. Overall, a holistic approach that combines environmental stewardship, educational opportunities, and improved amenities can further elevate the campground experience, fostering a harmonious balance between nature conservation and visitor satisfaction/increased visitor use.

Study Limitations

While this study contributes valuable insights into the intricate dynamics of visitor demographics, motivations, and expectations in protected nature areas, it is essential to recognize and acknowledge the inherent limitations that may impact the generalizability and depth of the findings. Here are a few limitations for interpreting the study's findings and informing future research endeavors in the fields of outdoor recreation and protected nature areas;

1. Limited Sample Size and Representativeness:

The study sample size of 122 visitor participants from specific campgrounds and 11 park managers may not accurately represent the broader population of visitors and park managers in protected nature areas. Similarly, surveying only 25 charter captains from Duluth, Minnesota may not capture full diversity of the charter fishing industry, potentially limiting the generalizability of the findings to a wider context.

2. Geographic Scope:

The study's narrow focus on specific campgrounds, an outfitter, and Duluth, Minnesota as its study location, may limit the generalizability of this study's findings. By examining only these locations, the study might miss out on understanding the full range of visitor experiences and motivations in protected nature areas. Additionally, its exclusive focus on park managers in nature

areas and charter fishing guides in Duluth may not represent the broader contexts of park management and charter fishing industries, potentially restricting the applicability of the findings to other regions or types of recreational areas.

3. Methodological Approach:

Only using surveys (in-person and online) could lead to a social desirability bias in which respondents may provide answers they perceive socially acceptable. Using a single method of data collection could also limit the depth of understanding, as other research techniques like observations or interviews may provide additional in-depth insights.

4. COVID-19 Influence:

The study looks at how the COVID-19 pandemic affected visitor choices; however, it doesn't go into great detail on other aspects including how visitation patterns changed, safety concerns were addressed, or visitor expectations were changed throughout the pandemic. A more in-depth exploration of these factors could provide a richer understanding of the pandemic's influence.

5. Seasonal Variability:

Conducting the study during a specific season, such as the summer of 2022, may not account for variations in visitor behaviors and motivations across different times of the year. This seasonal variability could impact the generalizability of the findings and limit insights into long-term visitation patterns. Visitor motivations and behaviors might vary across seasons, and a more extended study covering multiple seasons could offer a more comprehensive understanding of these variations.

6. Limited Exploration of Cultural Factors:

The study does not extensively explore cultural influences on visitor motivations and behaviors. Cultural factors, such as individual or group preferences shaped by cultural background or societal norms, could significantly impact recreational choices, and should be further investigated for a more comprehensive understanding.

7. Future Orientation:

While the study touches on visitor interest in future camping trips, it does not extensively explore how evolving trends and expectations might impact long-term visitation patterns. The study could benefit from a more forward-looking analysis to understand evolving trends and anticipate long-term changes in visitor behaviors and preferences that can provide valuable insights for planning and management strategies.

8.Limited Exploration of Economic Factors:

Economic influences on visitor choices, such as income levels or economic disparities, are not thoroughly examined in this study. Understanding these factors could shed light on the diverse motivations driving visitor behavior and inform strategies for promoting equitable access to outdoor recreation opportunities.

9. Single Method for Information Gathering:

The study relies on survey data, potentially limiting the depth of understanding. Combining several research techniques, such as focus groups, interviews, and site observations, may offer a more comprehensive understanding of the experiences and motives of visitors.

10. Potential Bias and Response Variability:

There is a potential risk for selection bias, where the characteristics of respondents may differ from those who chose not to participate in the study. Additionally, variability in interpreting

survey questions or levels of awareness among respondents could introduce inconsistencies in data interpretation, affecting the accuracy and reliability of the findings.

11.Lack of Longitudinal Data:

The study provides a snapshot of nature area managers' and charter captain guides perspectives during Covid-19 pandemic, but it does not track changes over time. Longitudinal data could offer insights into the evolving nature of challenges, management strategies and trends within charter fishing industry. Also, factors influencing park management, such as environmental regulations, funding resources, and community engagement, are not fully explored.

12.Limited Exploration of external Factors:

For the charter captain survey, the study primarily focuses on internal aspects of the charter fishing operations, such as demographics and client motivations, without extensively exploring external factors like regulatory changes, economic trends, or environmental conditions, which could also influence the industry.

Study Implications

The implications drawn from this study offer practical insights that bridge the gap between research findings and actionable strategies for practitioners and policy makers in the realm of outdoor recreation and protected nature areas. Rooted in the rich tapestry of visitor demographics, motivations, and expectations, these implications serve as guideposts for shaping programs, policies, and management approaches. The relevance and interconnectedness of these implications underscore their potential to influence positive changes, fostering a symbiotic relationship between visitors and the preserved natural environments they explore. Delving into, the practical suggestions derived from the study, the implications weave a narrative that not only reflects the

complexities uncovered but also outlines pragmatic avenues for sustainable and enriching visitor experiences. Here are my implications drawn for this study;

1. Balanced Conservation through Management Strategies:

The study's findings highlight the importance of balancing conservation efforts with the evolving expectations of visitors. Practitioners should adopt adaptive management strategies that ensure the preservation of natural integrity while enhancing the overall visitor experience.

2. Visitor Engagement through Community-Building Initiatives:

Implementing community-building events within protected nature areas can foster a sense of camaraderie among visitors. This approach can enhance the overall visitor experience and encourage repeat visits, contributing to the sustained success of these areas.

3. Use of Environmental Education:

The study suggests a significant interest among visitors in learning new skills and gaining knowledge about nature. Developing educational programs within protected areas can cater to this interest, promoting environmental education and responsible recreation.

4. Technology Integration:

Considering the varied information sources identified in the research, practitioners may explore technological advancements, such as mobile apps or websites. Providing real-time updates and information through these platforms can meet the preferences of tech-savvy visitors and enhance their overall experience.

5. Adaptive Management:

The study underscores the need for adaptive management practices. Practitioners should remain flexible, continuously monitoring and adjusting strategies to align with changing motivations and expectations.

6. Sustainable Development:

Recommendations for environmentally friendly landscaping and conservation efforts stress how crucial it is to incorporate green infrastructure. This entails designing and creating landscapes that offer recreational opportunities in addition to improving ecological services.

7. Tailored Program Development:

Program developers can utilize the insights into visitor motivations and expectations to design tailored recreational programs. These could include events, workshops, and activities that align with the diverse preferences expressed by visitors.

8. Long-Term Planning *(Longitudinal Studies):*

The call for longitudinal studies indicates the importance of ongoing research to track visitor trends over extended periods. This would provide a foundation for long-term planning and management strategies in protected nature areas.

Overall, these implications provide a thoughtful guide for decision-making, program development, and sustainable management practices in protected nature areas.

Recommendations for Future Research

The study's recommendations offer advice for future research by highlighting areas of outdoor recreation in protected natural places that have not been looked at closely yet. Given the findings and limitations of the current study, these recommendations urge researchers to delve into new topics and uncover different aspects of visitor-environment relationship. The following recommendations push for a deeper look into how people's awareness of the environment interacts with their actions, and how we can manage the nature areas sustainable;

1. Longitudinal Studies on Visitor Trends:

An in-depth knowledge of the evolution of motivations and expectations can be obtained by conducting longitudinal studies to monitor visitor trends over time. Long-term planning plans can be informed by this study, which can provide insightful information on the sustainability of the trends seen.

2. Cultural Influences on Visitor Experiences:

Exploring the cultural factors that influence visitor choices and experiences can enrich our understanding of the diverse motivations identified in this study. Investigating how cultural nuances shape recreational preferences will contribute to a more nuanced interpretation of visitor dynamics.

3. Economic Factors and Visitor Decision-Making:

Gaining further insight into the financial aspects influencing choices about outdoor recreation can be achieved by looking closely at the economic elements that affect tourists' decisions, such as income levels and economic disparities. This research can inform targeted interventions and inclusive strategies.

4. Exploration of Seasonal Variations in Visitor Behaviors:

The research provides a particular seasonal view for the summer of 2022. Examining how visitor motives and actions change with the seasons will provide information about how outdoor recreation is seasonal and help with the formulation of management techniques that are appropriate for each season.

5. Impact of Specific Events on Visitor Preferences:

Analyzing how certain events—like airshows, cycle races, weddings, concerts, and festivals—affect traveler preferences can yield a more complex picture of the variables impacting

campground selection. This research can inform event planning and management strategies in protected nature areas.

6. Comparative Studies Across Protected Nature Areas:

Extending the geographic scope of research to encompass a broader range of protected nature areas will allow for comparative studies. Understanding how visitor dynamics vary across different locations can contribute to more universally applicable management strategies.

7. In-Depth Analysis of Visitor Comfort Levels:

A more in-depth exploration of the factors influencing visitor comfort levels with the current number of visitors can provide nuanced insights. Investigating specific elements, such as crowd management strategies, can inform practices that enhance the overall visitor experience.

8. Effectiveness of Technological Interventions:

Future developments can be guided by assessing how well technological interventions—like websites or mobile apps—provide information and improve the visitor experience. Decisions about the integration of technology will be influenced by knowledge of the preferences and usability of these tools.

9. Interactions Between Environmental Awareness and Visitor Behavior:

Examining how visitors' understanding of the environment and their activities interact might help determine how successful environmental education programs are. This research can contribute to refining educational programs that foster responsible and sustainable recreation.

10. Exploration of Visitor Expectations in Changing Climates:

Examining how tourist expectations and motivations could alter in response to changing climates might offer crucial insights, given the dynamic nature of climate change. This research can inform climate-resilient strategies for protected nature areas.

These recommendations for future research address the gaps and provide a rationale for further exploration of specific aspects related to visitor experiences in protected nature areas.

Conclusion

To sum up, this study aimed to investigate the reasons for the notable increase in the number of visitors to protected nature areas between 2020 and 2023, especially in light of the COVID-19 epidemic. This study adds important new information to the field of outdoor recreation and protected natural areas by thoroughly examining the demographics, motives, and expectations of visitors.

The study's findings highlight the importance of these protected places as havens for a variety of recreational activities and show that people's interest in outdoor recreation is robust in the face of global issues. Front-country recreation is multidimensional, as seen by the wide range of motivations found, which include seeking beauty, environmental experiences, relaxation, adventure, and social relationships. The study also highlights how aware visitors are of their own environmental impact, highlighting the need for additional interventions such as environmental education programs to inform visitors how they are impacting the environment and how they can connect with nature more purposefully and sustainably.

The study's limits are closely connected to the research recommendations, which provide opportunities for additional investigation and guarantee a dynamic and ever-evolving comprehension of visitor dynamics in protected places. It is evident that the evolving relationship between visitors and protected natural spaces requires adaptive management strategies. In order to maintain the ecological integrity of these locations while taking into account the complex motivations and expectations of visitors, a comprehensive approach is recommended in the

conclusion. This work adds to the continuing conversation on sustainable outdoor recreation and the continued value of protected nature areas in the face of global problems by promoting communication between research, management, and policy.

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Appendix A

Survey Questions for the Protected Nature Area Managers for Spring of 2022

Q1 Which best describes your organization?
- State Park (1)
- State Forest (2)
- National Park (3)
- National Forest (4)
- Non-profit recreation-related organization (5)
- For-profit recreation-related organization (6)
- City, County or other local government (7)
- Other: (8) _____

Q2 Which of these best describes how your organization is involved in recreational land management:
- My organization has direct control or ownership over recreational lands (1)
- My organization coordinates management activities (such as trail/campsite building or maintenance) on public and/or private land, but doesn't have direct control of these lands (2)
- My organization is involved with recreational use, but doesn't manage either the land or activities directly (3)
- Other: (4) _____

Q3 Which best describes your role within your organization?
- I run it, direct it, or am directly responsible for its activities (1)
- I work on recreation-related management activities as directed by others (2)
- I am a volunteer (3)
- Other: (4) _____

Q4 Approximately how many people does your organization pay to work directly on managing recreational lands? *(Activities such as maintaining trails, campsites, trailheads, boat access sites, bathrooms, or other facilities)*

_____

Q5 In your estimation, did the COVID-19 pandemic cause an increase in recreational user numbers?
- No (1)
- Yes, by a little (2)
- Yes, by a lot (3)
- I don't know (4)

Q6 Which of these best describes the changes you observed in negative impacts to the recreational lands you're involved with ***during the COVID-19 pandemic*****?**

- Negative impacts **decreased/things got a lot better** (1)
- Negative impacts **decreased a little/things got a little better** (2)
- There was **no change** to negative impacts (3)
- The negative impacts **increased a little/things got a little worse** (4)
- Negative impacts **increased a lot/things got a lot worse** (5)

Q7 How did each of these negative impacts change during the pandemic?

	No change/no increased impact (1)	Moderate change (2)	Large increased impact (3)
Littering (1)	•	•	•
Extra trail cutting ("goat" trails) (2)	•	•	•
Cutting trees/other vegetation (3)	•	•	•
Fires/firepits in undesignated areas (4)	•	•	•
Unsanctioned camping sites (5)	•	•	•
Trespassing (6)	•	•	•
Overcrowded or unsafe parking (7)	•	•	•
Improper human waste disposal (8)	•	•	•
Improper pet waste disposal (9)	•	•	•
Off-leash dogs (10)	•	•	•
Overcrowded viewpoints (trailheads, facilities?) (11)	•	•	•
Trail erosion (12)	•	•	•
Streambank or shoreline trampling and/or erosion (13)	•	•	•
Impacts to trail structures - bridges, boardwalks, signage, campsites, latrines (14)	•	•	•
OTHER: (15)	•	•	•

Q8 How did these changes impact your organization financially? *(Check all that apply)*

- We had to hire more staff to manage these issues (1)

- We spent more hours to manage these issues (2)
- We increased use of volunteers/increased volunteer hours (3)
- We had to expand facilities (additional restrooms, expanded campgrounds, more parking, etc) (4)
- We had to increase maintenance of facilities such as bathrooms or parking lots (5)
- We didn't have the capacity to address these impacts (6)
- Other: (7) _____

Q9 How are the following activities associated with the negative impacts you described above?

	Not at all associated (1)	Very little associated (2)	A lot associated (3)	Very highly associated (4)
Hiking (1)	•	•	•	•
Backpacking (2)	•	•	•	•
Mountain Biking (3)	•	•	•	•
Camping (4)	•	•	•	•
Fishing (5)	•	•	•	•
Nature Viewing/Bird Watching (6)	•	•	•	•
Climbing (7)	•	•	•	•
Swimming (8)	•	•	•	•
Motor Boating (9)	•	•	•	•
Paddling - Canoes, Kayaks, SUP's (10)	•	•	•	•
Snowshoeing (11)	•	•	•	•
Cross Country Skiing (12)	•	•	•	•
Horseback riding (13)	•	•	•	•
Off-road vehicles (14)	•	•	•	•
Snowmobiling (15)	•	•	•	•

Other: (16)

Q10 Did you experience any of these positive impacts during the COVID-19 pandemic? *(Select all that apply)*

- We received more funding from user fees as a result of increased use (1)
- We received more funding from our parent agency due to the increased use (2)
- We gained members (3)
- We reached more people with educational programs (4)
- We gained volunteers (5)
- We saw more diverse users (for example: women; historically excluded groups) (6)
- Other: (7) _____

Q11 Is your agency/organization using specific strategies to make recreational opportunities more inclusive? If yes, please provide examples.

- No (21)
- Yes (22) _____

Q12 What are your top 3 management concerns for the future, related to recreational use?

- Concern #1: (1) _____
- Concern #2: (2) _____
- Concern #3: (3) _____

Q13 Do you use social media to influence user impacts? If yes, please provide examples.

- No (24)
- Yes (25) _____

Q14 What steps (if any) are you taking to address or minimize negative impacts from recreational use?

- Increased use of volunteers (1)
- Increased number of paid staff (2)
- Increased education and outreach efforts to users (3)
- Reduced permits/quotas for recreational activities (4)
- Other? (5) _____
- None (6)

Q15 Have you made preparations for a future beyond-capacity event? If Yes, please briefly describe.

- No (4)
- Yes (5) _____

Q16 What does your organization need to reduce negative impacts from recreational users?

Not Needed A little Needed Somewhat Needed Greatly Needed

More education for users ()	
Training for staff on managing visitor use ()	
Social media campaigns ()	
A limit to user numbers ()	
More stringent regulations or requirements for recreational participants ()	
Other: ()	

Q17 You selected more education for users being needed. Please comment on what type of education you would suggest/recommend?

Appendix B

Survey Questions for Recreation Participants for the Summer of 2022

Date: _____ Site: Indian Point = IP/Spirit Mt = SP/ Day Tripper = DT

1. Recreation Type
    a. Recreation Tenting ____ = 1
    b. Sea Kayak tenting ____=2
    c. Motorboating ____=3
    d. Recreational Vehicle (RV) ____= 4
    e. RV with motorized vehicles (motorboat, car, etc.) ____ =5
    f. Other _____

2. How far have you come to visit this campground **from your home**?
    a. I'm local (within 50 miles) ____ = 1
    b. 51-100 miles ____=2
    c. 101 – 200 miles ____=3
    d. > 200 miles ____=4
    e. I'm an **international** visitor ____=5
    f. I don't know ____=9 (all "I don't know = 9 throughout)

3. Is this your first visit to this site or have you camped here before?
    a. First time ____=1
    b. Second ____=2
    c. Three or more ____=3

4. (Motivation) Why did you choose to stay at this campground? (**check all that apply**)
    a. For its beauty ____=1
    b. For a nature experience ____=2
    c. For relaxation ____=3
    d. To meet with family and/or friends ____=4
    e. For the adventure ____=5
    f. For fishing ____=6
    g. To gain a sense of well-being ____=7
    h. To get some relief from COVID ____=8
    i. Other _____

5. To what extent are you camping here as a relief from COVID?
    a. Not at all ____=1
    b. Somewhat ____=2
    c. Definitely ____=3
    d. Comment: _____

6. How did you learn about this campground?
    a. Social media ____=1

b. Word of mouth ____=2
c. Friends &/or family ____=3
d. Some other promotion (magazine, TV, etc.) ____=4
e. Other _____

7. (Expectation) What do you expect to get out your visit to this campground? (Check all that apply)
    a. To enjoy nature ____=1
    b. For a new experience ____=2
    c. To see Lake Superior ____=3
    d. To learn new skills (fishing, sea Kayaking, camping, other) ____=4
    e. To learn new things about nature ____=5
    f. To enjoy new outdoor equipment ____=6
    g. To enjoy time with my friends and/or family ____=7

8. To what extent do you think your activities are impacting the land and/or waters?
    a. No impact ____=1
    b. A slight impact ____=2
    c. I have an impact ____=3
    d. I have a big impact ____=4
    e. I don't know ____ = 9
    f. Comment: _____

9. What is your comfort level with the numbers of people who are currently using this campground?
    a. Very comfortable ____=1
    b. Comfortable ____=2
    c. Neutral ____=3
    d. Uncomfortable ____=4
    e. Very uncomfortable ____=5
    f. Comment: _____

10. What is your level of experience in the main activity that you are doing while here?
    a. No experience ____=1
    b. Beginning ____=2
    c. Intermediate ____=3
    d. Advanced ____=4
    e. Instructor ____=5

11. Do you think you will still be doing camping trips like this 5 years from now?
    a. Frequently ____=1
    b. Somewhat ____=2
    c. Not likely ____=3
    d. Location?

12. What would you expect this campground look like 5 years from now?

Appendix C

Survey Questions for the Charter Fishing Captains for Summer of 2023

In this first section we are asking questions about your business to better understand the charter industry in Lake Superior.

Q1: Which of the following best describes you?

- ○ Active charter boat captain (1)
- ○ Retired charter boat captain (2)
- ○ Licensed but inactive charter boat captain (3)
- ○ Other (please describe) (4) _____

Q2: How many years have you been an active charter boat captain?

- ○ 0-5 years (1)
- ○ 6-10 years (2)
- ○ 11-15 years (3)
- ○ 16-20 years (4)
- ○ More than 20 years (5)

Q3: Please enter the year in which you were born.

_____

Q4: Is charter fishing the primary focus of your charter boat business?

- ○ Yes (1)
- ○ No, but fishing is part of my business (2)
- ○ No (please describe) (3) _____

Q5: Do you belong to a charter fishing association?

- ○ Yes (name the association) (1) _____
- ○ No (2)

Q6: In which state do you fish?

- ○ Minnesota (1)
- ○ Wisconsin (2)
- ○ Both (3)
- ○ Other (4) _____

Q7: Where do most of your charter fishing trips occur?

- ○ Lake Superior (1)
- ○ St. Louis River (2)
- ○ Other (3) _____

Q8: From which location do you depart when you take charter trips *(check all that apply)?*

- ☐ Duluth (1)
- ☐ Knife River (2)
- ☐ Two Harbors (3)
- ☐ Silver Bay (4)
- ☐ Tofte/Lutsen (5)
- ☐ Grand Marais (6)
- ☐ Grand Portage/Isle Royale (7)

☐ Superior, Wisconsin (8)

☐ Other (9) _____

Q9: What are the top two reasons clients tell you they choose charter fishing trips with you *(please choose no more than two reasons below)*?

☐ A charter trip is cheaper than buying a fishing boat (1)

☐ Going on a charter trip is a lot easier than owning a fishing boat (2)

☐ They choose a trip to learn about fishing areas (3)

☐ They choose a trip to learn techniques to catch/harvest fish (4)

☐ A charter trip is an excuse to get out on the water (5)

☐ The charter trip is part of a corporate or social event (6)

☐ They want to catch and consume fresh fish (7)

☐ Other (please describe) (8)
_____

In this second section we are interested in how the COVID-19 pandemic affected your charter business.

Q1: In your estimation, how have the number of charter trips in your business changed between the 2019 season and the 2022 season?

- ○ Trip numbers didn't change (4)
- ○ Trip numbers increased by a little (19)
- ○ Trip numbers increased by a lot (20)
- ○ Trip numbers decreased by a little (21)
- ○ Trip numbers decreased by a lot (22)

Display This Question:

If In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers increased by a little

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers increased by a lot

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers decreased by a little

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers decreased by a lot

Q2: What are the reasons for the changes in trips reported in the previous question *(choose all that apply)*?

- ☐ COVID-19 pandemic (1)
- ☐ Increased/decreased marketing by your business (2)
- ☐ Increased/decreased costs associated with trips (3)
- ☐ Fishing success (4)
- ☐ Increase/decreased corporate/event sponsored trips (5)
- ☐ Other (please describe) (6) _____

Q3: Have your prices for charter trips increased or decreased since the 2019 fishing season?

- ○ Decreased (1)
- ○ Stayed the same (2)
- ○ Increased (3)

Display This Question:

If In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers increased by a little

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers increased by a lot

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers decreased by a little

Or In your estimation, how have the number of charter trips in your business changed between the 201... = Trip numbers decreased by a lot

Q4: What are the reasons for changes in trip price *(choose all that apply)*?

- ☐ Fuel (1)
- ☐ Labor (2)
- ☐ Equipment/supplies (3)
- ☐ Boat costs (4)
- ☐ Docking fees (5)
- ☐ Maintenance (6)
- ☐ Angler/client demand (7)
- ☐ License fees (8)
- ☐ Other (please describe) (9) _____

Q5: Did you see changes in your clientele from the 2019 season to the 2022 season *(check all that apply)*?

- ☐ No changes in clientele (1)
- ☐ More new clients (2)
- ☐ More repeat clients (3)
- ☐ More family groups (4)
- ☐ More corporate groups (5)
- ☐ More women (6)
- ☐ More people of color (7)
- ☐ Other (please describe) (8) _____

Display This Question:

If Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More new clients

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More repeat clients

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More family groups

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More corporate groups

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More women

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = More people of color

Or Did you see changes in your clientele from the 2019 season to the 2022 season (check all that app... = Other (please describe)

Q6: Do you think the changes you reported in the previous question were related to the COVID-19 pandemic?

- ○ Yes (1)
- ○ No (2)
- ○ I'm not sure (3)

Q7: Overall, did the COVID-19 pandemic affect your business?

- ○ Yes (1)
- ○ No (2)
- ○ I'm not sure (3)

Display This Question:

If Overall, did the COVID-19 pandemic affect your business? = Yes

Q8: How did the COVID-19 pandemic affect your business?

_____

_____

In the third section we ask questions about whether you are interested in expanding your market beyond your traditional clientele.

Q1: Did you do anything in your business to target the following groups?
New clients, Repeat clients, Family groups, corporate groups, Women, People of color, Other

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Did you do anything in your business to target the following groups? New clients Repeat clients F... = Yes

Q2: What did you do to target the specific groups of people in the previous question?

_____

_____

Display This Question:

If Did you do anything in your business to target the following groups? New clients Repeat clients F... = No

Q3: Are you interested in learning more about how to engage these groups?

- ○ Yes (1)
- ○ No (2)
- ○ I do not know (3)

Q4: Is your business using any of the following specific strategies to make recreational fishing opportunities available to new customers?

- ☐ Advertise your business to specific audiences. (1)
- ☐ Engage with underrepresented community groups to introduce them to the Lake Superior charter fishery. (2)
- ☐ Offer discounts or subsidies to low-income families, seniors, and other marginalized groups. (3)
- ☐ Provide accessible facilities for customers with disabilities. (4)
- ☐ Other (please describe) (5)

_____

- ☐ No, we are not using any strategies (6)

In the fourth section we are interested in knowing what type of education and information you would like to provide to your clients and what additional information might be useful for your business.

Q1: Are you willing to engage clients in learning more about the Lake Superior fishery while on charter fishing trips?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Are you willing to engage clients in learning more about the Lake Superior fishery while on chart... = Yes

Q2: Please check the boxes below that include topics you'd be willing to discuss to inform your clients about the Lake Superior fishery *(please select the top three topics below).*

- ☐ Fish identification using material (cards, decals, web apps, placards, etc.) with relevant fish ecology information. (1)
- ☐ Fishing regulations specific to Lake Superior and the reasons for them. (2)
- ☐ Fishing techniques and why they are effective. (3)
- ☐ How invasive species have impacted the Lake Superior fishery. (4)
- ☐ How climate change affects fishing on Lake Superior. (5)
- ☐ Other (please describe) (6) _____

Q3: Did you receive the below Minnesota Sea Grant Steelhead- Salmon identification decal/sticker in the mail?

Fish id decal image 4 4 2023

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Did you receive the below Minnesota Sea Grant Steelhead- Salmon identification decal/sticker in t... = Yes

Q4: Did you display the decal/sticker to clients?

- Yes (1)
- No (2)

Display This Question:

If Did you display the decal/sticker to clients? = Yes

Q5: Did customers request their own copy of the decal/sticker?

- Yes (1)
- No (2)

Display This Question:

If Did you receive the below Minnesota Sea Grant Steelhead- Salmon identification decal/sticker in t... = Yes

Q6: We are interested in your feedback about the decal/sticker. Please provide any comments in the box below.

_____

Display This Question:

If Did you receive the below Minnesota Sea Grant Steelhead- Salmon identification decal/sticker in t... = Yes

Q7: Would a similar decal/sticker for Lake Trout, Siscowet, and/or Coaster Brook Trout identification be useful to your business or your clients?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Other species (please describe) (3) _____

Q8: Would you be interested in attending a Minnesota Charter Captain conference coordinated by Minnesota Sea Grant that includes the opportunity to network with other charter captains and interact with fisheries management/research agencies?

- ○ Yes (1)
- ○ No (2)
- ○ Comments (3) _____

Q9: How regularly do you use water temperature or other data from buoys for planning charter trips?

- ○ Always (1)
- ○ Most of the time (2)
- ○ About half the time (3)
- ○ Sometimes (4)
- ○ Never (5)

Q10: If you would like to be entered in the drawing to win a $100 gift card, please enter your name, email address, and date of birth below.

- ☐ Name (1) _____
- ☐ Email Address (2) _____
- ☐ Date of Birth (3) _____