



**LINCOLN  
UNIVERSITY**  
Centre for Land,  
Environment  
& People

## **LEAP Research Report**

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# **The COVID-19 pandemic and outdoor recreation: Exploring COVID-19 induced changes in outdoor recreation engagement and behaviour in New Zealand**

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March 2021

Centre of Excellence: Sustainable Tourism  
for Regions, Landscapes and Communities

**LEAP**

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## Note

This publication is the second of two reports that explore the impacts of the 2020 COVID-19 national lockdown on outdoor recreationists' activity and perceptions of tourism in New Zealand. This report examines the results of a larger survey (n=599) which was conducted in parallel with the interviews. The other report explores the results of 20 qualitative interviews which were conducted with a small group of outdoor recreationists.

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Cover image: Peter's Pool, Franz Josef, New Zealand (photo Credit: Degarege, 2021)

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## Executive summary

The first cluster of COVID-19 cases was recorded in Wuhan, China, on December 21 2019. Since then, the COVID-19 pandemic has become a significant challenge in almost every aspect of life around the globe. In an attempt to contain the spread of the pandemic, several countries, including New Zealand, have taken consequent measures such as quarantines, social distancing, travel bans, and border closures, all of which have created a de facto restriction for extended outdoor activities. The first confirmed case of COVID-19 in New Zealand was reported on February 28 2020, and was closely followed by government travel restrictions. On March 21, the Government of New Zealand announced a four-level alert system<sup>1</sup> and moved to Alert Level 3 on March 23 followed by a shift to Alert Level 4 at 11:59pm on March 25, a status that was maintained for a period of five weeks. For the majority of the New Zealand public, Alert Level 4 was experienced as a 'lockdown' during which typical work, travel and leisure activities were severely constrained. During the March-April Level 4 lockdown period, social and economic life was limited to what was possible from domestic residences, and New Zealanders were required to remain within strict household 'bubbles' in terms of their in-person social connections. These events have had a profound effect on individuals, families, communities, the environment and the economy, and many of these effects are still unfolding.

The study reported here aimed to document how the March-April Level 4 lockdown<sup>2</sup> and COVID-19 affected New Zealanders' outdoor recreation participation and experience. The study explored the effects of COVID-19 on outdoor recreation participation in three main time-periods: (1) a 12 month period prior to the pandemic; (2) the five week period of Level 4 lockdown; and (3) after the Level 4 lockdown ended.

The study used a cross-sectional online survey data collection tool. The survey questions were administered using the survey development and management tool, Qualitrics. This report presents 599 survey responses collected over the period from October 2020 to November

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<sup>1</sup> Alert level system had 4 levels (Alert Level 1, Alert Level 2, Alert Level 3 and Alert Level 4) where Alert Level 4 (lockdown) is the highest and Alert Level 1 (prepare) is the lowest.

<sup>2</sup> All subsequent mentions of 'lockdown' will refer to this Alert Level 4 period in March and April of 2020.

2020. The report covers outdoor recreation behaviour and COVID-19 perceived impacts on outdoor activity engagement. Participants were asked to recall the different types of outdoor settings, and frequencies of engagement in the outdoors for the three time-periods to capture variation in outdoor recreation participation and experience.

The results of the study show the variation of outdoor recreation activity across the three periods. Prior to the March-April Level 4 lockdown, the top three outdoor recreation settings visited by respondents were conservation areas (80.8%), beach/coastal areas (80.6%) and regional parks such as Council-managed tracks (78.1%). Prior to the March-April Level 4 lockdown, the three main forms of outdoor recreation activities were outdoor walking for recreation (1-4 hours) (195, 32.6%), overnight tramping/hiking (183, 30.6%) and mountain biking (156, 26.1%) respectively. During the 5 weeks of March-April Level 4 lockdown, the most popular outdoor recreation activities were outdoor walking for recreation (less than 1 hour) (67.8%), outdoor walking for recreation (1-4 hours) (41.9%) and mountain biking (22.5%). Since the March–April lockdown, a large proportion of the respondents participated in outdoor walking for recreation (less than 1 hour) (66.8%, 400), followed by outdoor walking for recreation (1 - 4 hours) (63.8%, 382), and day walks (more than 4 hours) (50.8%, 304).

It is important to acknowledge that the interpretation of outdoor recreation behaviour reported in these three time-periods should be read carefully. It should be noted that the retrospective nature of the questions may have limitations in terms of quality of responses and furthermore, the season (weather), and the varying length of the time-periods may also bias comparison. Therefore, the main aim of this report is to describe activity levels across the three time-periods, rather than to compare and contrast them directly.

While just under half of respondents (232/483, 48%) said the March-April Level 4 lockdown led to no change in outdoor recreation, more than a third of respondents (161/483, 33.3%) increased their participation in outdoor recreation after the March-April Level 4 lockdown. For 18.6% (90/481) of respondents, the lockdown led to a decrease in outdoor recreation. Respondents attributed increases in outdoor recreation participation to: *wanting to get outdoors as much as possible after lockdown* (143/156, 91.7%); *wanting to explore new places* (134/442, 85.4%); *the lockdown allowing time to consider what was important* (132/442,

84.1%); *wanting to make the most of fewer international visitors at recreation sites* (113/442, 72%); and *making the most of there being fewer people in outdoor recreation areas* (103, 65.6%). This list of reasons for increases in outdoor recreation is not exhaustive, as there may also have been other reasons that were not included in the questionnaire, for example, wanting to support struggling recreation businesses.

A majority (82.2%, 384/467) of respondents intended to increase their outdoor recreation over the next six months. About 86.1% (410/468) have travelled more than 100km (one-way) for outdoor recreation since the March-April Level 4 lockdown ended. Most (87.6%) have visited at least one new place for outdoor recreation since the March-April Level 4 lockdown ended. Most respondents (93.2%) accepted that any holidays they take will be in New Zealand for the time being and about 58.3% (273/468) of respondents were not looking forward to a time when international visitors return to natural areas.

The contributions of the present study to the outdoor recreation literature and New Zealand society are threefold. First, in addition to the sociodemographic information on outdoor recreationists, the present study includes several outdoor recreation activities and behaviours in three different time scales. Second, the study generated a relatively large sample of New Zealanders that provide a sufficiently large dataset for analysis. Third, the findings of the study can provide relevant recreation and tourism agencies with baseline information for policy development and action.

This report is part of a wider project<sup>3</sup> that explored the effects of COVID-19 on the engagement and experiences of outdoor recreationists in New Zealand's nature-based settings.

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<sup>3</sup> Qualitative aspects of this wider project are reported in: Espiner, N., Stewart, E.J., Espiner, S., Degarege, G. (2021). *Exploring the impacts of the COVID-19 national lockdown on outdoor recreationists' activity and perceptions of tourism*. (LEAP Research Report No. 56), New Zealand, Lincoln University.



## **1. Introduction**

Prior to the COVID-19 pandemic, the economic significance of tourism had increased substantially in New Zealand and around the world. In the six years prior to 2020, total annual tourism expenditure in New Zealand had increased by 50% (\$13.8 billion) (Tourism Industry Aotearoa, 2020). This made tourism New Zealand's biggest export industry, employing 14.4% of the working population in New Zealand (Tourism Industry Aotearoa, 2020). The number of international visitors had also increased dramatically in recent decades: from fewer than half a million arrivals in 1980 to almost 4 million in 2019 (Parliamentary Commissioner for the Environment, 2021).

Part of the attraction of New Zealand for international tourists is its geography and scenic landscapes that enable a variety of forms of outdoor recreation. Data from New Zealand's International Visitor Survey has shown that seven out of every ten international holiday-makers will visit a national park (Department of Conservation, 2021). Nature-based settings are a major drawcard for New Zealanders as well, with outdoor recreation a popular pastime across the country. In 2019, 91% of New Zealanders had participated in short walks under 3 hrs, 81% had been sightseeing and 52% had been on a day walk (Department of Conservation, 2020). Given the apparent significance of outdoor recreation activities and settings, the current research sought to explore the impact of the pandemic-induced March-April lockdown on outdoor recreation and tourism activity as experienced and perceived by outdoor recreationists in New Zealand.

### **2.1 New Zealand Government Alert Levels**

Before discussing the impacts of the national lockdown, it is important to outline the New Zealand Government's approach to containing the COVID-19 pandemic. In February of 2020, the first case of the COVID-19 virus was reported in New Zealand (New Zealand Government, 2020a). Within the next month, the Government had designed and introduced a 4-tiered Alert Level system to help New Zealanders understand the risk of the virus and restrictions to their daily lives. In this Alert Level system, Level 1 suggests a low level of risk and restriction, while Level 4 suggests and high level of risk and restriction. On March 23 2020, the Prime Minister announced that New Zealand had entered Alert Level 3, and would move to Alert Level 4 in

48 hours. Thus, New Zealand entered a Level 4 lockdown at 11.59pm on March 25 2020, requiring the entire nation to stay at home in their 'bubble', the only exceptions to which were for essential workers, essential personal movement and safe recreational activity within the local area (New Zealand Government, 2020b) New Zealand's first death from the COVID-19 virus was reported four days later (New Zealand Government, 2020a).

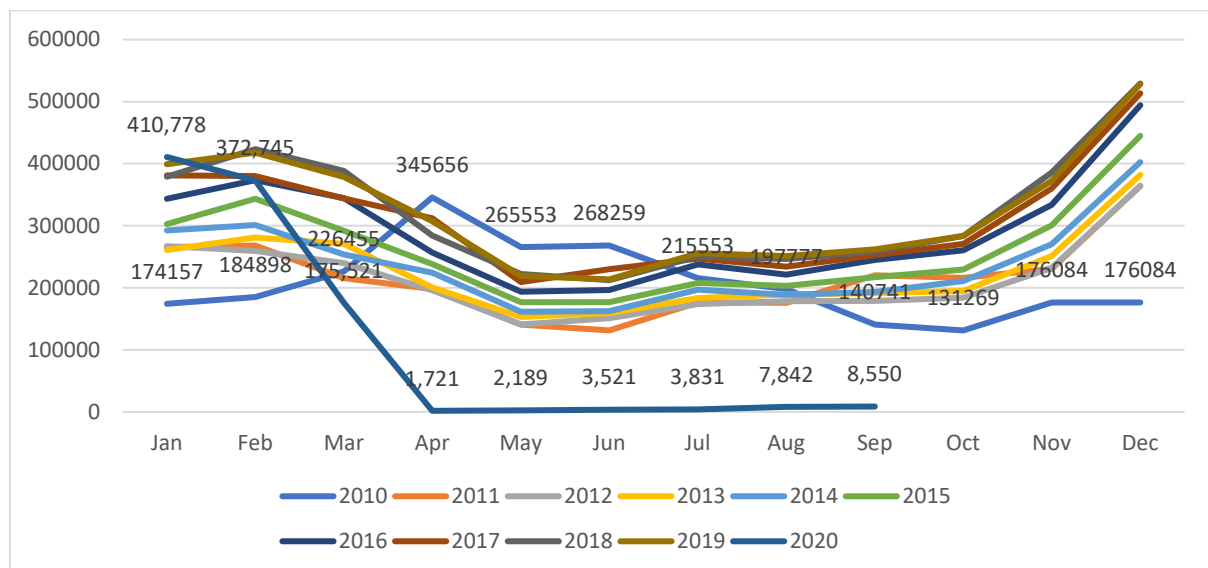
New Zealand remained at Alert Level 4 for a period of 5 weeks before moving to the slightly less restrictive Alert Level 3 for 2 weeks on April 27 2020. The country did not return to Alert Level 1 until June 08 2020—almost four months after the virus was first detected in New Zealand (New Zealand Government, 2020a). While the city of Auckland returned to Alert Level 3 for 2 weeks in August 2020 after a small outbreak of community cases of the virus, the Level 4 lockdown in March and April of 2020 remained the only national lockdown for the year and the only period of time at which the entire country was in a lockdown state in 2020.

## **2.2 Impact of COVID-19 on tourism and outdoor recreation**

The government mandated lockdown had an automatic constraining effect on the freedom of citizens to engage in outdoor recreation anywhere outside of their proximate neighbourhoods. Guidelines issued by the New Zealand Government limited outdoor recreation to specific 'low-risk' activities which were considered the least likely to cause injury requiring medical care. Permitted activities included local walking and cycling within local neighbourhoods, with social distancing measures in place at all times (Sport New Zealand, 2020). Challenging activities, or challenging conditions (such as steep, technical mountain bike trails) were prohibited, along with all water-based activities—as these activities were considered to expose participants to danger which might require search and rescue services (Sport New Zealand, 2020).

Available tourism data and evidence in the news media suggested that domestic tourism and recreation increased immediately following the lift of the Level 4 lockdown in May 2020. While the lack of international visitors entering the country was challenging for the many businesses and companies who previously relied on this market, the growth in the domestic market may have provided some relief (see Figure 1). This was particularly true during the school holiday period in July, during which all regions experienced an increase in domestic

visitors, compared to the same period in 2019 (Tourism New Zealand, 2020). This pivot towards domestic tourism was reported across the country, with Whanganui in the North Island recording the strongest winter visitor numbers on record (Whanganui & Partners, 2020a, 2020b), and tourism spending in the Southland region growing by 3.4 percent (\$12.1 million) from June 2019 to June 2020 (Steyl, 2020). Furthermore, other small islands surrounding New Zealand such as the Chatham Islands, Stewart Island and Great Barrier Island all reported record numbers of tourists since the Level 4 lockdown period ended (Manson, 2020). Local tourism operators suspect that these tourists are New Zealanders who would have otherwise travelled overseas for their holidays (Manson, 2020).



**Figure 1: International tourist arrival data by month (2010-2020)<sup>4</sup> (Statistics New Zealand, 2020)**

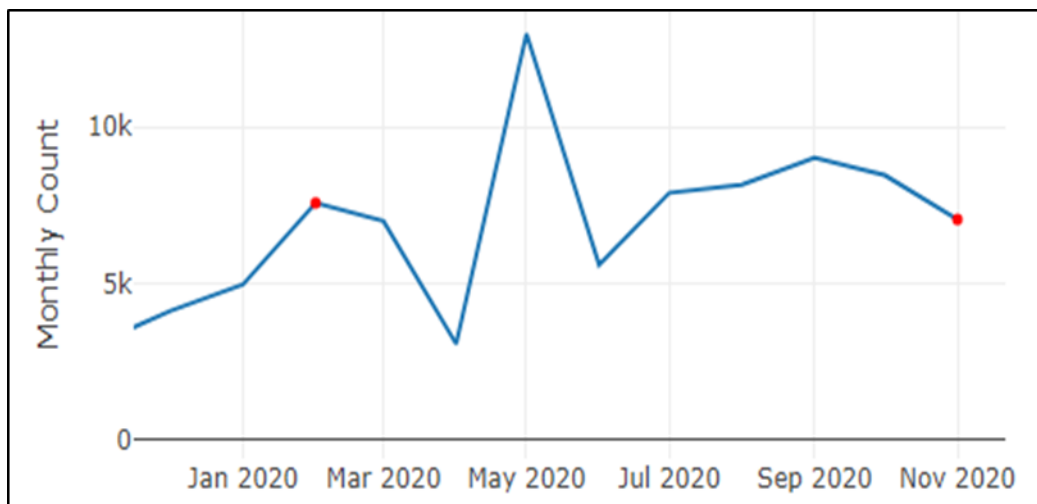
Outdoor recreation has also received some attention in the news media for its unexpected popularity over the 2020 winter in New Zealand. In particular, the Department of Conservation (DOC)'s Great Walks proved popular when bookings for the 2020/21 season sold out just minutes after becoming available online. DOC reported to the media that 2000 users were logged on to the website when the bookings opened, and 1000 bookings had been made in the first 10 minutes (RNZ, 2020). Bookings were up 47 percent on the previous year, with

<sup>4</sup> Following the global outbreak of COVID-19 pandemic, New Zealand's borders were closed from March 2020 to most international visitors. This figure includes overseas visitors both New Zealand citizens who had been living overseas for at least the 12 months before they arrived in New Zealand and non-New Zealand citizens.

the majority of this unprecedented demand being New Zealanders (Brownlie, 2020). Similarly, New Zealand South Island ski-fields attracted high numbers of New Zealanders looking to have the slopes to themselves (NZHerald, 2020). On one single day in July, 10,000 skiers visited the Queenstown ski-fields— the highest single-day visitor count in seven years (NZHerald, 2020).

The research literature on the impact of the COVID-19 pandemic on tourism in New Zealand is limited to date. A special feature in *Tourism Geographies* explored some of the early impacts of the COVID-19 pandemic on tourism around the world. The authors largely sign-posted opportunities for the transformation of tourism once travel for leisure resumes (Ateljevic, 2020; Brouder, 2020; Haywood, 2020; Ioannides & Gyimóthy, 2020; Nepal, 2020). As part of this transformation, descriptions of the opportunities for post-COVID-19 tourism include a more regenerative, sustainable, resilient and innovative industry than in the past (Ateljevic, 2020; Brouder, 2020; Haywood, 2020; Ioannides & Gyimóthy, 2020).

The impact of the pandemic on outdoor recreation is starting to be documented. Reports from the Young Explorers' Trust and the Institute for Outdoor Learning in the UK concluded that the dramatic reduction in outdoor recreation opportunities and loss of financial capital of expedition and outdoor learning providers could have negative impacts for young people (Institute for Outdoor Learning, 2020; Young Explorers' Trust, 2020). In particular, a major impact will be the loss of opportunity to experience the benefits of outdoor experiences— including personal and social development, improved health and wellbeing, and better educational outcomes (Institute for Outdoor Learning, 2020). In New Zealand, a research project conducted during the Level 4 lockdown period found that New Zealanders felt more connected with nature during the lockdown period, generating a sense of calm and appreciation (Manaaki Whenua: Landcare Research, 2020). This sense of connection and appreciation – along with pent-up demand - may provide a partial explanation for the sudden increase in outdoor recreation activity reported in the Department of Conservation track counter data following the Level 4 lockdown. For example, a visitor counter at Godley Head track near the city of Christchurch has reported an increase in visitor numbers of 55% on 2019, with a large spike in visitors visible in the data in May 2020—around the time that lockdown restrictions were lifted (Figure 2).



**Figure 2: Monthly count of visitor numbers at Christchurch's Godley Head walking track, Jan-Nov 2020** (Department of Conservation, 2020)

Thus, while there are early indications in the media and the international literature that the Level 4 lockdown has impacted New Zealanders' outdoor recreation and tourism activity and perceptions, there is little exploring these changes in depth. Consequently, this report explores the changes in outdoor recreationists' activity and perceptions of outdoor recreation and tourism in New Zealand following the Level 4 lockdown period. Existing research has also suggested that physical distancing restrictions and diminished frequency of physical activity have clear links to health and wellbeing implications (Faulkner et al., 2021). Given the health and wellbeing benefits of outdoor recreation – and the associated benefits to society of happy and healthy populations - exploring changes to outdoor recreation following lockdown measures provides results that could be used in future explorations of the impacts of global pandemics on societies.

### 3 Study objectives

The aim of this research was to explore the influence of COVID-19 on New Zealanders' outdoor recreation participation. The specific objectives were:

- To document the changes in New Zealanders' involvement in nature-based recreation and tourism since the emergence of the COVID-19 pandemic.
- To explore the type and nature of behavioural changes and decisions associated with engagement in outdoor recreation and domestic tourism since the lockdown.

- To compare and contrast outdoor recreation participation across three main time-periods: (1) prior to the pandemic, (2) during the Level 4 lockdown, and (3) after the Level 4 lockdown ended.

## 4 Methods

The purpose of this section is to present the quantitative research methodology and methods used in this study. This report forms part of a wider project that utilised a parallel mixed-methods approach (Creswell & Clark, 2018). This approach helped to explore the effects of COVID-19 on the engagement and experiences of outdoor recreationists in New Zealand's nature-based settings.

The component of the project reported here involved a quantitative survey (Bryman, 2016) administered online to a selected sample of the New Zealand population using the Qualtrics survey tool. The survey link was promoted to potential research participants using the social media platform, Facebook.

Social media is an emerging data collection tool used by researchers (Ali et al., 2020; Whitaker, Stevelink, & Fear, 2017). Publications on the use of social media for research suggest that social media offers a cost-effective means to run an online survey compared with traditional paper-based methods (Chizawsky, Estabrooks, & Sales, 2011; Lafferty & Manca, 2015; Whitaker et al., 2017). More importantly, social media helps to target specific populations including those that may be difficult to otherwise identify and engage (Stokes, Vandyk, Squires, Jacob, & Gifford, 2019), and often elicits higher response rates (Whitaker et al., 2017).

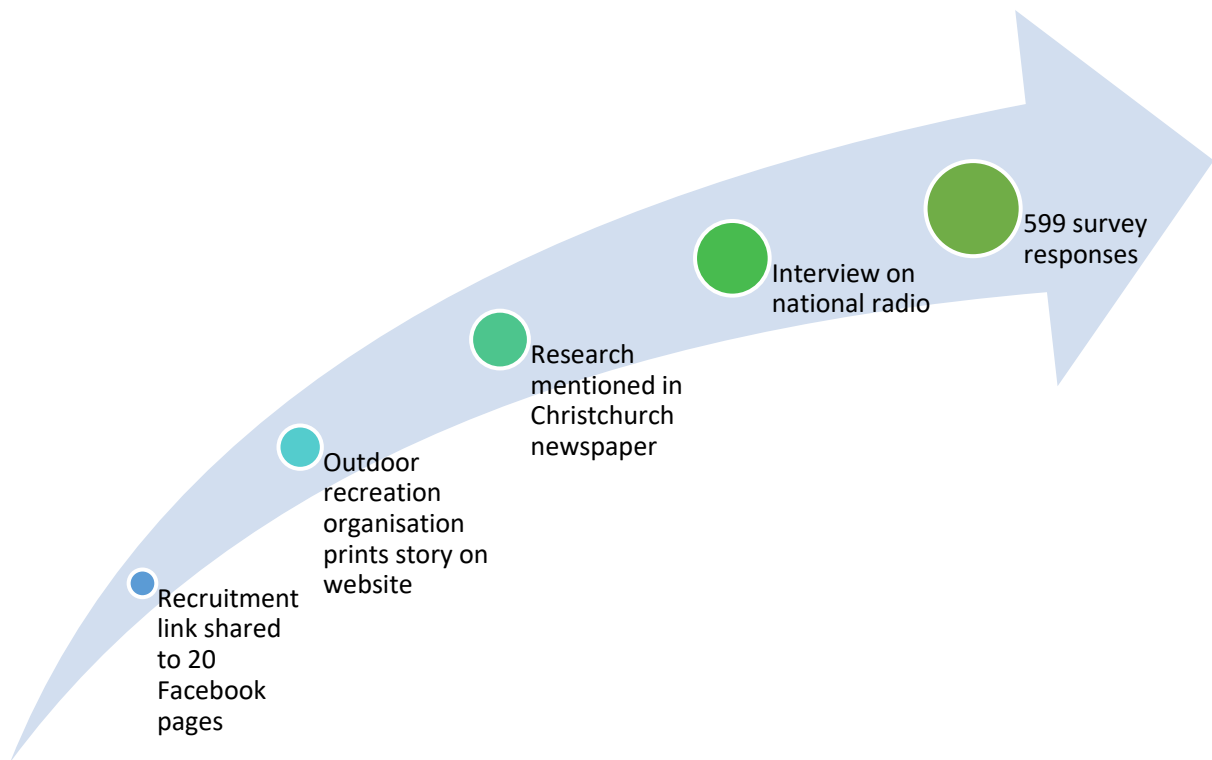
In this study, the survey was promoted via selected outdoor recreation Facebook groups, in which the group administrators served as gatekeepers to facilitate the posting and reach out to potential participants. The Qualtrics survey link was distributed within and amongst several Facebook groups of recreationists active in New Zealand (for example, *Tramping in New Zealand*, *NZ Fishing Community*, and *NZ Surfers Group*). There are many favourable reasons for the use of Facebook in this study. Globally, Facebook is currently the leading social

networking platform, reaching 60.6 per cent of internet users, and claims 2.60 billion monthly active users (Clement, 2020). Facebook is one of the fastest and most affordable methods of recruiting study participants for survey research (Ramo & Prochaska, 2012). The open and inherently public nature of Facebook groups makes it easier to reach out to potential participants, thus making it convenient as well as time-saving to collect the required data. In relation to the subject matter of this project, Facebook can offer exclusive access to a considerable number of outdoor recreationists with varying experience levels across New Zealand.

The survey covered various topics, including COVID-19 and outdoor recreation behaviours and perceived impacts of COVID-19 on outdoor activity engagement. This was structured in three time periods, namely prior to the COVID-19 pandemic, during the Level 4 lockdown, and after the Level 4 lockdown. The sampling units were eligible individuals who met the inclusion criteria: (1) being a New Zealand resident; (2) adults aged 18 years or over; and (3) engaged in outdoor recreation in the previous 12 months. Responses were collected only from the eligible participants who met the inclusion criteria.

The survey was undertaken between 08 October and 17 December 2020. Recruitment of participants involved the following methodological steps:

A list of online groups of outdoor recreationists whose leaders and members participate in outdoor recreation in New Zealand was compiled, using information publicly available through Facebook. These groups were then prioritised based on membership and scope, and the Facebook administrators of the highest priority groups were contacted with a request for permission to advertise the research.



**Figure 3: Survey recruitment process and reach**

Accordingly, between October and December 2020, a total of 31 entities were contacted. Of these groups and pages, 20 approved the advertisement, 4 declined, and 7 did not respond. While several of the 11 voluntarily excluded groups related to activities which were duplicated in approved groups, three of the activities were not duplicated in other groups: snow sports, birdwatching and sailing. Nonetheless, all three of these activities were represented in the results, thus the exclusion of these groups may not have left gaps in the cohort. This would also suggest that participation in outdoor recreation activities is not exclusive to specific Facebook groups – for example, a participant who is active in a hiking Facebook group may also participate in fishing and sailing. The 20 approved Facebook recruitment points included 16 private or public groups, and 4 public pages for organisations. The advertisement was shared in the 16 groups three times across a period of 4 weeks. The public pages each shared the advertisement at least once, with two groups sharing it twice. Following this, the research was subsequently shared on one outdoor recreation organisation website and appeared in one press release, before the lead researcher was approached to discuss the research on national radio and the survey link was shared on the RNZ webpage. The participant recruitment phase resulted in a total of 599 completed survey responses. Because the data



collection method was an online self-administered survey, there were several partially completed questionnaires.

The research project was reviewed and approved by the Lincoln University Human Ethics Committee (HEC) (Appendix A). Consent for the survey was obtained through ticking a box at the commencement of the online survey. On average, the survey took about 15 minutes to complete. The survey data was downloaded as an SPSS file from Qualtrics and later analysed using SPSS. Frequency and percentage distribution were used to describe and present the study participants' characteristics and key variables. Cross tabulation, chi-squared test, t-test and ANOVA were carried out to explore relationships between variables.

## **4. Findings**

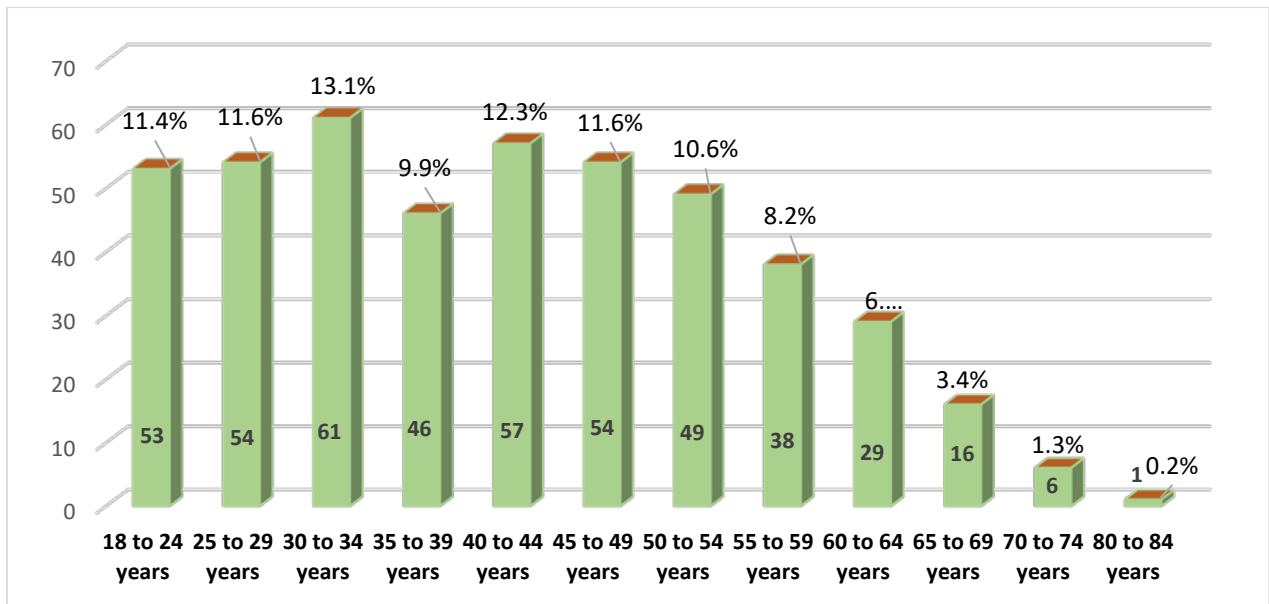
This section presents the key descriptive findings resulting from the survey data analysis. The findings are organised into five main sections. The first section introduces respondents' profile information including gender, age, main educational qualification and annual income. Section two reports outdoor recreation activities and settings *prior to* the March-April Level 4 lockdown. Section three and four advance the discussion on outdoor recreation *during* the March-April Level 4 lockdown, and *since* the end of the March April Level 4 lockdown, respectively. The last section discusses the influences of the lockdown on outdoor recreation participation and behaviour.

### **4.1 Respondent profile**

This sub-section presents the survey sample by gender, age, annual income, main educational qualification, usual place of residence and ethnicity.

#### **4.1.1 Gender and age profile of respondents**

The results of the survey show that a small majority of respondents were women (53.6%, 248/463) followed by men (45.6%, 211/463). Only 4 (0.7%) respondents preferred not to identify their gender. Figure 4 below presents the respondents' age breakdown and demonstrates that there is relatively even representation of ages between 18 and 54, and 80.5% of the sample are between these ages. Nearly one third were aged 50 years or older (30%, 139) and only one respondent reported between 80-84 years old.

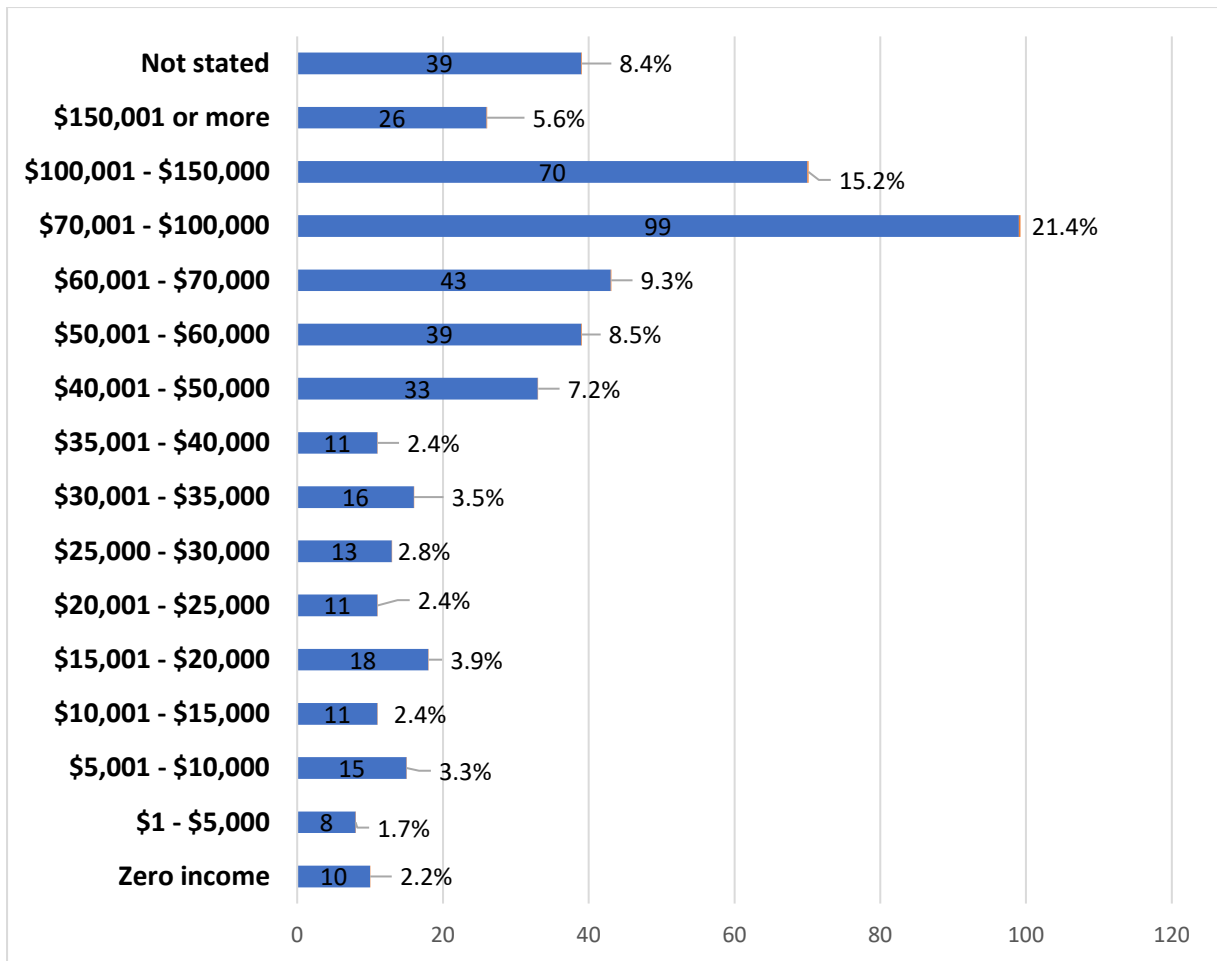


**Figure 4: Age breakdown of respondents (n=463)**

#### 4.1.2 Annual income

Figure 5 shows the respondents' annual income before tax and demonstrates that over two thirds of respondents (67.2 %) earn more than \$40,000. This income distribution is much higher to that reported in the national annual income census undertaken in 2018 (33.6%) (Statistics New Zealand, 2018)<sup>5</sup>. That outdoor recreationists are over-represented in higher income brackets is a well-documented finding in the research literature (Devlin, Corbett, & Peebles, 1995; Manning, 2011). More than 40% of respondents in the current study reported annual incomes above \$70,000 (Figure 5). New Zealand 2018 census data shows that only 17.3% of residents earn incomes at this level, suggesting that respondents in this study have higher incomes compared to the general population (Statistics New Zealand, 2018). A large proportion of respondents earn between '\$70,001 - \$100,000' (21.4%), followed by '\$100,001 - \$150,000' (15.2%) income group which is similarly inconsistent with the 2018 income census. While 8.5% (39/462) respondents had not stated their income, 2.2% (10/462) and 1.7% (8/462) of the respondents earn 'zero income' and between '\$1 and \$5,000', respectively.

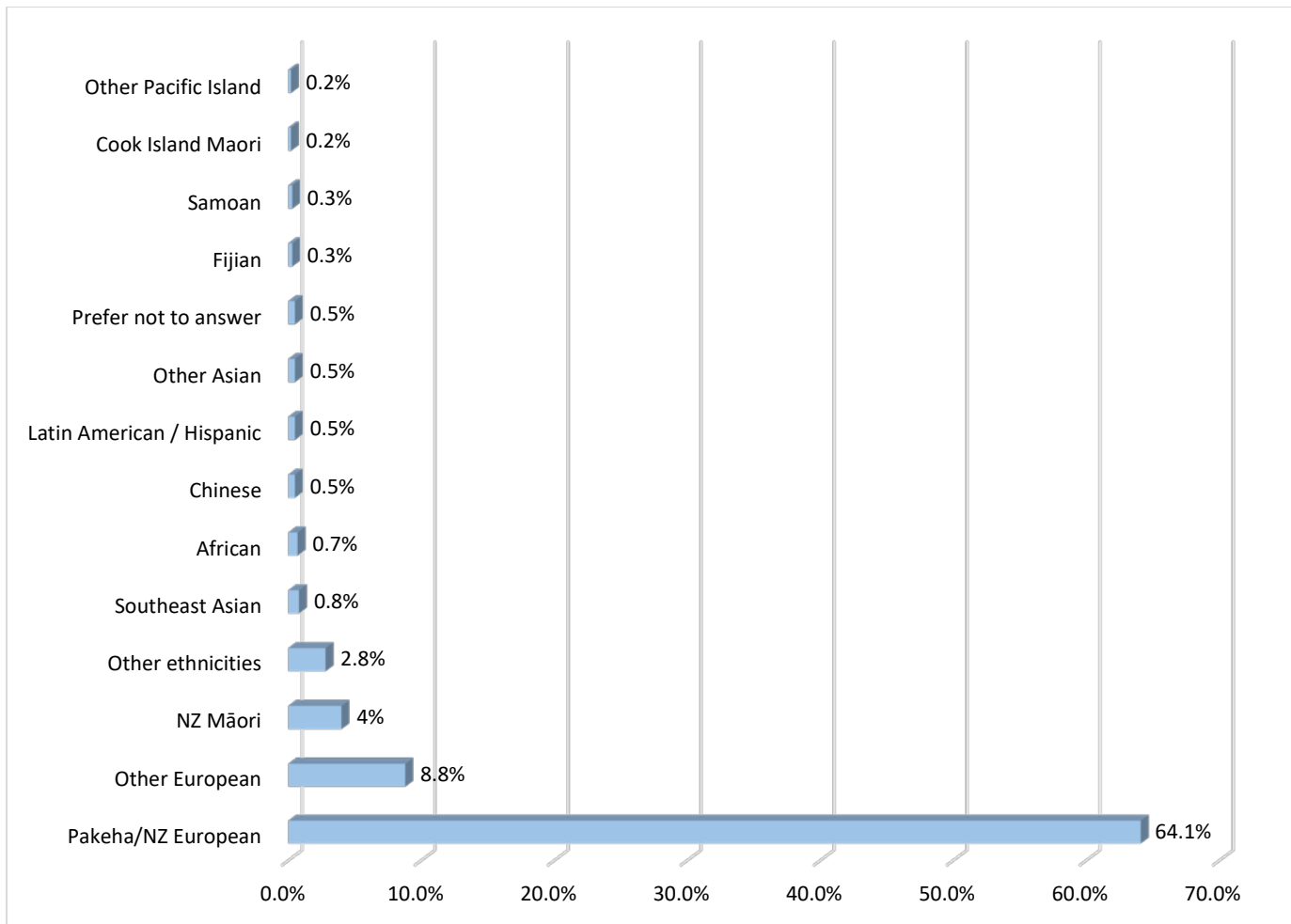
<sup>5</sup> The census reports resident population aged 15 years and over, while this survey reports resident population aged 18 years and above.



**Figure 5: Annual income of respondents**

#### 4.1.3 Ethnicity and ethnic group of respondents

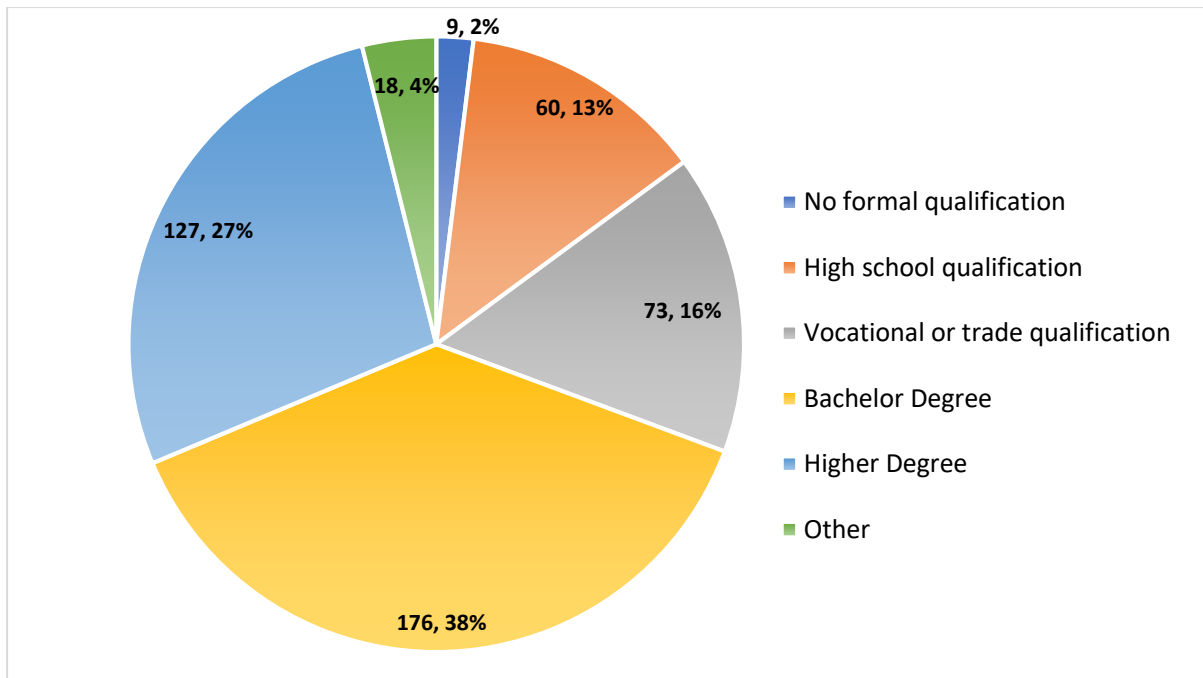
Figure 6 illustrates the ethnic breakdown of respondents. Nearly two thirds of respondents (64.1%, 384/504) identified as Pakeha/NZ Europeans; followed by 8.9% (53/504) other Europeans. NZ Māori respondents account 4% (24/504) of the sample. Other ethnicities (not mentioned in the list) are 2.8% (17/504). Three (0.5%) respondents each are 'other Asian' and Chinese.



**Figure 6 Ethnicity and ethnic group of respondents (n=504)**

#### **4.1.4 Main educational qualification**

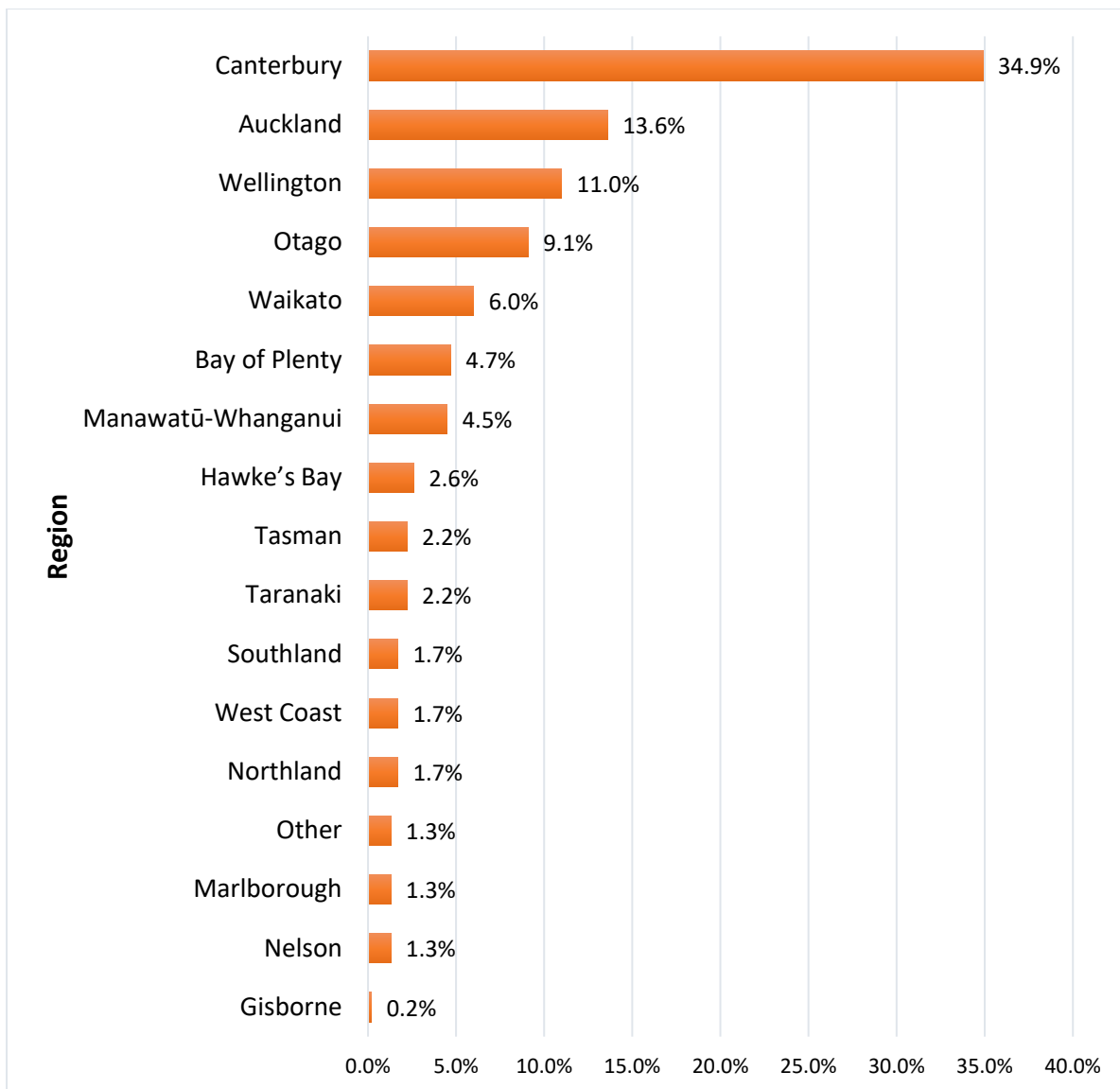
Nearly two thirds of all respondents had bachelor degrees (38.1%, 176/462) and higher degrees (27.5%, 127/462) (See Figure 7), suggesting that the sample is a highly educated one. Vocational or trade qualification and high school qualification respondents account for 15.8% (73/462) and 12.8% (59/462) respectively. Around 1.9% (9/462) were respondents with no formal qualifications. 'Other' qualification accounts for 3.9% (18/462) of the sample. Analysis of main educational qualification by gender suggests that slightly higher proportion of women had bachelor degrees (43.1%) and higher degrees (31.5%) than males, which was 32.2% and 22.3% respectively.



**Figure 7: Main Educational qualification (n=462)**

#### 4.1.5 Place of residence

Altogether, respondents represented 16 regions (excluding 'other'). Figure 8 below illustrates that the most common single place of residence within the sample was Canterbury (34.8%, 162/464), followed by the regions of Auckland (13.6%, 63), Wellington (11%, 51), Otago (9.1%, 42) and Waikato (6%, 28). Only one respondent was from Gisborne. A further 6 (1.3%) respondents are from 'other' part of New Zealand. This includes 'I do not normally live anywhere', Mackenzie Country, Queenstown Lakes District Council, Wairarapa and 'I do not live in New Zealand (tourist)'. The dominance of Canterbury over Auckland might be the result of the Facebook promotion of the survey link by the researchers and their institution. Additionally, the accessibility of backcountry areas in Canterbury compared to Auckland may also contribute to the proportion of outdoor recreationists who indicated Canterbury as their place of residence in this study.



**Figure 8: Percentage of respondents by residence region (n=464)**

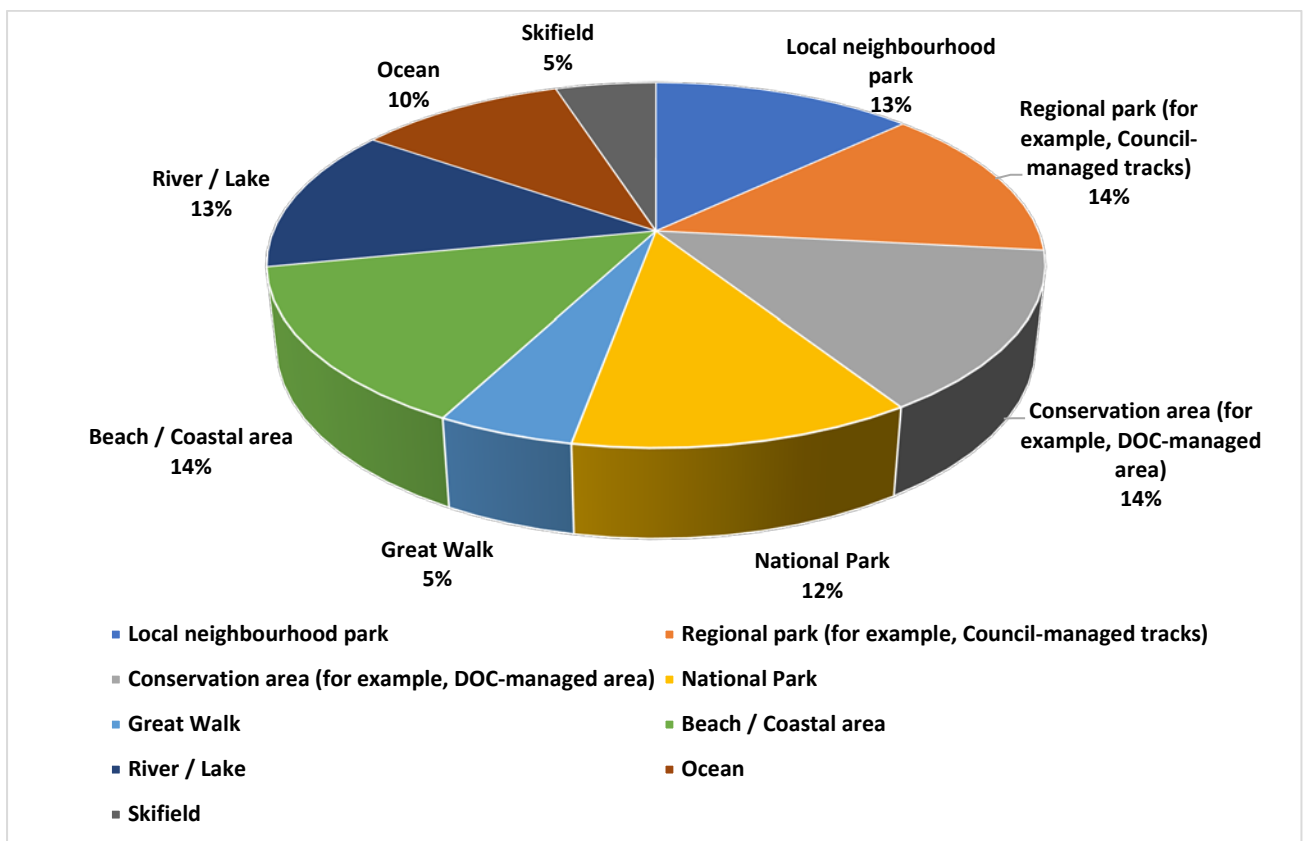
## 4.2 Outdoor recreation prior to the March-April Level 4 lockdown

This section of this report examines self-reported outdoor recreation patterns prior to COVID-19 pandemic. This section provides a foundation to describe the impacts of the pandemic on New Zealanders outdoor recreation during and after the March-April Level 4 lockdown. Determinants of participation in outdoor recreation are also included.

### 4.2.1 Outdoor recreation settings visited prior to the March-April Level 4 lockdown

This section presents preferred outdoor recreation settings and outdoor activities prior to the March-April Level 4 lockdown. As presented in Figure 9 below, respondents were asked about outdoor settings they visited for recreation during the twelve months prior to the March-April

Level 4 lockdown<sup>6</sup>. Among the most commonly identified outdoor recreation settings were conservation areas (484, (80.95%)), beach/coastal areas (482, 80.6%) and regional parks such as Council-managed tracks (468, 78.3%). Nearly three quarters of the respondents had visited a local neighbourhood park (73.9%, 442) and/ or a river/lake (73.2%, 438). Over two thirds of respondents (68.2%, 408) had visited a national park. Respondents also reported recreating around oceans, ski fields and New Zealand’s Great Walks, which account (58.7%, 351), (28.4%, 170) and (27.4%, 164), respectively.



**Figure 9: Outdoor settings visited for recreation prior to the March-April Level 4 lockdown (multiple responses)**

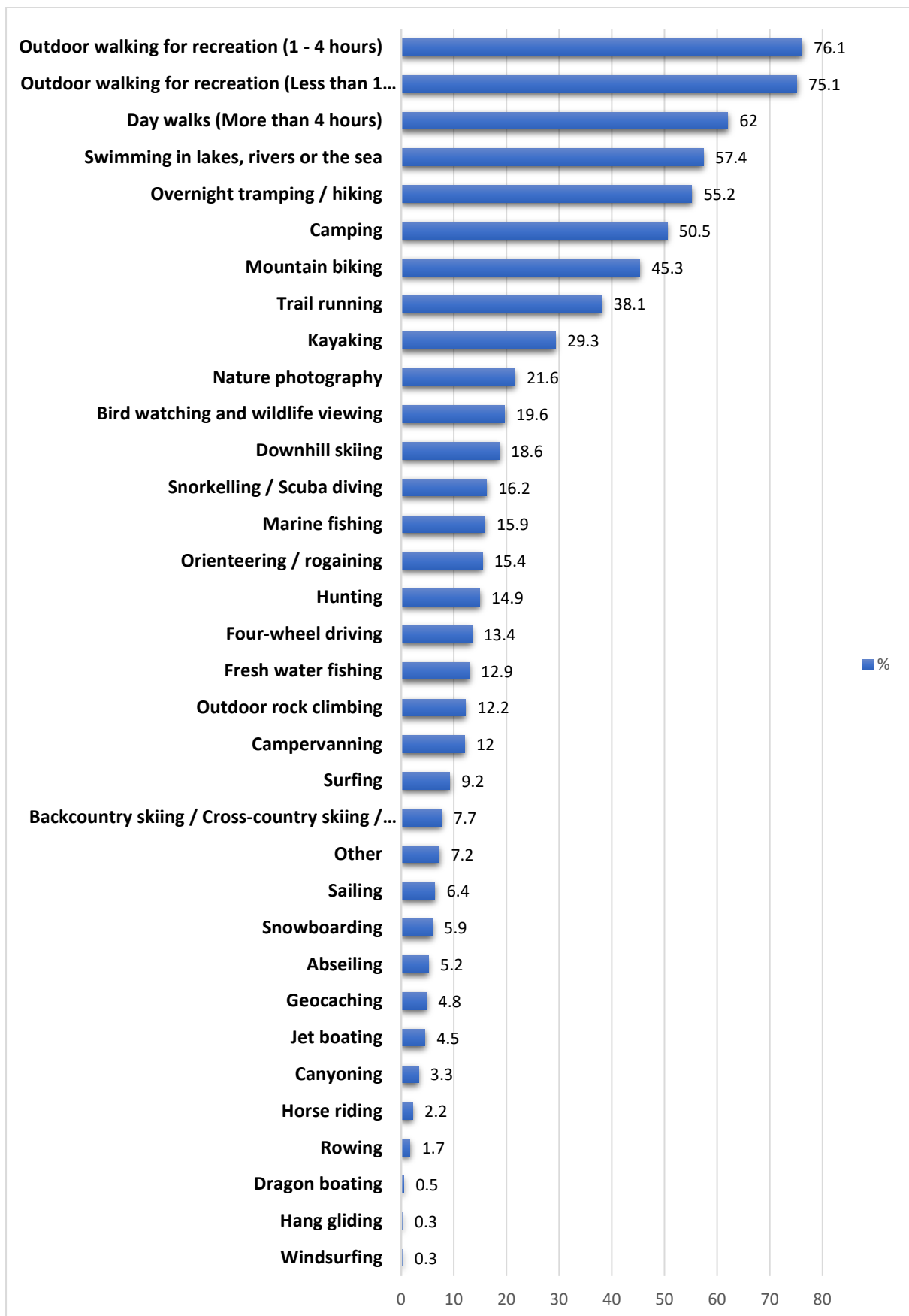
<sup>6</sup>The research objective guided the choice of the recall period. We recognise that the use of longer recall periods may result in recall errors. On the other hand, using shorter recall periods also come with costs associated with less information (Clarke, Fiebig, & Gerdtham, 2008). Given the objective of the study, using a short length of recall period provides very little information about the influences of COVID-19 on outdoor recreation engagement. It is believed that respondents’ outdoor recreation engagement is likely to fluctuate over time. A 12-month recall period is a good alternative to capture this variation to use it as a baseline to descriptively explain the COVID-19 influences on outdoor recreation behaviour and practice. However, we acknowledge that there might be limitations with the use of a 12-month recall period concerning the ability of the respondent to remember outdoor recreation behaviours accurately.



#### 4.2.2 Specific forms of outdoor recreation

From a list of possible outdoor recreation activities compiled based on previous research (Apse, Stewart, & Espiner, 2020; Department of Conservation, 2020; New Zealand Recreation Association, 2018), respondents were asked to choose those activities they had participated in within the 12 months prior to the March-April Level 4 lockdown. Analysis shows a wide range of recreation activities practised. As depicted in Figure 10, among the most commonly practised outdoor recreation activities were 'outdoor walking for recreation (1 - 4 hours)' (76.5%), 'outdoor walking for recreation (less than 1 hour)' (75.1%), 'day walks (more than 4 hours)' (62%), 'overnight tramping/hiking (57.4%)', 'camping' (55.2%), and 'mountain biking' (50.3%). Among the 33 outdoor recreation activities (including 'other') practised prior to the March-April Level 4 lockdown, only two respondents (0.3%) each engaged in windsurfing and hang gliding outdoor activities (See Figure 10). Over two thirds of respondents practised 'outdoor walking for recreation (less than 1 hour)' (68.7%) and 'outdoor walking for recreation (1 - 4 hours)' (68%) were urban/suburban residents. Cross tabulation by gender suggests that women participants are more likely than men to participate in 'outdoor walking for recreation (less than 1 hour)' and 'outdoor walking for recreation (1 - 4 hours)'. Higher levels of education are also closely related with participation in 'outdoor walking for recreation (less than 1 hour)'.

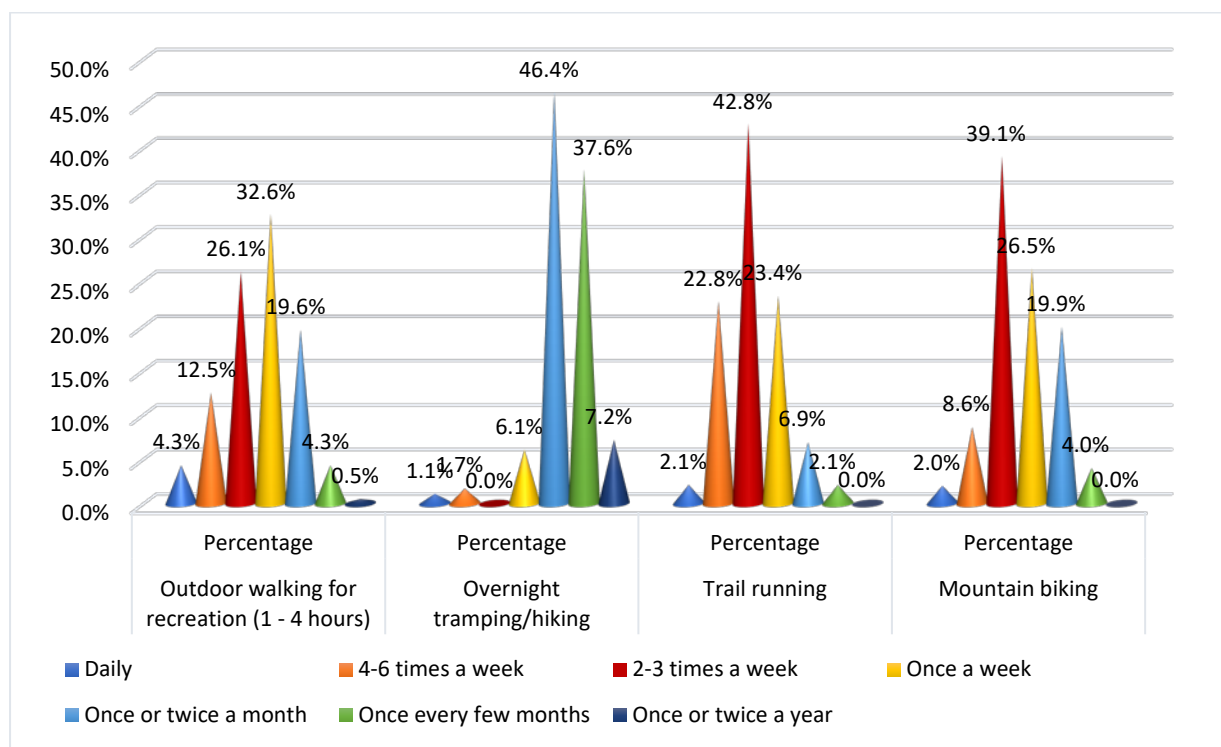
Respondents who have practised outdoor recreation activities prior to the March-April Level 4 lockdown were also asked to identify their three main activities. This revealed 'outdoor walking for recreation (1-4 hours)' (195, 32.6%), 'overnight tramping/hiking' (183, 30.6%) and 'mountain biking' (156, 26.1%) as the most commonly mentioned primarily outdoor recreation pursuits. A quarter of the respondents identified trail running (154, 25.8%) and day walks (more than 4 hours) (151, 25.3%). None of the respondents identified rowing, dragon boating, abseiling, and hang gliding among their top three main forms of recreation activities. Cross tabulation of 'outdoor walking for recreation (1-4 hours)' by place of residence suggests that more than two thirds of respondents (67.6%) were living in urban or suburban settings, followed by rural (22.3%) inner city/CBD (5%). More women (69%) than men (30.4%) identified 'outdoor walking for recreation (1-4 hours)' as their main activities.



**Figure 10: Outdoor activities practised prior to the March-April Level 4 lockdown**

### 4.2.3 Outdoor recreation activity patterns prior to the March-April Level 4 lockdown

The frequency of participation in a given outdoor recreation activity is a good indicator of outdoor recreation patterns and variation across the three-time periods used in this study. For the top three activities practised prior to the March-April Level 4 lockdown, respondents were asked how often they participated in each outdoor recreation activity. As depicted in Figure 11 below, frequency of participation varies across the three main activities. Of the respondents who reported participating in outdoor walking for recreation (less than 1-4 hours), the majority participated either ‘once in a week’ (32.6%) or ‘2-3 times a week’ (26.1%); a further 19.6% (36) participated ‘once or twice a month’. Over ten percent of respondents participated ‘4-6 times a week’ (23, 12.5%), and 8 (4.3%) respondents each participated ‘daily’, and ‘once every few months’. Only one respondent participated ‘once or twice a year’.



**Figure 11: How often you participated in this outdoor recreation activity**

Figure 11 also shows the frequency for overnight tramping/hiking prior to the March-April Level 4 lockdown. The largest number of respondents practiced overnight tramping/hiking ‘once or twice a month’ (84/181, 46.4%), followed by ‘once every few months’ (37.6%); together these two frequencies accounted for 85%. Under ten percent of respondents

practiced overnight tramping/hiking 'once or twice a year' (13, 7.2%) and 'once a week' (11, 6.1%). The remaining 3 (1.7%) and 2 (1.1%) respondents participated in overnight tramping/hiking '4-6 times a week', and 'daily', in the same order.

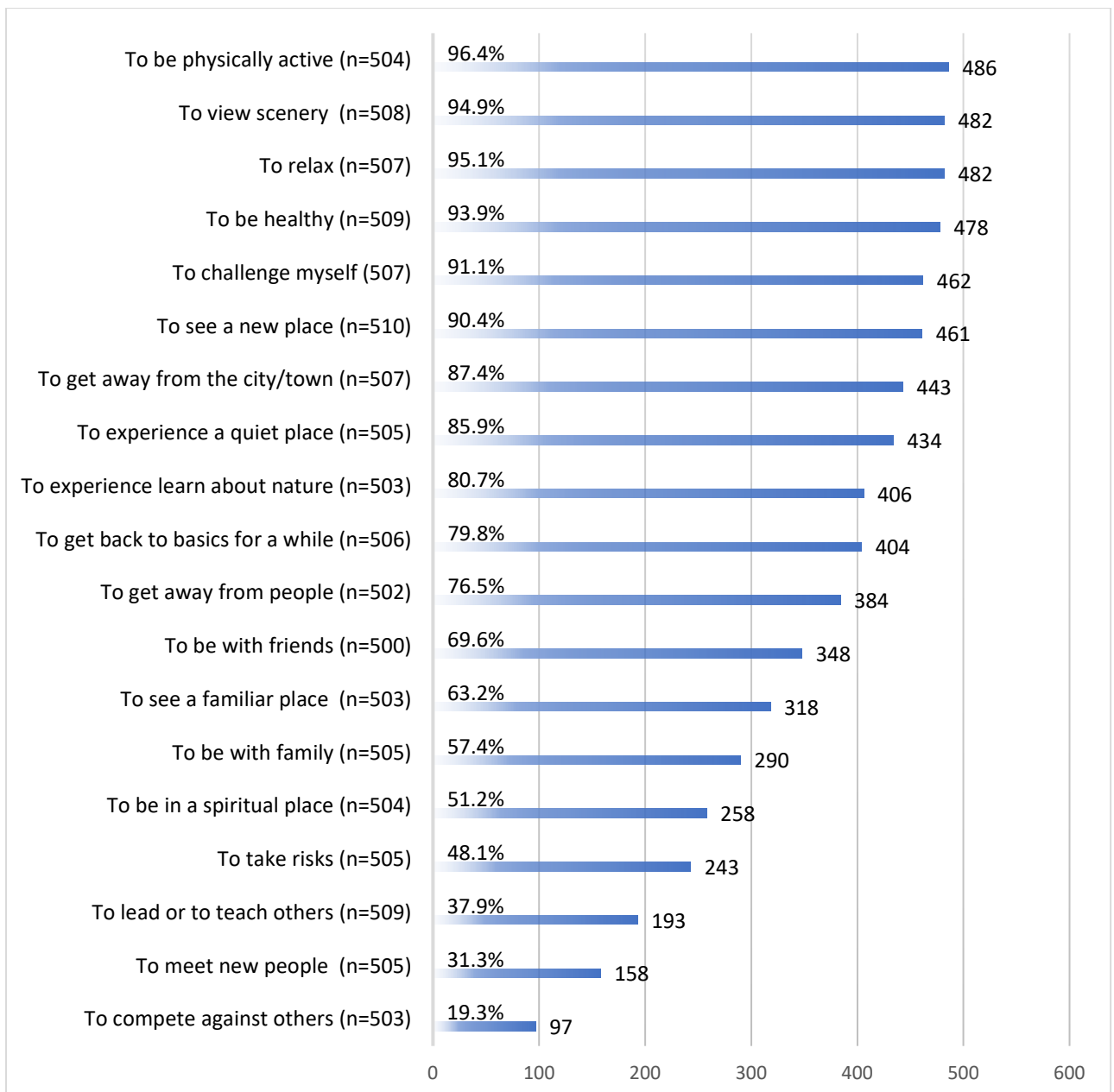
Figure 11 above also shows the frequency for mountain biking, which is the third most popular outdoor activity before the March-April Level 4 lockdown. More than one third of respondents participated in mountain biking '2-3 times a week' (59/151, 39.1%), followed by 'once a week' (40, 26.5%) and 'once or twice a month' (30, 19.9%). While 13 (8.6%) of respondents participated '4-6 times a week', 6 (4%) respondents participated 'once every month'. The remaining 3 (2%) respondents participated daily. Trail running is the most commonly practised outdoor recreation activity among the sample. Aggregated, more than two thirds (67.7%) of trail runners reported engaging in this activity at least 2-3 times per week. Of the remainder, the majority participated 'once or twice a month' (6.9%, 10) while only 2.5% (3) participated 'daily', and 'once every few months'.

#### **4.2.4 Factors that influence participation in outdoor recreation**

This sub-section analyses the factors involved in New Zealanders' decisions to participate in recreation activities. Respondents were shown a list of 19 possible reasons (see Manning, 2011; Espiner, Stewart, & Apse, forthcoming) that influence outdoor recreation participation and asked to indicate their agreement on these reasons using a 7-point Likert-type scale. This study found that recreationists' intention to participate in outdoor activity is influenced by a multitude of factors. As presented in Figure 12, respondents had various reasons for participating in a recreation activity. The most common reason was to be physically active (96.4%), followed by relaxation (95.1%) and viewing scenery (94.9%). Wanting to be healthy (93.9%), wanting to challenge myself (91.1%), and to see new places (90.4%) are among the top six reasons for opting to engage in outdoor recreation. For each item, we generated a 3-point scale by collapsing responses for 'somewhat agree', 'agree', and 'strongly agree' into one category and 'somewhat disagree', 'disagree', and 'strongly disagree' into another category, yielding a scale of 1=agree, 2= disagree, and 3= neutral.

Figure 12 below shows the percentage of survey respondents in agreement with the reasons for outdoor recreation participation provided. A substantial percentage of respondents

disagree on three reasons for outdoor recreation participation. These are to compete against others (60.2%), to lead or teach others (40.55%), and to meet new people (37.8%). There were statistically significant mean differences between different residential settings on the statement, 'wanting to be healthy' [ $F(4, 487) = 3.48, p=0.001$ ]. Post hoc comparisons using the Tukey HSD test indicated that urban/suburban respondents have statistically significant higher mean score than the rural respondents ( $\text{Prob}>F=0.01$ ). There were statistically significant mean differences on the statement, 'wanting to be physically active' between different residential settings [ $F(4, 483) = 2.70, p=0.03$ ]. Post hoc comparisons using the Tukey HSD test indicated that urban/suburban respondents have statistically significant higher mean score than the rural respondents ( $\text{Prob}>F=0.03$ ).



**Figure 12: Agreement (somewhat agree, agree, and strongly agree) to factors influencing participation in outdoor recreation**

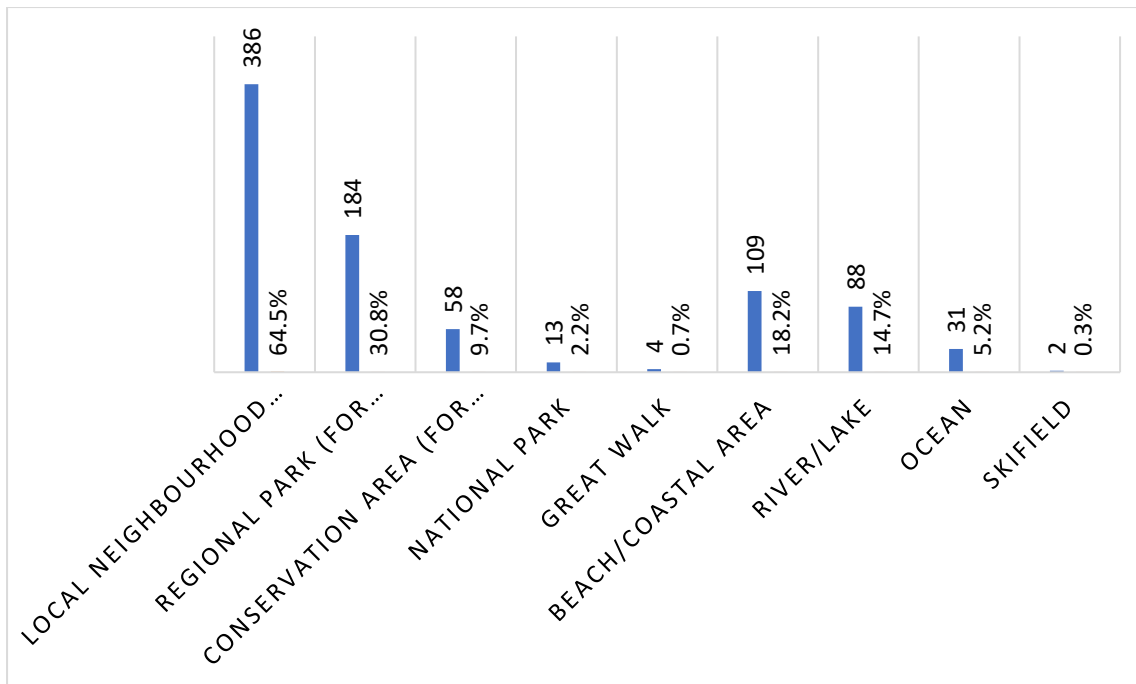
### 4.3 Outdoor recreation during the March-April Level 4 lockdown

This sub-section presents findings related to outdoor recreation during the 5 weeks of the March-April Level 4 lockdown. During the lockdown, the New Zealand government enacted restrictions that influenced mobility and outdoor recreation activities. The survey aimed to explore how the lockdown affected outdoor recreational practice and behaviour.

#### **4.3.1 Outdoor settings during the lockdown period**

As presented in Figure 13 below, during the 5 weeks of the March-April Level 4 lockdown, almost two thirds of respondents (64.5%) visited local neighbourhood parks, followed by regional park visits (30.8%). The third and fourth most visited outdoor recreation settings at this time were beaches and coastal areas (18.2%) and rivers or lakes (14.7%). Unlike the period prior to the March-April Level 4 lockdown, when nearly 90% of respondents visited conservation areas, during the 5 weeks of the March-April Level 4 lockdown less than ten per cent of the sample undertook recreation in this setting. While the much shorter time period of the lockdown (5 weeks) compared to before lockdown (12 months) may be partially responsible for decreased visitation in conservation areas, this does not explain why this drop in participation was not equally reported for certain activities - for example, outdoor walking for recreation (less than 1 hour) decreased by less than 10% during the lockdown period. Therefore, the difference in time periods may not be solely responsible for this change in outdoor recreation settings, otherwise it would have likely affected outdoor recreation activities as well.

Additionally, in line with the unprecedented constraints on geographic mobility during the lockdown, only very small numbers of respondents reported visiting a national park (31, 5.25%) and one of the Great Walks (13, 2.2%). Two respondents reported visiting ski fields during the lockdown. Given that New Zealand ski fields are not open for skiing in March or April, it is assumed that these respondents were at the ski field for reasons other than skiing, such as walking or volunteer work. Analysis of outdoor settings by residential setting suggests that urban/ suburban residents were over-represented among those visiting local neighbourhood parks (75.6%). Half of those who reported visiting a national park were living in rural setting. This might be because New Zealanders were supposed to be recreating in close proximity to their homes. Neighbourhood parks are more likely to be in urban areas and national parks are in rural areas, but this requires further investigation.



**Figure 13: Outdoor settings during the 5 weeks of the March-April Level 4 lockdown**

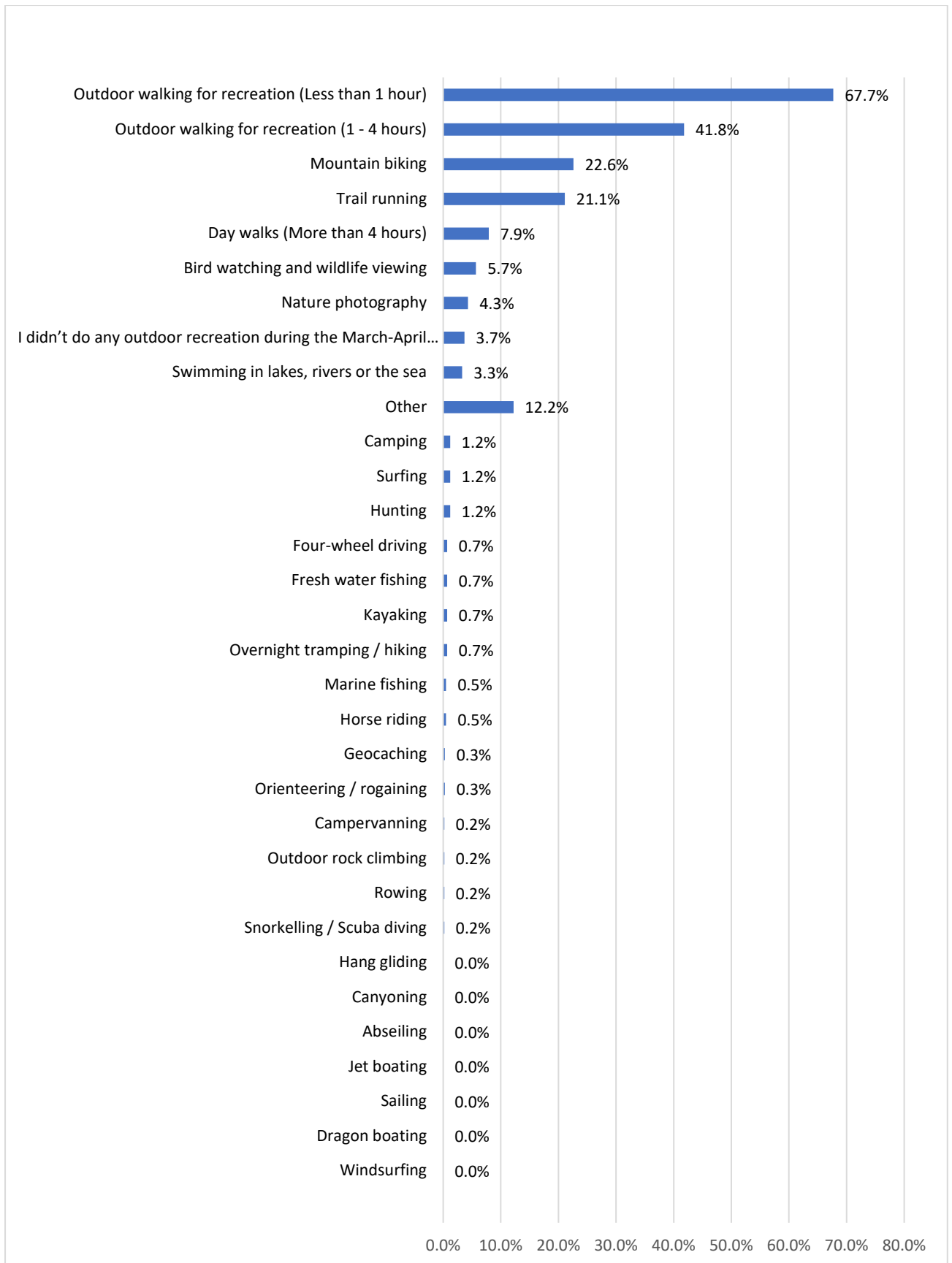
#### 4.3.2 Types of outdoor recreation practised during the lockdown period

The spread of the COVID-19 pandemic and consequent containment measures, including the Level 4 lockdown has influenced respondents' access to different types of outdoor settings, thereby their engagement in outdoor activities. Analysis of the type of outdoor activities practised during the 5 weeks of the March-April Level 4 lockdown shows that more than two thirds of respondents participated in outdoor walking for recreation (less than 1 hour) (67.7%) and under half (41.8%) participated in outdoor walking for recreation (1-4 hours). Just under a quarter participated in mountain biking (22.6%) and trail running (21.1%); day walks (more than 4 hours) (7.9%) and wildlife viewing (5.7%) were the next four most reported activities. In line with the unprecedented constraints on geographic mobility during the lockdown, none of the respondents engaged in windsurfing, dragon boating, sailing, jet boating, abseiling, canyoning and hang gliding outdoor recreation activities during the 5 weeks of the March-April Level 4 lockdown. Only one respondent each practised outdoor rock climbing, rowing and snorkelling/scuba diving.

Respondents were also asked to select up to three outdoor activities, which they considered to be their main forms of outdoor recreation during the 5 weeks of the March-April Level 4



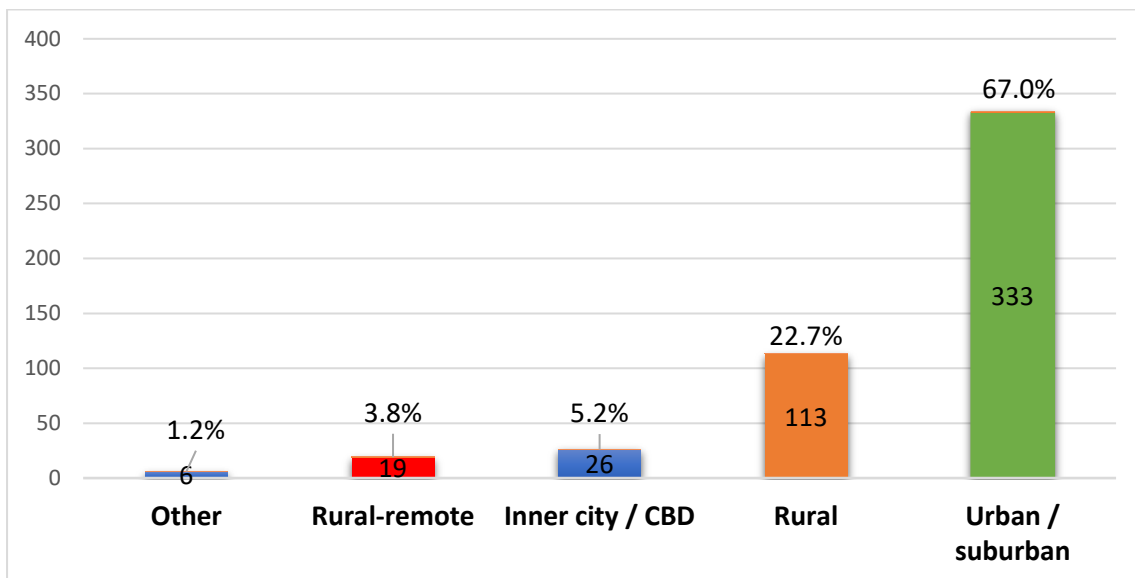
lockdown. Over half of all respondents (56.2%, 336) had selected outdoor walking for recreation (Less than 1 hour) (336, 56.2%). Nearly a third of all respondents (31.4%, 336) selected outdoor walking for recreation (1 - 4 hours) followed by trail running (107, 17.9%) and mountain biking (96, 16.1%). Just over two thirds of respondents who selected outdoor walking for recreation (Less than 1 hour) (67.9%) and outdoor walking for recreation (1 - 4 hours) (66.7%) were residents of urban or suburban settings. Relatively higher proportion of women selected these two activities.



**Figure 14: Outdoor recreation practised during the lockdown period**

### 4.3.3 Residential setting during the lockdown period

The results indicate that residential location may have influenced outdoor recreation behaviour. Two thirds (67%, 333/497) of respondents lived in urban/suburban setting during the lockdown, while approximately one quarter (22.7%, 113/497) said they were in a rural location. Much smaller numbers of respondents reported spending lockdown in inner-city/CBD (5.2%, 26/497), rural-remote (3.8%, 19/497), and other (1.2%, 6/497) locations. Analysis of outdoor activity by residential setting during the lockdown period suggests that respondents living in rural locations were more likely to report swimming in lakes, rivers, or the sea (40%) when compared with urban/suburban respondents (35%). During the lockdown period, recreational hunting (6, 5.3%) and horse riding (3, 2.65%) were solely practised by respondents living in rural locations.



*Figure 15: Residential setting during the lockdown period*

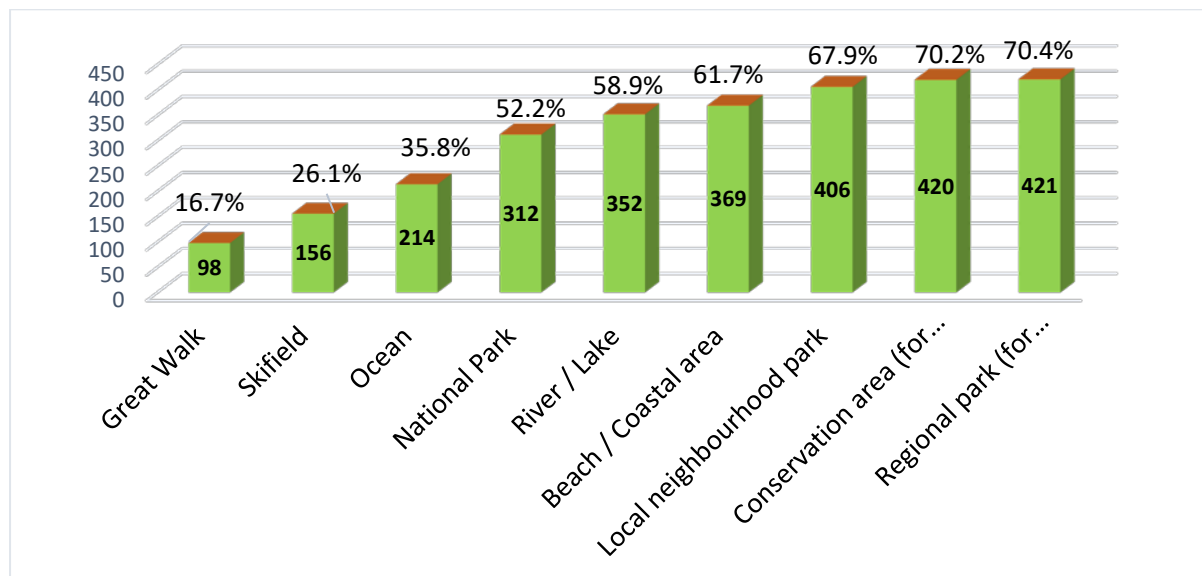
## 4.4 Outdoor recreation activity since the end of March-April Level 4 lockdown

This section presents self-reported outdoor recreation engagement among respondents since the end of March-April Level 4 lockdown.

### 4.4.1 Outdoor recreation settings since the end of the lockdown

Analysis of outdoor recreation settings shows that, overall, two thirds of all respondents reported that they had visited a regional park (70.4%), conservation area (70.2%) and local neighbourhood park (67.9%), and over half said they had been to rivers and lakes (58.9%) and

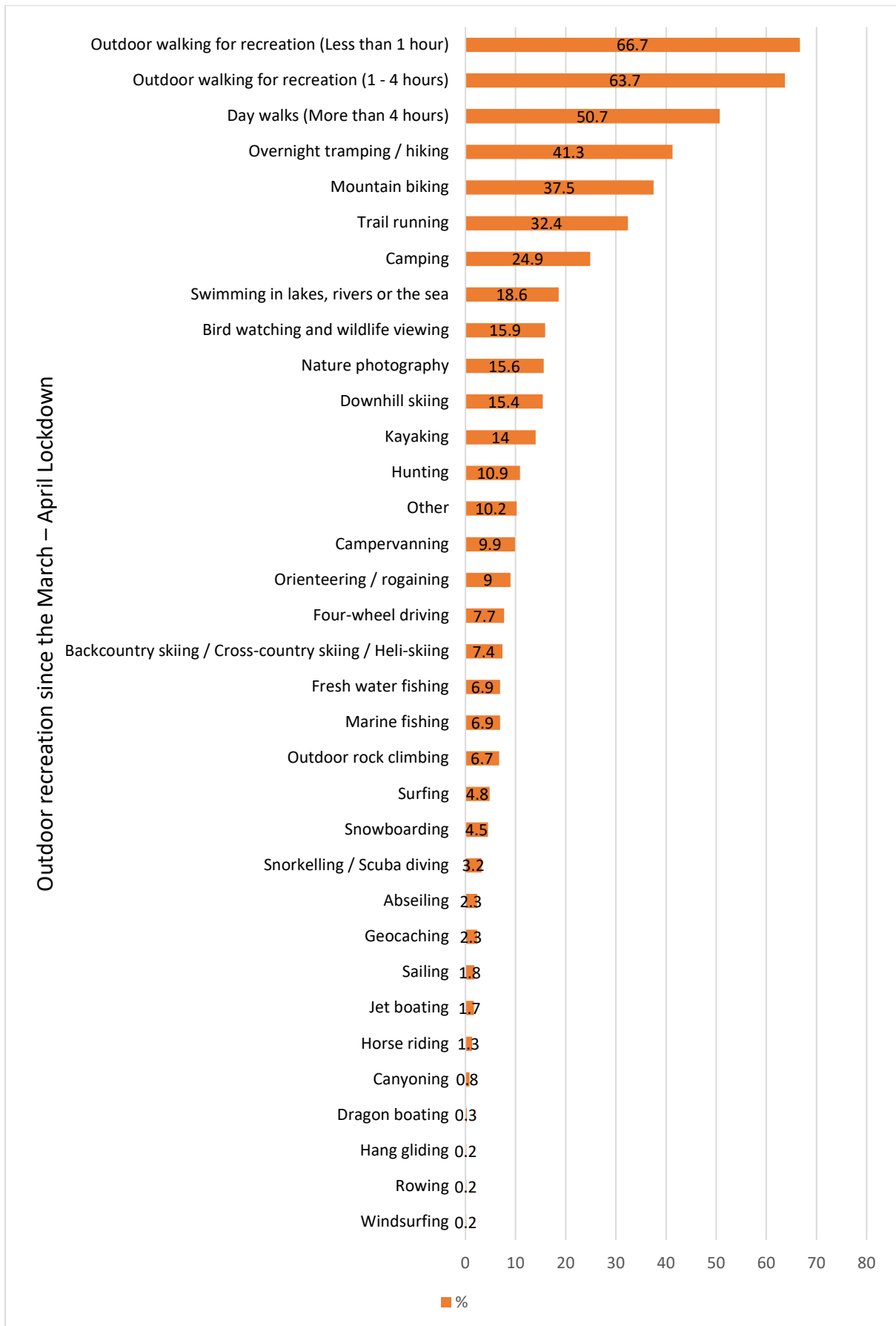
national parks (52.2%) since the end of March-April Level 4 lockdown(see Figure 16). Of the remainder, over a quarter of respondents (26.1%) had been to skifield; Great Walks was the least visited outdoor recreation setting (16.7%).



**Figure 16: Outdoor recreation settings since the end of March-April Level 4 lockdown**

#### 4.4.2 Types of outdoor recreation activities since the end of the lockdown

Respondents were asked to indicate which outdoor activities they had done since the end of the March – April lockdown. Two thirds (66.7%, 399) of respondents participated in outdoor walking for recreation (less than 1 hour) and a similar proportion (63.7%, 381) participated in outdoor walking for recreation (1 - 4 hours) (see Figure 17). Over half of respondents had participated in day walks (more than 4 hours) (50.7%, 303). Other popular activities included overnight tramping/hiking (41.3%, 247), mountain biking (37.5%, 224), trail running (32.4%, 194), and camping (24.9%, 149). Only one respondent each had participated in windsurfing, rowing and hand gliding outdoor activities since the March – April lockdown.



**Figure 17: Type of outdoor recreation activities practised since the end of the lockdown**

Respondents were also asked to select up to three outdoor activities, which they considered to be their main forms of outdoor recreation since the end of the March-April Level 4 lockdown (Monday April 27 – today). The three main outdoor recreation activities were outdoor walking for recreation (1 - 4 hours) (32.6%, 195), outdoor walking for recreation (less than 1 hour) (27.4%, 164), and trail running (23.9%, 143). Just under a quarter of respondents had identified mountain biking (22.9%, 137) and day walks (more than 4 hours) (22.4%, 134) among their three main outdoor recreation activities. In comparison, one respondent each selected hang gliding and horse riding as the three prominent outdoor recreations. Dragon boating and canyoning were not among the top three outdoor recreation activities since the end of the March-April Level 4 lockdown.

#### **4.4.3 Frequency of outdoor recreation activities since the March-April Level 4 lockdown**

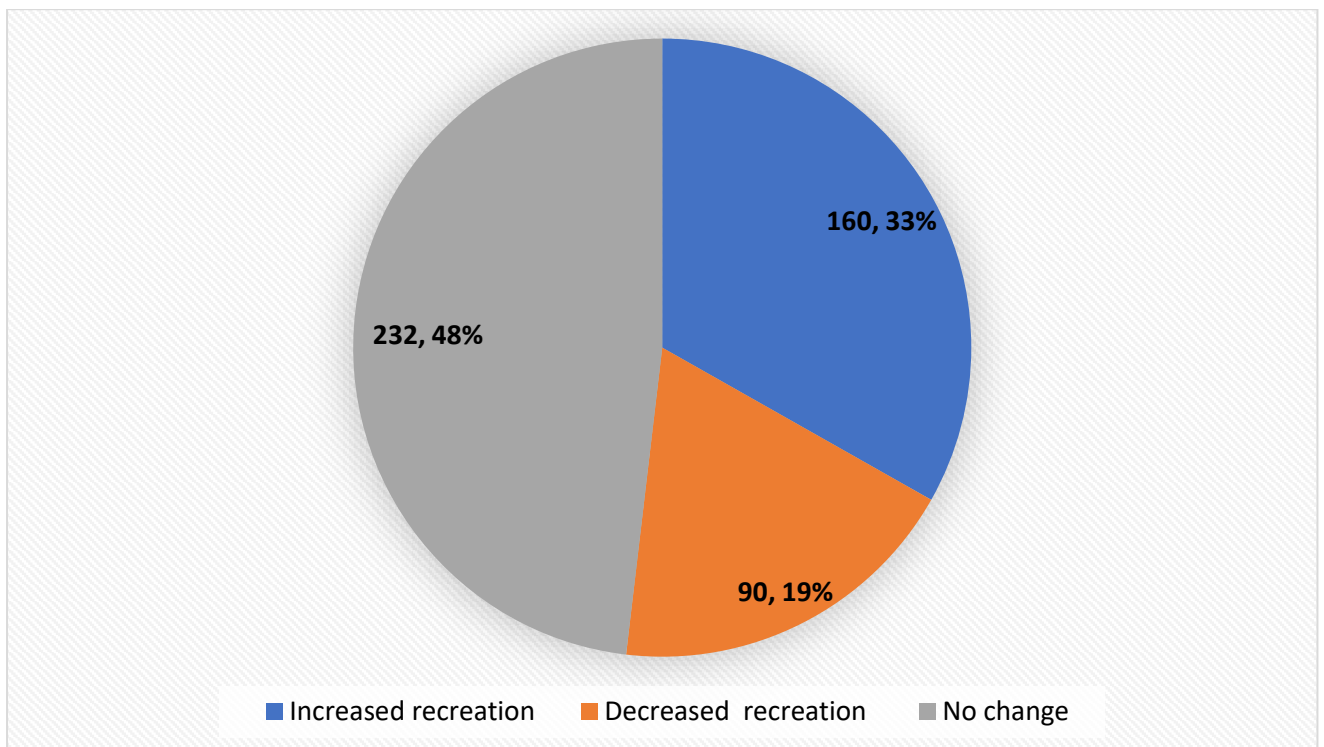
Respondents were asked how often they had participated in each outdoor recreation activity since the March-April Level 4 lockdown. Among those respondents who were walking for recreation (less than 1 hour), almost a third of them (29.6%, 48/162) walked 2-3 times a week, and under a quarter of respondents (21.6%) practised 4-6 times a week. Of the remainder, 18.5% practised daily while 6.2% (10/162) practised once or twice a month. Only one respondent participated in outdoor walking for recreation (Less than 1 hour) once every few months since the March – April lockdown. For outdoor walking for recreation (1-4 hours) activity, almost a third of respondents (31.1%, 60/193) participated once a week, followed by 2-3 times a week (27.5%) and once or twice a month (20.7%). The remaining 9.8% (19/193), 9.3% (18/193) and 1.6% (3/193) of respondents participated in outdoor walking for recreation (1-4 hours) activity 4-6 times a week, daily and once every few months, respectively.

Since the March-April Level 4 lockdown, almost half of the trail running respondents (48.2%, 68/141) practised 2-3 times a week. A quarter of respondents practised 4-6 times a week (25.5%, 36/141) and 19.9% (28/141) practised once a week. A large proportion of the mountain biking respondents (39.3%, 53/135) practised 2-3 times a week since the March-April Level 4 lockdown. Almost a third of respondents (29.6%, 40/135) practised mountain biking once a week. Of the remainder, 18.5% (25/135) practised once or twice a month, and 8.1% (11/135) practised 4-6 times a week. These frequencies suggest an increase from before the lockdown, especially for trail running (see Figure 11), where those participating at least 2-

3 times per week increased from two thirds to three quarters of trail running respondents.. Alongside the data for mountain biking and several other outdoor recreation pursuits, this implies that respondent's outdoor recreation behaviour returned to, and in some cases exceeded, pre-lockdown participation rates very rapidly once the restrictions were lifted.

#### 4.5 The March-April Level 4 lockdown impact on outdoor recreation

This sub-section presents the perceived impacts of COVID-19 and lockdown on outdoor recreation activities. Analysis of the impacts of the March-April Level 4 lockdown on outdoor recreation activity shows that while nearly half (48.1%, 232) of the respondents have 'increased' their outdoor recreation overall following the end of the March-April Level 4 lockdown, a third (33.2%, 160/482) said that the end of the March-April Level 4 lockdown had 'no impact' on their outdoor recreation behaviour. The remainder (18.7%, 90/482) reported a 'decrease' in their outdoor recreation since the end of the March-April Level 4 lockdown (See Figure 18).



**Figure 18: Impacts of the March-April lockdown on outdoor recreation**

Respondents who reported having increased their outdoor recreation since the end of the March-April Level 4 lockdown were shown a list of 8 possible reasons for this increase and asked to indicate the importance of each one in respect of their own situation. Importance was measured on a Likert-type scale (1=strongly disagree; 7=strongly agree) and the mean scores calculated for each item (see Table 1). The desire to ‘get outdoors as much as possible after lockdown’ (6.9) had the highest mean score for importance and ‘to escape feeling of lonely’ had the least mean score. An independent t-test was run on the data with a 95% confidence interval (New Zealand Recreation Association) and the results suggest statistically significant relationships between age (binary) and two items, namely ‘I wanted to get outdoors as much as possible after lockdown’ and ‘I wanted to explore new places’. This study found that younger respondents had statistically significantly higher agreement with the statement ‘I wanted to get outdoors as much as possible after lockdown’ ( $7.05 \pm 1.18$ ) compared to older respondents ( $6.44 \pm 1.69$ ),  $t(147)=2.506$ ,  $p=0.01$ . This study found that younger respondents had statistically significantly higher agreement to the statement ‘I wanted to explore new places’ ( $6.94 \pm 1.39$ ) compared to older respondents ( $6.02 \pm 2.03$ ,  $t(148)=3.214$ ,  $p=0.001$ ). This suggests that the restrictions on outdoor recreation and travel during the lockdown period may have motivated younger respondents to explore new places in the outdoors, more than was the case for older respondents. This might be also related with the general belief that older respondents are at risk of getting very sick from COVID-19. Hence, older respondents may have experienced anxiety due to pronounced uncertainty and fear. Future research could thus seek to understand what type of factors motivated younger respondents to get outdoors as much as possible after lockdown and to explore new places, and conversely why older respondents felt less inclined.

**Table 1 Reasons for increasing outdoor recreation**

Reasons for increasing outdoor recreation	N	$\bar{x}$	SD
I wanted to escape feeling lonely	156	3.37	1.96
I wanted to get outdoors as much as possible after lockdown	156	6.90	1.36
My working hours had been reduced	157	3.24	2.33
I wanted to make the most of there being fewer people in outdoor recreation areas	157	5.67	2.19
I was more aware of needing to keep myself healthy	157	5.81	1.91
The lockdown gave me time to consider what was important to me	157	6.48	1.69



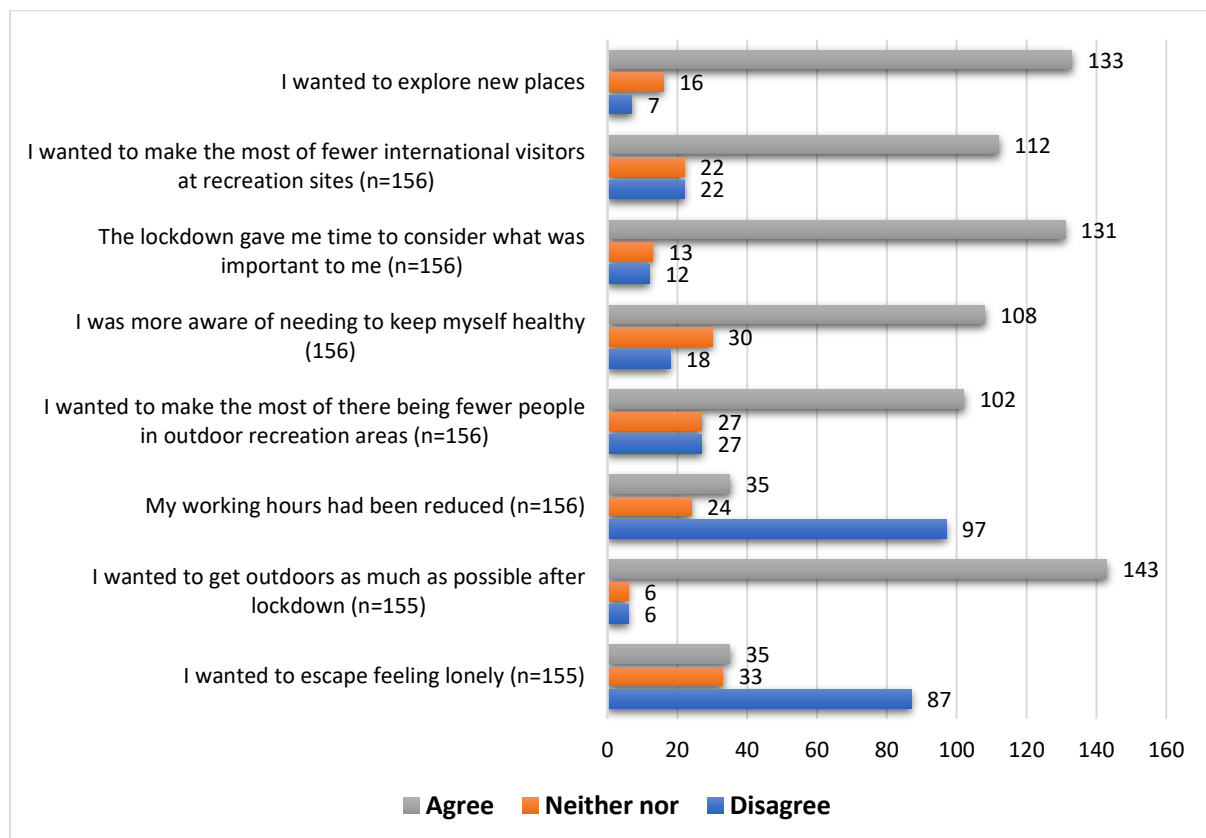
I wanted to make the most of fewer international visitors at recreation sites	157	6.09	2.11
I wanted to explore new places	157	6.71	1.64

For each of the possible reasons given for increased outdoor recreation participation, a 3-point scale was generated: (1) 'disagree' ('somewhat disagree', 'disagree', and 'strongly disagree'); (2) those who were 'neither nor'; and (3) 'agree' ('somewhat agree', 'agree', and 'strongly agree') (see Figure 19). The percentage distribution of scoring for each reason are shown alongside and discussed further below. In total, 92% (143/156) of the respondents agreed with the statement 'I wanted to get outdoor recreation as much as possible'. Nearly 84% of the respondents agreed with the statement 'the lockdown gave me time to consider what is important to me'. Almost three fourths of respondents (72%, 113/157) indicated their agreement with the statement 'I wanted to make the most of fewer international visitors at recreation sites'. Those most likely to agree with the statement 'I wanted to get outdoor recreation as much as possible' (grouped scores) were those aged 18-24 years (100% agreed), followed by those aged 25 to 29 years (96% agreed) and 40 to 44 years (93.8% agreed).

Analysis by region of residence showed that respondents from Auckland, Otago, Southland, Taranaki, Manawatu Whanganui, Northland, West Coast, Tasman and Marlborough were most likely to agree with the statement 'I wanted to get outdoor recreation as much as possible' (each 100%). . Those aged 40 to 44 years and 50 to 54 years were most likely to agree with the statement 'the lockdown gave me time to consider what is important to me' (each 93.8%), while disagreement was highest among those aged 55 to 59 years (22.2% disagreed) and 60 to 64 years (16.7%).

A substantial number of respondents disagreed that their outdoor activity had increased 'because of reduction of working hours' (98/157, 62.4%) or 'to escape feeling lonely' (56.4%, 88/156). The highest level of disagreement with the 'reduction of working hours' statement was by 45 to 49 years and 60 to 64 years (each 75% disagreed). Respondents between 55 and 59 years had the highest agreement level (55.6% agreed) with this statement. The highest level of disagreement with the 'to escape feeling lonely' statement was by 60 to 64 years (75% disagreed). The highest level of agreement was by 18 to 24 years (43.8% agreed). By region,

the highest level of disagreement with the ‘reduction of working hours’ statement (grouped scores) was by respondents from West Coast (100% disagreed), Wellington (76.9% disagreed), Canterbury (74.1% disagreed) and Auckland (60%). Otago and Waikato region had the highest level of agreement with this statement (each 40 agreed). The initial categorical response to the annual income question was used to create a category of higher income and lower income using the cutoff value of \$50,001 or above. There was a significant association between annual income (higher income (\$50,001 or above) and lower income respondents (less than \$50,001)) and those who reported increased outdoor recreation as a result of reduction in working hours ( $X^2(2) = 24.42, p < 0.000$ ).



**Figure 19: Agreement to reasons for increase in outdoor recreation**

Using a 7-point Likert-type scale (1=strongly disagree; 7=strongly agree), respondents who reported that their outdoor recreation had decreased following the end of the March-April Level 4 lockdown were asked to rate the level of importance of several possible factors influencing this outcome. The mean scores calculated for each item are presented in Table 2. Overall, there were low levels of agreement with these items, with mild agreement found for

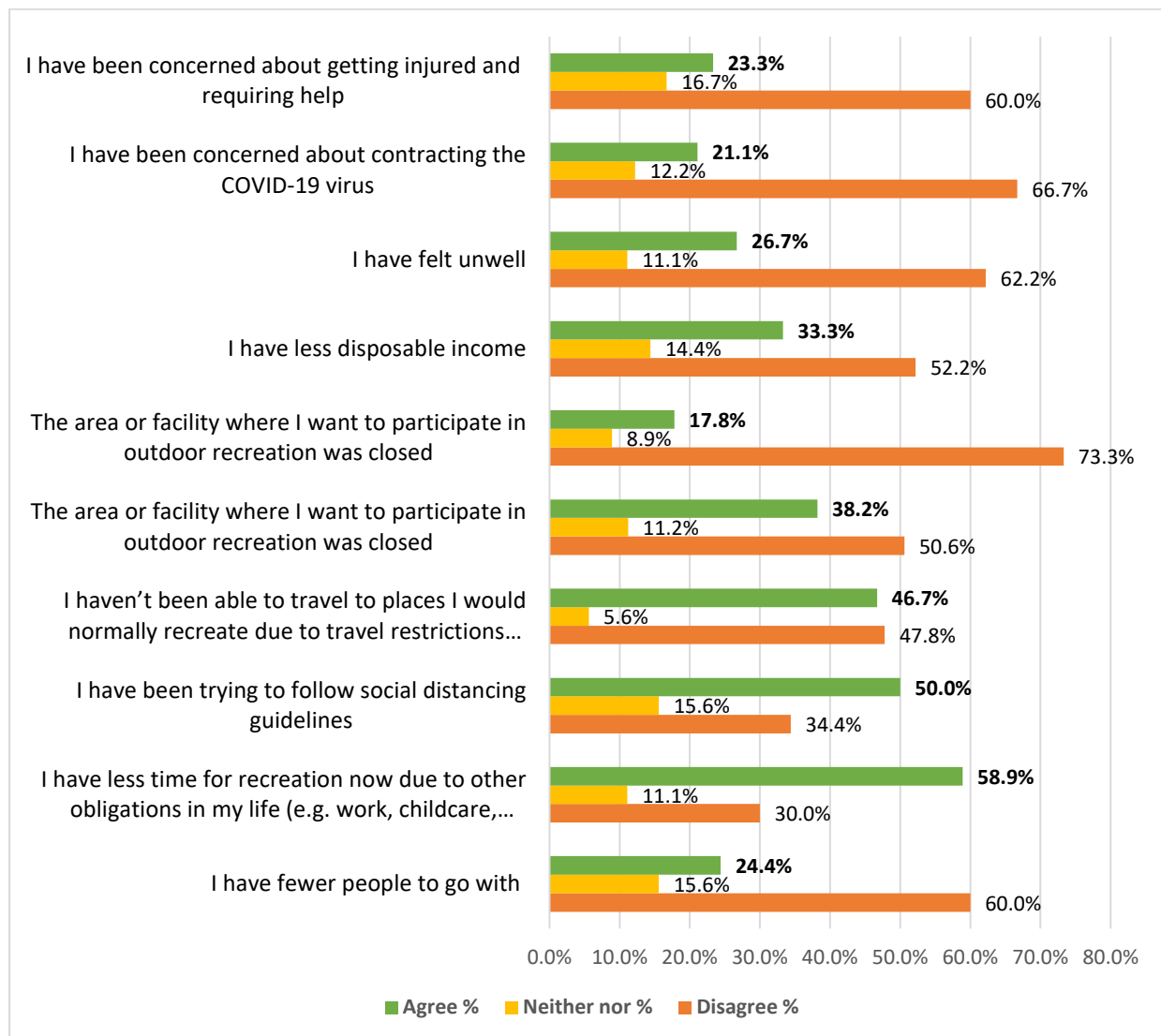
‘Less time for recreation now due to other obligations in my life (e.g. work, childcare, household responsibilities, etc.)’ (4.52) (see Table 2). A Chi-Square Test of Independence (using  $\alpha = 0.05$ ) suggests that there was a significant association between age (younger and older) and the item ‘I have fewer people to go with’ ( $X^2(2) = 8.04, p < 0.05$ ) and ‘I have been trying to follow social distancing guidelines’ ( $X^2(2) = 8.45, p < 0.05$ ). Older respondents (50 years old and above) ‘disagreed’ more with the above two items compared to younger respondents (less than 50 years).

**Table 2 Reasons for decreasing outdoor recreation**

Reasons for decreasing outdoor recreation	N	$\bar{x}$	SD
My access to transportation has reduced because of COVID-19	90	2.71	1.769
I have felt unwell	90	2.90	1.736
I have been concerned about contracting the COVID-19 virus	90	2.93	1.675
I have fewer people to go with	90	2.98	1.683
I have been concerned about getting injured and requiring help	90	3.11	1.738
I have less disposable income	90	3.47	1.927
The area or facility where I want to participate in outdoor recreation was closed	89	3.66	1.971
I haven’t been able to travel to places I would normally recreate due to travel restrictions imposed by the government	90	3.89	2.106
I have been trying to follow social distancing guidelines	90	4.21	1.789
I have less time for recreation now due to other obligations in my life (e.g. work, childcare, household responsibilities, etc)	90	4.52	1.996

As illustrated in Figure 20, the results indicate that a majority of participants (58.9%, 53/90) agreed that lack of time for recreation due to other obligations in life (e.g., work, childcare, household responsibilities, etc.) had resulted in decreased outdoor recreation since the end of the March-April lockdown. The second and third most agreed reasons for the decrease in outdoor recreations were stated as trying to follow social distancing guidelines (48.9%, 43/88) and travel restrictions imposed by the Government (46.7%, 42/90). During the March-April lockdown social distancing requirements and travel restrictions were in place to stop the outbreak of the virus. Social distancing included sensible precautions to avoid unnecessary contact with others and work from home if that was possible. Apart from key workers, people were also instructed to stay at home in their bubble other than for essential personal movement. Only safe recreational activity was allowed in local area, but travel was severely limited (New Zealand Government, 2020a). Inversely, a slightly higher number of respondents

(47.8%, 43/90) disagreed on the impact of travel restriction imposed by the Government. Two thirds of respondents (66.7%, 60/90) disagreed on the statement that concern about contracting the COVID-19 virus decreased their outdoor recreation activity. Respondents were asked if the area or facility where they want to participate in outdoor recreation was closed and almost three fourths of respondents (73.3%, 66/90) indicated their disagreement.



**Figure 20: Agreement to reasons for decrease in outdoor recreation (n=90)**

Respondents were also asked if a concern about getting injured and requiring help contributed to a decrease in outdoor recreation and 60% (54/90) of respondents showed their disagreement, while only 23.3% (21/90) of respondents agreed. An independent t-test result suggests no statistically significant relationship between these statements and respondents

age (binary). Analysis by gender for grouped agreement responses showed that a slightly higher percentage of men (51.1%) indicated their agreement to the reason 'I have been trying to follow social distancing guidelines' than women (46.5%). Similarly, male respondents had the highest agreement (62.2%) to the reason 'lack of time for recreation due to other obligations in life' than women (55.8%).

When examined by age, the highest level of agreement with the reason 'lack of time for recreation due to other obligations in life' was by 45 to 49 years (87.5% agreed), 18 to 24 years (75% agreed) and 30 to 34 years (72.7% agreed). 35 to 39 years had the highest levels of disagreement (50%). Older respondents were slightly more likely to disagree with the statement 'I have less disposable income' and more likely to agree with the statement 'I have been concerned about contacting COVID-19 virus'.

#### **4.6 Current global COVID-19 pandemic impact on outdoor recreation behaviour**

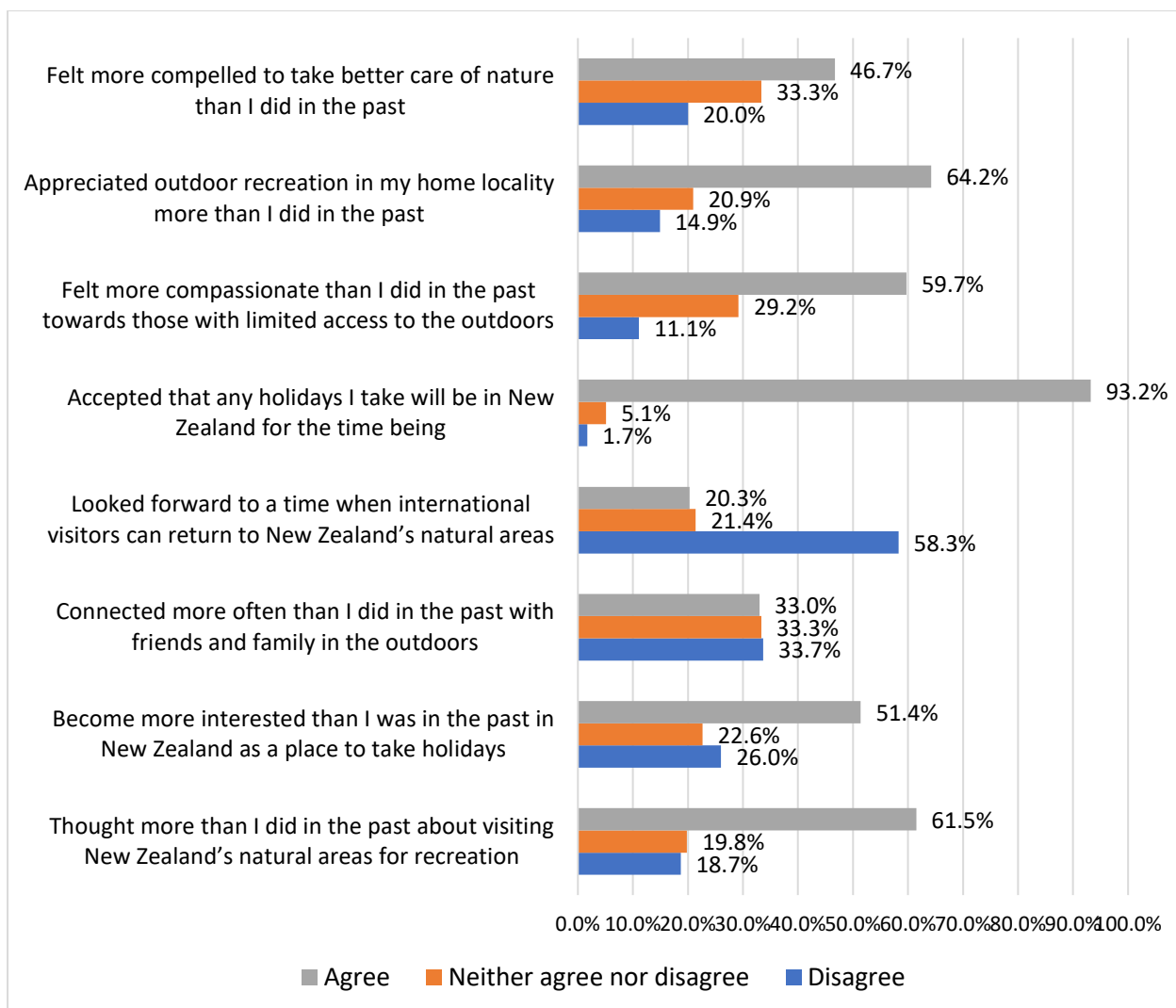
Respondents were asked to indicate their level of agreement with various statements relating to the effect of the current global COVID-19 pandemic on their outdoor recreation using a 7-point Likert-type scale (1=strongly disagree; 7=strongly agree). Then mean scores were calculated for each item (see Table 3). An independent t-test was run on the data with a 95% confidence interval (CI) and the results suggest statistically significant relationships between age (younger and older categories) and two items. These are 'become more interested than I was in the past in New Zealand as a place to take holidays' and 'accepted that any holidays I take will be in New Zealand for the time being'. This study found that younger respondents had significantly lower agreement with the statement 'I have become more interested than I was in the past in New Zealand as a place to take holidays' ( $4.34 \pm 1.73$ ) compared to older respondents ( $4.75 \pm 1.55$ ),  $t(461)=2.406$ ,  $p=0.01$ . This study found that younger respondents had significantly higher agreement to the statement 'accepted that any holidays I take will be in New Zealand for the time being' ( $6.14 \pm 0.97$ ) compared to older respondents ( $5.92 \pm 1.02$ ),  $t(462)=2.14$ ,  $p=0.03$ . There were no statistically significant differences between these statements and the five residential settings as determined by one-way ANOVA. It's possible that, with less travel experience, younger respondents were less able to imagine a future that included international trips. The results might also imply that younger New Zealanders more

open to swap overseas travel for travel within New Zealand in the coming years, which may have positive outcomes for the New Zealand tourism industry.

**Table 3 As a result of the current global COVID-19 pandemic, I have**

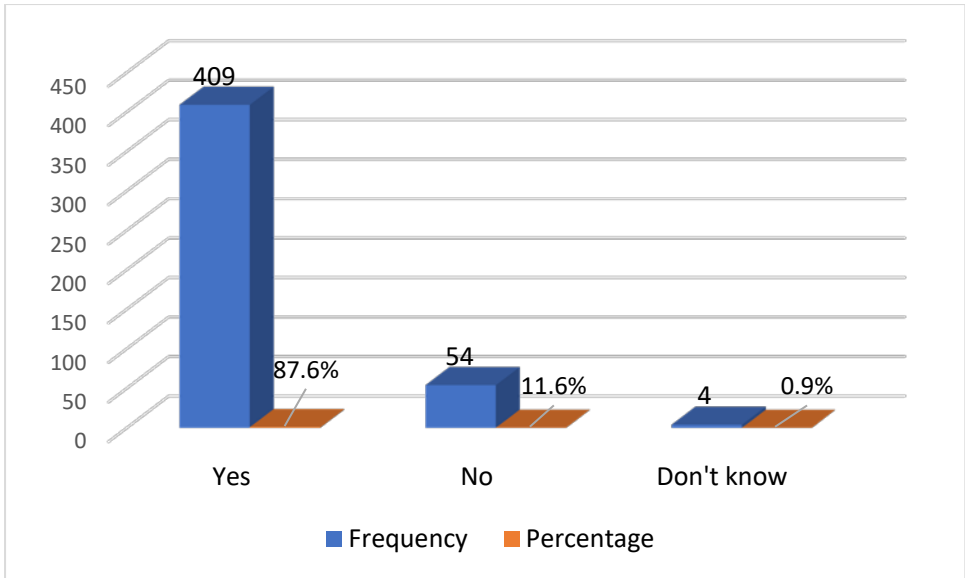
<b>Items</b>	<b>N</b>	<b><math>\bar{x}</math></b>	<b>SD</b>
Looked forward to a time when international visitors can return to New Zealand’s natural areas	468	3.11	1.63
Connected more often than I did in the past with friends and family in the outdoors	469	3.96	1.44
Felt more compelled to take better care of nature than I did in the past	469	4.46	1.49
Become more interested than I was in the past in New Zealand as a place to take holidays	469	4.48	1.69
Thought more than I did in the past about visiting New Zealand’s natural areas for recreation	470	4.79	1.65
Felt more compassionate than I did in the past towards those with limited access to the outdoors	469	4.87	1.35
Appreciated outdoor recreation in my home locality more than I did in the past	469	4.98	1.54
Accepted that any holidays I take will be in New Zealand for the time being	470	6.07	0.99

Figure 21 shows that a majority of respondents agree with all statements given with ‘accepted that any holidays I take will be in New Zealand for the time being’ being the statement with which respondents most often agreed (93.2%, 438/470). Nearly 60% (280/469) of respondents showed their agreement with the statement was ‘I felt more compassionate than I did in the past towards those with limited access to the outdoors’. The majority of respondents (61.5%. 289/470) also agree with the statement ‘I thought more than I did in the past about visiting New Zealand’s natural areas for recreation’. Inversely, 58.3% (273/468) of respondents showed their disagreement with of the statement ‘looked forward to a time when international visitors can return to New Zealand’s natural areas’.



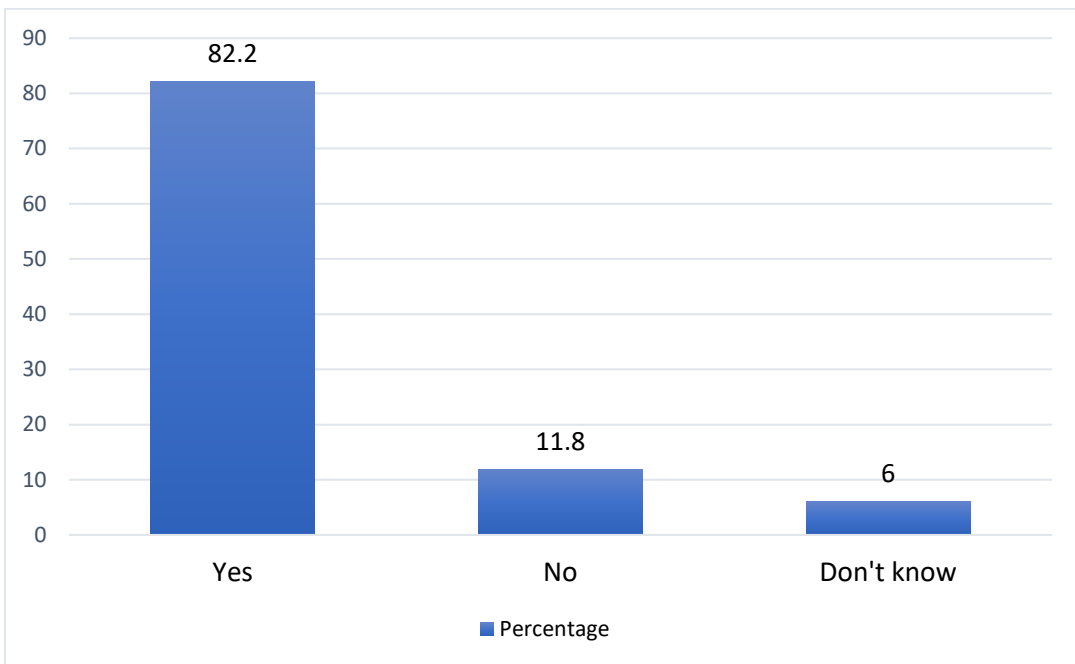
**Figure 21: As a result of the current global COVID-19 pandemic, I have**

Since the March-April Level 4 lockdown ended, the majority (87.6%) of respondents have visited at least one new place for outdoor recreation (see Figure 22). While there were no statistical differences when analysed by age, cross tabulation showed that slightly more younger respondents (91.7%) visited at least one new place compared to older respondents (78.4%). The majority of respondents (86.1%, 403/468) have travelled more than 100km (one way) for outdoor recreation since the March-April Level 4 lockdown ended. Chi-square statistics showed no statistically significant association between age and length of travel more than 100km (one way); that is, both younger and older respondents equally travelled more than 100km since the March-April lockdown.



**Figure 22: Proportion of respondents that visited at least one new place (n=467)**

As shown in Figure 23 it appears that majority of respondents (82.2%, 383/466) intended to increase outdoor recreation in the next 6 months. While there were no statistical differences when analysed by age, education and income, cross tabulation showed that younger respondents report being slightly more likely to increase outdoor recreation in the next 6 months (83%) and older respondents slightly less likely to increase outdoor recreation in the next 6 months.



**Figure 23: Intention to increase outdoor recreation in the next six months (n=466)**



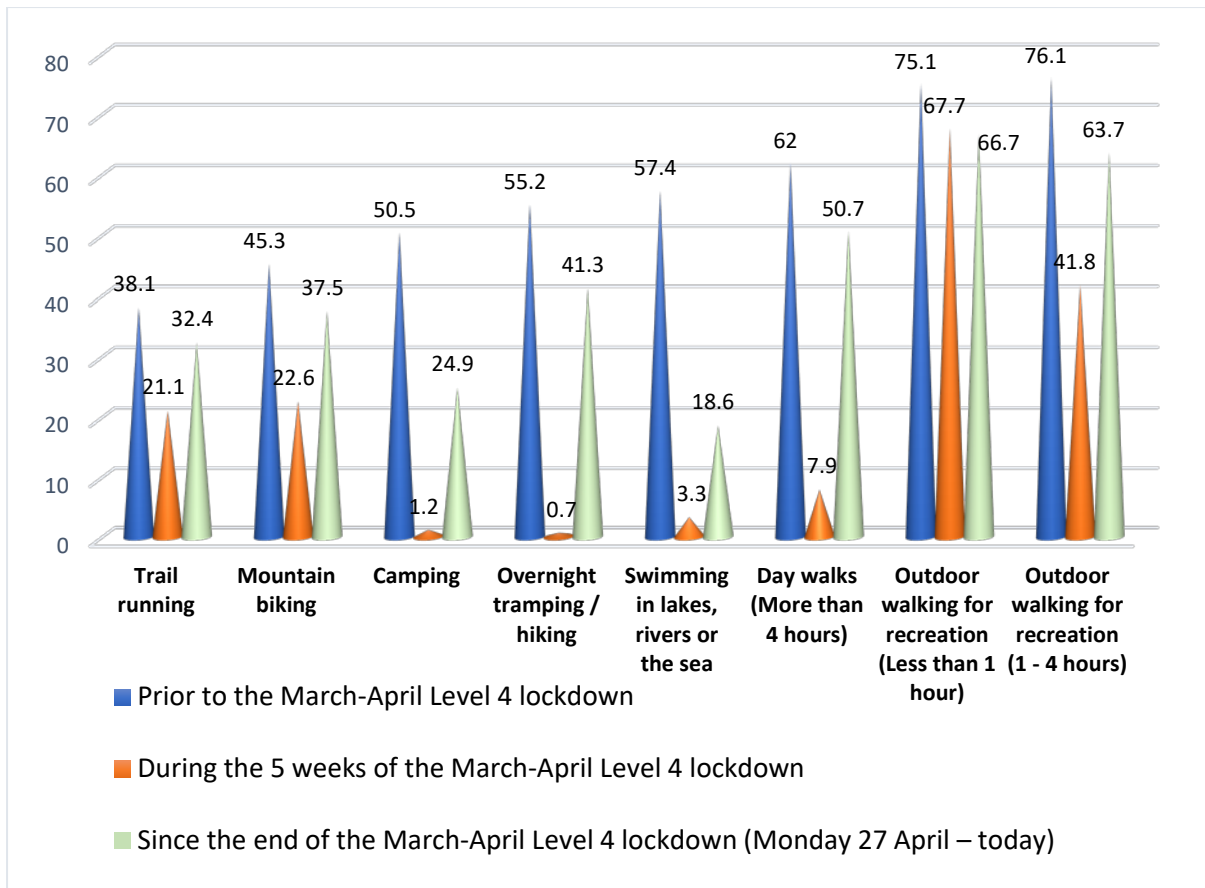
## 5. Discussion and conclusion

The study was conducted in order to understand more fully New Zealanders' outdoor recreation practice and behaviour prior to, during and after the March-April Level 4 lockdown. This section presents a discussion of key survey results. Notwithstanding the limitations associated with comparisons between different time periods covered in this study, the research provides some evidence to support the contention that COVID-19 and the subsequent lockdown had considerable influence on New Zealanders' outdoor recreation participation and behaviour. A significant number of respondents have changed their outdoor recreation engagement and behaviours, and many appear to have no expectation of travel abroad in the foreseeable future. A potential implication of these findings is that outdoor recreation among respondents will be focussed in New Zealand. More specifically, in absolute terms, the study finds a difference in respondents' choice of outdoor recreation settings across the three timelines. During the lockdown period, recreational activities were intensified in the local neighbourhood settings. While conservation areas (for example, DOC-managed areas) were the main activity settings prior to the March-April Level 4 lockdown, since the 5 weeks of the March-April Level 4 lockdown, regional parks (for example, Council-managed tracks) appear more dominant.

The lockdown and associated travel restrictions might have moderated the observed outdoor recreation setting changes. During the lockdown, access to public space was restricted and the local neighbourhood is likely to have been seen as an immediate solution to outdoor recreation possibilities within the household bubble. Post lockdown outdoor activity setting changes might have been influenced by the change in season from late summer to autumn and winter. Further factors are also likely to have influenced outdoor recreation engagement over the time period covered by this study. Some of these factors have been documented in the qualitative part of this research project<sup>7</sup>.

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<sup>7</sup> Espiner, N. T., Stewart, E., Espiner, S. R., & Degarege, G. (2021). Exploring the impacts of the Covid-19 national lockdown on outdoor recreationists' activity and perceptions of tourism. Leap 56. New Zealand, Lincoln University



**Figure 24: Outdoor recreation activities prior, during and after the lockdown**

Figure 24 illustrates the activity-based differences between the time periods studied, some of which appear to have been influenced by the lockdown, while others may reflect seasonal change or other factors (including the different lengths of time associated with the three periods). For instance, the prevalence of day walks changed a lot in lockdown and went back up fairly quickly, potentially as a result of pent up demand following lockdown. In contrast, swimming went down during lockdown, and didn't go back up again – an effect likely explained by seasonality. Short outdoor walks appear to have declined in each consecutive period, although this effect is amplified by the fact that short outdoor walks were one of a small number of outdoor recreation activities still possible in lockdown.

As expected, there was a notable shift in the main forms of outdoor activities and outdoor recreation behaviour and practice across the three study timelines (prior to the March-April Level 4 lockdown, during the 5 weeks of the March-April Level 4 lockdown and since the March – April Lockdown). Outdoor walking for recreation (less than 1 hour) was the major

activity during the 5 weeks of the March-April Level 4 lockdown (67.7%) and after the lockdown (66.7%). Prior to the lockdown, outdoor walking for recreation (less than 1-4 hours) was the major activity (76.1%). The majority of outdoor activities were constrained during the March-April Level 4 lockdown, though the changes were not unanimous to all activities. This change was more stark for overnight tramping/hiking relative to outdoor walking for recreation (1-4 hours), reflecting the clear impact of the lockdown and travel restrictions outside the bubble. Camping, outdoor swimming (in lakes, rivers or the sea), day walks and outdoor walking for recreation (1-4 hours) were also significantly reduced during the lockdown period due to the government restrictions on activities considered to be higher risk. Outdoor walking for recreation (less than 1 hour) is an activity that respondents adapted to the COVID-19 situation. Walking for recreation (less than 1 hour) was much less affected by lockdown than most others. This might be related to the relative importance of outdoor recreational spaces near or around neighbourhoods for walking. In contrast to the expected, mountain biking was popular during the 5 weeks of the March-April Level 4 lockdown compared to prior to the March-April Level 4 lockdown. It is possible that this may have been due to participants selecting the 'mountain biking' option to describe neighbourhood cycling, however.

The results of the study show the variation of outdoor recreation behaviour. More than a third of respondents increased their participation in outdoor recreation after the March-April Level 4 lockdown. On the contrary, a small proportion of respondents (18%) decreased their outdoor recreation because of the lockdown. The observed outdoor recreational activity increase was attributed to several reasons including nature and dynamics of visitor profile and mobility restriction. Most respondents had a strong interest to get outdoors as much as possible after lockdown (91.7%) and to explore new places (85.4%). Interestingly, for many people, the lockdown gave them time to consider what was important (84.1%). In this regard, the lockdown could be seen as an impetus for more domestic tourism (Mackenzie & Goodnow, 2020).

The results showed some evidence to support that outdoor recreational activity increased since the March-April lockdown and that commitment to outdoor recreation is strong among respondents. While there is no baseline data for comparison, post lockdown, the majority of

respondents had visited at least one new place for outdoor recreation (87.6%) and travelled more than 100km (one-way) for outdoor recreation since the March-April Level 4 lockdown ended (86.1%). There is also a strong interest among respondents to increase outdoor recreation participation in the near future, and most appear to have accepted that any holidays they take will be in New Zealand for the time being. Many respondents were not looking forward to a time when international visitors return to natural areas. It is possible to conclude that the lockdown and mobility restrictions provide a new way of looking at outdoor recreation values within New Zealand.

This study has generated relatively a large sample that helped to explore the impacts of COVID-19 and lockdown on New Zealanders' outdoor recreation participation and behaviour. The data collected for this study is a cross-sectional type that is designed to reflect the reality of COVID-19 and outdoor recreation for a particular period. While this study has provided several significant insights, it does not allow quantifying the causal relationship between COVID-19 and outdoor recreation practice and behaviour. Moreover, the survey used standard questions used in outdoor recreation research that quantify behaviour and practice using recall periods. One key drawback with such an approach is the accuracy of the answers given to each series of questions. There is a limited ability to generalise to specific outdoor settings. Thus, more specific outdoor activity-specific studies are suggested to aid the generalisation of the COVID-19 impacts on outdoor recreationists. Further research on the health and wellbeing related effects of COVID-19 on outdoor recreationists also is suggested.

## 6. Appendices

### Appendix A

<b>RESEARCH INFORMATION SHEET</b>
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**You are invited to participate in a research project entitled:**

Exploring New Zealanders' outdoor recreation and domestic tourism activity since the emergence of the COVID-19 pandemic

**The aim of the research project:**

To explore people's involvement in nature-based recreation and tourism since the emergence of the COVID-19 pandemic

**Your participation in this project will involve:**

Your agreement to be interviewed over the phone about your recreation in nature-based settings since the emergence of the COVID-19 pandemic. The interview will be much like a conversation and will likely take between 30-45 minutes. We would like to record the interview to refer to at a later date, but will not do so without your consent.

**What will happen with the information you give me:**

The results of the project may be published or presented (e.g., at a conference), but you may be assured of your anonymity. Your name will not be made public or made known to any persons other than those on the research team (listed over the page), and the Lincoln University Human Ethics Committee (in the event of an audit). To ensure anonymity, individual interview data (our transcribed conversation) will be stored on a password-protected computer, accessible only by the researchers. Any published work will use a pseudonym, and no other identifying information will be published.

**What to do if you change your mind:**

You are free to cancel the interview, to decline to answer questions, and to stop the interview at any time. If, after the interview, you want to withdraw any information you have provided, please contact any member of the research team (listed over the page) by November 16 2020.

**Note: this research has been approved by the Lincoln University Human Ethics Committee.**

If you have any questions, or would like to withdraw your consent to participate in the research (by November 16 2020), please contact any one of the research team (see below). You do not have to give a reason.

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## Appendix B

# New Zealanders' use of nature-based settings for outdoor recreation Survey

Please help us learn more about New Zealanders and their outdoor recreation. Your participation in this survey will involve answering a series of questions about how you have used outdoor settings for recreation before, during and since the March-April Level 4 lockdown. For our purposes, outdoor recreation is defined as leisure activities involving the enjoyment and use of natural resources in the outdoors. Facility based activities, such as use of sports fields are not part of outdoor recreation in this study.

Participation in this online survey is entirely voluntary. You are free to withdraw at any time, and you do not have to specify a reason. By clicking the submit button below, you consent to participating in the survey.

The survey is organised into four sections: (1) Your outdoor recreation in New Zealand before the March-April Level 4 lockdown (2) Your outdoor recreation during the March-April Level 4 lockdown (3) Your outdoor recreation since the end of the March-April Level 4 lockdown (4) Personal profile information.

Thank you for showing an interest in this project. We expect this online survey to take around 10-15 minutes to complete. Please follow the directions carefully. You are encouraged to answer each of the questions as accurately and truthfully as you can. There are no "right" or "wrong" answers, and your responses are just as valuable as those of every other person who completes the survey.

We also plan to conduct a small number of interviews over the phone or online, so at the end of this survey, you will be asked whether you would be willing to take part in an interview to share further insight on how New Zealanders have used outdoor settings for recreation before and after the March-April Level 4 lockdown.

Thank you!

## Section 1: Screening questions

1. Are you 18 years or older?

- Yes
- No

*Skip To: If you select 'No', you will be taken to the end of the survey.*

2. Have you engaged in any outdoor recreation activity during the last twelve months?

*If you select 'No', you will be taken to the end of the survey. If you select 'Yes', you are eligible to continue the survey.*

- Yes
- No

*Skip To: If you select 'No', you will be taken to the end of the survey.*

## Section 2: Your participation in outdoor recreation before the March-April Level 4 lockdown

Section 2 asks you about the types of outdoor recreation you participated in and your motivations for doing it before the March-April Level 4 lockdown.

3. Which of the following outdoor settings did you visit for recreation during the twelve months prior to the March-April Level 4 lockdown? Tick all that apply.

- Local neighbourhood park (1)
- Regional park (for example, Council-managed tracks) (2)
- Conservation area (for example, DOC-managed area) (3)
- National Park (4)
- Great Walk (5)
- Beach / Coastal area (6)
- River / Lake (7)
- Ocean (8)
- Skifield (9)



4. Please select all the types of outdoor recreation activities that you did during the twelve months prior to the March-April Level 4 lockdown

- Outdoor walking for recreation (Less than 1 hour) (1)
- Outdoor walking for recreation (1 - 4 hours) (2)
- Day walks (More than 4 hours) (3)
- Overnight tramping / hiking (4)
- Trail running (5)
- Mountain biking (6)
- Orienteering/rogaining (7)
- Geocaching (8)
- Hunting (9)
- Horse riding (10)
- Swimming in lakes, rivers or the sea (11)
- Snorkelling / Scuba diving (12)
- Surfing (13)
- Windsurfing (14)
- Kayaking (15)
- Rowing (16)
- Dragon boating (17)
- Sailing (18)
- Jet boating (19)
- Marine fishing (20)
- Fresh water fishing (21)
- Outdoor rock climbing (22)
- Abseiling (23)
- Canyoning (24)
- Hang gliding (25)
- Downhill skiing (26)
- Backcountry skiing / Cross-country skiing / Heli-skiing (27)
- Snowboarding (28)
- Camping (29)
- Campervanning (30)
- Four-wheel driving (31)
- Nature photography (32)
- Bird watching and wildlife viewing (33)
- Other (please specify) (34) \_\_\_\_\_

5. Now we would like to know about your main forms of outdoor recreation in the twelve months prior to the March-April Level 4 lockdown (multiple answers possible). Please select up to three outdoor activities, which you would consider to be your main forms of outdoor recreation in the twelve months **prior** to the March-April Level 4 lockdown.

- Outdoor walking for recreation (Less than 1 hour) (1)
- Outdoor walking for recreation (1 - 4 hours) (2)
- Day walks (More than 4 hours) (3)
- Overnight tramping / hiking (4)
- Trail running (5)
- Mountain biking (6)
- Orienteering/rogaining (7)
- Geocaching (8)
- Hunting (9)
- Horse riding (10)
- Swimming in lakes, rivers or the sea (11)
- Snorkelling / Scuba diving (12)
- Surfing (13)
- Windsurfing (14)
- Kayaking (15)
- Rowing (16)
- Dragon boating (17)
- Sailing (18)
- Jet boating (19)
- Marine fishing (20)
- Fresh water fishing (21)
- Outdoor rock climbing (22)
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- Canyoning (24)
- Hang gliding (25)
- Downhill skiing (26)
- Backcountry skiing / Cross-country skiing / Heli-skiing (27)
- Snowboarding (28)
- Camping (29)
- Campervanning (30)
- Four-wheel driving (31)
- Nature photography (32)
- Bird watching and wildlife viewing (33)
- Other (please specify) (34) \_\_\_\_\_

6. Please choose the option which best describes how often you participated in each outdoor recreation activity before the March-April Level 4 lockdown. For seasonal activities (such as skiing), please estimate how often you did the activity during the relevant season.

Activity	Daily	4-6 times a week	2-3 times a week	Once a week	Once or twice a month	Once every few months	Once or twice a year	Less than once a year
Outdoor walking for recreation (Less than 1 hour)								
Outdoor walking for recreation (1-4 hours)								
Day walks (More than 4 hours)								
Overnight tramping / hiking								
Trail running								
Mountain biking								
Orienteering/rogaining								
Geocaching								
Hunting								
Horse riding								
Swimming in lakes, rivers or the sea								
Snorkelling / Scuba diving								
Surfing								
Windsurfing								
Kayaking								
Rowing								
Dragon boating								
Sailing								
Jet boating								
Marine fishing								
Fresh water fishing								
Outdoor rock climbing								
Abseiling								
Canyoning								
Hang gliding								
Downhill skiing								
Backcountry skiing / Cross-country skiing / Heli-skiing								
Snowboarding								
Camping								
Campervanning								
Four-wheel driving								
Nature photography								
Bird watching and wildlife viewing								
Other (please specify)								

7. Now we'd like to know a bit more about why you participate in outdoor recreation. People engage in outdoor recreation for many reasons. To what extent do the following things influence your participation in outdoor recreation? I participate in outdoor recreation because I want ...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
To be healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be physically active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get away from people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be in a spiritual place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To experience a quiet place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To see a new place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To see a familiar place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get away from the town or city	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To experience / learn about nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To view scenery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get 'back to basics' for a while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To meet new people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be with friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be with family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To challenge myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To take risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To compete against others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To lead or to teach others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Section 3: Outdoor recreation during the March-April Level 4 lockdown (5 weeks)

This section will ask you about the types of recreation you did and settings you visited during the 5 weeks of March-April Level 4 lockdown.

8. Which of the following outdoor settings did you visit for recreation during the March-April Level 4 lockdown period? Tick all that apply.

- Local neighbourhood park
- Regional park (for example, Council-managed tracks)
- Conservation area (for example, DOC-managed area)
- National Park
- Great Walk
- Beach / Coastal area
- River / Lake
- Ocean
- Skifield

9. Please select all the types of outdoor recreation activities that you did during the 5 weeks of the March-April Level 4 lockdown. (multiple answers possible).

- Outdoor walking for recreation (Less than 1 hour)
- Outdoor walking for recreation (1 - 4 hours)
- Day walks (More than 4 hours)
- Overnight tramping / hiking
- Trail running
- Mountain biking
- Orienteering / rogaining
- Geocaching
- Hunting
- Horse riding
- Swimming in lakes, rivers or the sea
- Snorkelling / Scuba diving
- Surfing
- Windsurfing
- Kayaking
- Rowing
- Dragon boating
- Sailing
- Jet boating
- Marine fishing
- Fresh water fishing
- Outdoor rock climbing
- Abseiling
- Canyoning
- Hang gliding
- Camping
- Campervanning
- Four-wheel driving
- Nature photography
- Bird watching and wildlife viewing
- I did not do any outdoor recreation during the March-April Level 4 lockdown
- Other (please specify) \_\_\_\_\_

10. Now we would like to know about your main forms of outdoor recreation during the March-April Level 4 lockdown. Please select up to three outdoor activities, which you would consider to be your main forms of outdoor recreation during the 5 weeks of the March-April Level 4 lockdown .

- Outdoor walking for recreation (Less than 1 hour) (1)
- Outdoor walking for recreation (1 - 4 hours) (2)
- Day walks (More than 4 hours) (3)
- Overnight tramping / hiking (4)
- Trail running (5)
- Mountain biking (6)
- Orienteering / rogaining (7)
- Geocaching (8)
- Hunting (9)
- Horse riding (10)
- Swimming in lakes, rivers or the sea (11)
- Snorkelling / Scuba diving (12)
- Surfing (13)
- Windsurfing (14)
- Kayaking (15)
- Rowing (16)
- Dragon boating (17)
- Sailing (18)
- Jet boating (19)
- Marine fishing (20)
- Fresh water fishing (21)
- Outdoor rock climbing (22)
- Abseiling (23)
- Canyoning (24)
- Hang gliding (25)
- Camping (26)
- Campervanning (27)
- Four-wheel driving (28)
- Nature photography (29)
- Bird watching and wildlife viewing (30)
- I did not do any outdoor recreation during the March-April Level 4 lockdown (31)
- Other (please specify) (32) \_\_\_\_\_

11. Please choose the option which best describes how often you participated in each outdoor recreation activity during the Level 4 March lockdown.

Activity	Daily	4-6 times a week	2-3 times a week	Once a week	Once or twice a month	Once every few months	Once or twice a year	Less than once a year
Outdoor walking for recreation (Less than 1 hour)								
Outdoor walking for recreation (1 - 4 hours)								
Day walks (More than 4 hours)								
Overnight tramping / hiking								

Trail running								
Mountain biking								
Orienteering / rogaining								
Geocaching								
Hunting								
Horse riding								
Swimming in lakes, rivers or the sea								
Snorkelling / Scuba diving								
Surfing								
Windsurfing								
Kayaking								
Rowing								
Dragon boating								
Sailing								
Jet boating								
Marine fishing								
Fresh water fishing								
Outdoor rock climbing								
Abseiling								
Canyoning								
Hang gliding								
Camping								
Campervanning								
Four-wheel driving								
Nature photography								
Bird watching and wildlife viewing								
I did not do any outdoor recreation during the March-April Level 4 lockdown								
Other (please specify)								

12. Which of the following best describes **your residential setting during the lockdown period**? Please select one only.

- Inner city / CBD (6)
- Urban / suburban (1)
- Rural (3)
- Rural-remote (5)
- Other (4)



#### Section 4: Outdoor recreation since the end of the March-April Level 4 lockdown.

This section will ask you about the types of outdoor recreation you have participated in since the March-April Level 4 lockdown ended, as well as a few questions about how the pandemic has affected your outdoor recreation overall.

13. Which of the following outdoor settings have you visited for recreation **since the end of the March-April Level 4 lockdown (Monday 27 April – today)**? Tick all that apply.

- Local neighbourhood park (1)
- Regional park (for example, Council-managed tracks) (4)
- Conservation area (for example, DOC-managed tracks) (5)
- National Park (6)
- Great Walk (8)
- Beach / Coastal area (2)
- River / Lake (3)
- Ocean (7)
- Skifield (9)

14. Please select all the types of outdoor recreation activities that you have done since the end of the March-April Level 4 lockdown (Monday 27 April – today) (multiple answers possible).

- Outdoor walking for recreation (Less than 1 hour)
- Outdoor walking for recreation (1 - 4 hours)
- Day walks (More than 4 hours)
- Overnight tramping / hiking
- Trail running
- Mountain biking
- Orienteering/rogaining
- Geocaching
- Hunting
- Horse riding
- Swimming in lakes, rivers or the sea
- Snorkelling / Scuba diving
- Surfing
- Windsurfing
- Kayaking
- Rowing
- Dragon boating
- Sailing
- Jet boating
- Marine fishing
- Fresh water fishing
- Outdoor rock climbing
- Abseiling
- Canyoning
- Hang gliding
- Downhill skiing
- Backcountry skiing / Cross-country skiing / Heli-skiing
- Snowboarding
- Camping
- Campervanning
- Four-wheel driving
- Nature photography
- Bird watching and wildlife viewing
- Other (please specify) \_\_\_\_\_

15. Now we would like to know about your **main** forms of outdoor recreation since the end of the March-April Level 4 lockdown (Monday 27 April – today) (multiple answers possible). Please select **up to three** outdoor activities which you would consider to be **your main forms of outdoor recreation** since the end of the March-April Level 4 lockdown.

- Outdoor walking for recreation (Less than 1 hour)
- Outdoor walking for recreation (1 - 4 hours)
- Day walks (More than 4 hours)
- Overnight tramping / hiking
- Trail running
- Mountain biking
- Orienteering/rogaining
- Geocaching
- Hunting
- Horse riding
- Swimming in lakes, rivers or the sea
- Snorkelling / Scuba diving
- Surfing
- Windsurfing
- Kayaking
- Rowing
- Dragon boating
- Sailing
- Jet boating
- Marine fishing
- Fresh water fishing
- Outdoor rock climbing
- Abseiling
- Canyoning
- Hang gliding
- Downhill skiing
- Backcountry skiing / Cross-country skiing / Heli-skiing
- Snowboarding
- Camping
- Campervanning
- Four-wheel driving
- Nature photography
- Bird watching and wildlife viewing
- Other (please specify)

16. Please choose the option which best describes how often you participated in each outdoor recreation activity since the March-April Level 4 lockdown.

Activity	Daily	4-6 times a week	2-3 times a week	Once a week	Once or twice a month	Once every few months	Once or twice a year	Less than once a year
Outdoor walking for recreation (Less than 1 hour)								
Outdoor walking for recreation (1 - 4 hours)								
Day walks (More than 4 hours)								
Overnight tramping / hiking								
Trail running								
Mountain biking								
Orienteering/rogaining								
Geocaching								
Hunting								
Horse riding)								
Swimming in lakes, rivers or the sea)								
Snorkelling / Scuba diving								
Surfing								
Windsurfing								
Kayaking								
Rowing								
Dragon boating								
Sailing								
Jet boating								
Marine fishing								
Fresh water fishing								
Outdoor rock climbing								
Abseiling								
Canyoning								
Hang gliding								
Downhill skiing								
Backcountry skiing / Cross-country skiing / Heli-skiing								
Snowboarding								
Camping								
Campervanning								
Four-wheel driving								
Nature photography								
Bird watching and wildlife viewing								
Other (please specify)								

17. If you have changed your participation in outdoor recreation after the March-April Level 4 lockdown ended, we'd like to know a bit more about why. Do you think the March-April Level 4 lockdown had an impact on your outdoor recreation activity now? Choose the answer which best describes you.

- Yes, I think I **increased** my outdoor recreation overall after the March-April Level 4 lockdown
- Yes, I think I **decreased** my outdoor recreation overall after the March-April Level 4 lockdown
- No, I don't think the March-April Level 4 lockdown had any impact on my outdoor recreation behavior after the lockdown ended.

18. Please indicate your **reason/s** by showing your agreement or disagreement with the following statements: My outdoor recreation **increased** since the end of the March-April Level 4 lockdown **because...**

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (6)	Agree (7)	Strongly agree (8)
I wanted to escape feeling lonely (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wanted to get outdoors as much as possible after lockdown(7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My working hours had been reduced (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wanted to make the most of there being fewer people in outdoor recreation areas(9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was more aware of needing to keep myself healthy (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The lockdown gave me time to consider what was important to me (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wanted to make the most of fewer international visitors at recreation sites(12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wanted to explore new places (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify) (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Please indicate your **reason/s** by indicating your agreement or disagreement with the following statements: My outdoor recreation **decreased** since the end of the March-April Level 4 lockdown **because...**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I have fewer people to go with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have less time for recreation now due to other obligations in my life (e.g. work, childcare, household responsibilities, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been trying to follow social distancing guidelines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I haven't been able to travel to places I would normally recreate due to travel restrictions imposed by the government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The area or facility where I want to participate in outdoor recreation was closed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My access to transportation has reduced because of COVID-19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have less disposable income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt unwell	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been concerned about contracting the COVID-19 virus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been concerned about getting injured and requiring help)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. As a result of the current global COVID-19 pandemic, I have ...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Thought more than I did in the past about visiting New Zealand's natural areas for recreation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Become more interested than I was in the past in New Zealand as a place to take holidays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connected more often than I did in the past with friends and family in the outdoors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Looked forward to a time when international visitors can return to New Zealand's natural areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accepted that any holidays I take will be in New Zealand for the time being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt more compassionate than I did in the past towards those with limited access to the outdoors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appreciated outdoor recreation in my home locality more than I did in the past	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt more compelled to take better care of nature than I did in the past	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. For these last three questions of Section 3, **please choose one answer:** I have travelled more than 100km (one way) for outdoor recreation since the March-April Level 4 lockdown ended

- Yes
- No
- Don't know

22. I have visited at least one new place for outdoor recreation since the March-April Level 4 lockdown ended

- Yes
- No
- Don't know

23. I intend to increase my outdoor recreation in the next 6 months

- Yes
- No
- Don't know

24. Is there anything else you would like to add about your experience of outdoor recreation before, during, or after lockdown? Please feel free to explain your answers in the box below:

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### Section 5: Profile Information

In this final section we ask you some basic profile questions to help us understand who is participating in outdoor recreation in New Zealand. We remind you that all your responses will remain anonymous.

25. Which of the following best describes your **current** work status? (Please tick one box only)

- Unemployed (1)
- In paid employment (full-time) (2)
- In paid employment (part-time) (3)
- In unpaid employment (4)
- Homemaker/caregiver (5)
- Retired (6)
- Student (7)
- Other (please specify) (8) \_\_\_\_\_

26. Which of the following groups best describes **your age**?

- 18 to 24 years
- 25 to 29 years
- 30 to 34 years
- 35 to 39 years
- 40 to 44 years
- 45 to 49 years
- 50 to 54 years
- 55 to 59 years
- 60 to 64 years
- 65 to 69 years
- 70 to 74 years
- 75 to 79 years
- 80 to 84 years
- 85 to 89 years
- 90 year or older



27. In which part of New Zealand do you normally **live**? (please tick one box only)

- Northland (1)
- Auckland (2)
- Waikato (3)
- Bay of Plenty (4)
- Gisborne (5)
- Hawke's Bay (6)
- Taranaki (7)
- Manawatū-Whanganui (8)
- Wellington (9)
- Tasman (10)
- Nelson (11)
- Marlborough (12)
- West Coast (13)
- Canterbury (14)
- Otago (15)
- Southland (16)
- Other (please specify) (17) \_\_\_\_\_

28. Which of the following **ethnicities** do you identify with? (Multiple answers possible)

- Pakeha/NZ European
- Other European
- NZ Māori
- Samoan
- Cook Island Maori
- Tongan
- Niuean
- Tokelauan
- Fijian
- Other Pacific Island
- Southeast Asian
- Chinese
- Indian
- Other Asian
- Middle Eastern
- Latin American / Hispanic
- African
- Don't know
- Prefer not to answer
- Other ethnicity

29. Which of the following **best** describes your **gender**?

- Male (1)
- Female (2)
- Gender diverse (3)
- Prefer not to say (4)

30. What do you consider to be your main **educational qualification** (please tick one box only)

- No formal qualification (1)
- High school qualification (2)
- Vocational or trade qualification (3)
- Bachelor Degree (4)
- Higher Degree (5)
- Other (please specify) (6) \_\_\_\_\_

31. What is **your total individual annual income** that you receive before tax? (Please tick one box only)

- Loss (1)
- Zero income (2)
- \$1 - \$5,000 (3)
- \$5,001 - \$10,000 (4)
- \$10,001 - \$15,000 (5)
- \$15,001 - \$20,000 (6)
- \$20,001 - \$25,000 (7)
- \$25,000 - \$30,000 (8)
- \$30,001 - \$35,000 (9)
- \$35,001 - \$40,000 (10)
- \$40,001 - \$50,000 (11)
- \$50,001 - \$60,000 (12)
- \$60,001 - \$70,000 (13)
- \$70,001 - \$100,000 (14)
- \$100,001 or \$150,000 (15)
- \$150,001 or more (16)
- Not stated (17)

32. Would you like to take part in an interview over the phone/online to share further insight on how you are making use of outdoor settings for recreation in the current global COVID-19 pandemic?

- Yes (1)
- No (2)

33. Thank you for showing interest in a phone or online interview. Please enter your phone number and email below and we will contact you.

- Phone number \_\_\_\_\_
- Email \_\_\_\_\_

Thank you!

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