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**The implications of climate change for Māori-led tourism businesses
in New Zealand/Aotearoa: A case study of Westland Tai Poutini
National Park and its proximate destination townships**

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Master of Applied Science

at
Lincoln University
by
Abby Louise Hamilton

**The implications of climate change for Māori-led tourism businesses
in New Zealand/Aotearoa: A case study of Westland Tai Poutini
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2024

This study set out to explore through qualitative semi-structured interviews (n= 13) how selected Māori-led tourism businesses are experiencing and adapting to the effects of climate change in Westland Tai Poutini National Park and proximate destination townships. The research sought to explore how Māori-led tourism businesses are preparing for the predicted climate change impacts and how their businesses' adaptation planning aligns with Māori values. Also explored, in the context of climate change adaptation, were the risks and opportunities for Māori-led tourism businesses in Te Tai Poutini. The results of this research provide a cultural lens, which is rarely considered for climate change adaptation. The findings will inform strategy discussions among tourism operators, managers and the wider tourism sector in relation to climate change adaptation planning.

Keywords: Climate Change Impacts, Climate Change Adaptation, Māori-led Tourism, Tourism New Zealand/Aotearoa, Resilience, Tourism Industry, Regenerative Tourism, Māori Worldview.

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List of abbreviations

CCAAP:	Department of Conservation climate change adaptation action plan
DOC:	Department of Conservation
EECA:	Energy Efficiency & Conservation Authority
IPCC:	Intergovernmental Panel of Climate Change
MLTB:	Māori-Led Tourism Business
NAP:	Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarangi Adapt and thrive: Building a climate-resilient New Zealand – New Zealand's first national adaptation plan
NTT:	Ngāi Tahu Tourism
TAC:	The Tourism Adaptation Classification (TAC) Framework: An application to New Zealand's Glacier Country (Strong, Stewart, & Espiner, 2023)
TIA:	Tourism Industry Aotearoa Tourism (TIA) is the only independent association that represents all sectors of New Zealand's large and diverse tourism industry
TRONT:	Te Rūnanga o Ngāi Tahu
UNDRR:	United Nations Disaster Risk Reduction
UNSDG:	United Nations Sustainable Development Goals
UNWTO:	United Nations World Tourism Organisation

Glossary

Aotearoa:	New Zealand
Hapū:	kinship group, clan, tribe, subtribe - section of a large kinship group and the primary political unit in traditional Māori society
Iwi:	extended kinship group, tribe, nation, people, nationality, race - often refers to a large group of people descended from a common ancestor and associated with a distinct territory
Kā Roimata o Hinehukatere:	Franz Josef Glacier
Kaimahi:	worker, employee, clerk, staff
Kaitiakitanga:	guardianship, stewardship, trusteeship, trustee
Kaitiaki:	Guardian, steward, trustee
Kā Tiritiri o te Moana:	Southern Alps, mountain range on South Island, New Zealand. It is the highest range in Australasia.

Kaumātua:	adult, elder, elderly man, elderly woman, old man - a person of status within the whānau
Manaakitanga:	hospitality, kindness, generosity, support - the process of showing respect, generosity and care for others
Pounamu:	greenstone, nephrite, jade
Te Moeka o Tuawe:	Fox Glacier
Te Tai Poutini:	Westland/Wider West Coast region
Te Taiao:	The natural environment
Te Wai Pounamu:	South Island; South Island - sometimes written as Te Wai Pounamu, Te Wāhi Pounamu or Te Wāi Pounamu
Tikanga:	Correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context
Whānau:	extended family, family group, a familiar term of address to a number of people - the primary economic unit of traditional Māori society. In the modern context the term is sometimes used to include friends who may not have any kinship ties to other members
Whanaungatanga:	Relationship, kinship, sense of family connection - a relationship through shared experiences and working together which provides people with a sense of belonging. It develops as a result of kinship rights and obligations, which also serve to strengthen each member of the kin group. It also extends to others to whom one develops a close familial, friendship or reciprocal relationship
Whenua:	land - often used in the plural
Te Tiriti o Waitangi:	Treaty of Waitangi: The Treaty of Waitangi was signed in 1840 and was an agreement between the British Crown and a large number of Māori chiefs. Today the Treaty is widely accepted to be a constitutional document that establishes and guides the relationship between the Crown in New Zealand (embodied by our government) and Māori

Chapter 1: Introduction

1.1 Introduction

This research focuses on the climate sensitive tourism industry in New Zealand/Aotearoa. In particular, the focus is on selected Māori-led tourism businesses (MLTBs) operating within Westland Tai Poutini's National Park and proximate destination townships. Westland Tai Poutini National Park is situated in the centre of Te Tai Poutini West Coast region of South Island/Te Wai Pounamu, New Zealand/Aotearoa. The region is highly sensitive to climate-induced change, so a key focus of the research is on the implications of climate change for MLTBs.

Climate change is currently creating worldwide impacts and is expected to have further impacts in the future, whereby the nature of these impacts will have differing effects in character and extent (IPCC, 2023). In the current global climate change crisis, there is particular investment in the knowledge and viewpoints of indigenous people's worldviews that has deep and meaningful connections to the environment (Nakashima & Krupnik, 2018). In New Zealand/Aotearoa, intergenerationally, genealogy/whakapapa is central to the Māori worldview (Salmond, 1992). Whakapapa signifies interconnectedness between everything (Salmond, 2012), ancestral links are connected to the natural environment/Te Taiao. Māori have embraced the role of kaitiakitanga (guardian) where kaitiakitanga protect the natural environment/Te Taiao and its resources, meeting the needs for today's people and the needs of future generations. Even though future generations have little assurance they will have access to the same environment and resources as today. It is the duty of kaitiaki, as it was their ancestor's duty, to learn from the environment and pass on that knowledge. Daily, tikanga Māori is incorporated interconnectedly with the environment through Māori cultural practices and values; the role of kaitiaki is just one example. Māori cultural, social and economic organisations invested in the climate sensitive tourism industry are powerfully and intergenerationally linked to the natural environment/Te Taiao. MLTBs are part of these structures that are at risk of the effects of climate change (King, Penny., & Severne, 2010; Munshi, Munshi, Kurian, Morrison, Kathlene., & Cretney, 2020; Macinnis-Ng, Ziedins, Ajmal, Baisden, Hendy, McDonald, Priestley, Salmon, Sharp., & Tonkin, 2024).

In recent times there has been engagement amongst Māori through tourism to promote Māori cultural traditions, inherent values placing the environment at the forefront, and support of family/whānau through employment within the industry (Matunga, Matunga, & Urlich, 2020). The Intergovernmental Panel on Climate Change (IPCC) advocates that local iwi play a significant role in clarifying climate change risks and policy responses. The IPCC report suggests, the "impacts of climate change, adaptation and mitigation actions present a risk for Tangata Whenua New Zealand Māori. A risk of 'modern-day breaches' of the Treaty of Waitangi/Te Tiriti o Waitangi due to the government being

“unable to uphold Māori interests, values and practises” (Lawrence, Mackey, Chiew, Costello, Hennessy, Lansbury, Nidumolu, Pecl, Rickards, Tapper., Woodward, 2022a, p. 1631). Regardless of the recognition of Māori knowledge as a central focus in climate change dialogue in Aotearoa, this knowledge and engagement with Māori is sparsely documented (Parsons, 2019). Additionally, most available information on climate change can be difficult to understand with all the technical language, hindering engagement with communities. More integrated research needs to take place to learn how the Māori worldview can inform the assessment of impacts, risks and opportunities arising from climate change to assist in climate change adaptation planning (Munshi et al., 2020; Johnson, Parsons., & Fisher, 2022a).

1.2 The research approach and value

To address this gap, the research is designed around three key overarching questions:

- How are selected MLTBs experiencing the effects of climate change in Westland Tai Poutini National Park and its proximate destination townships;
- What evidence is there that MLTBs are adapting to climate change in Westland Tai Poutini National Park and its proximate destination townships, and in what ways do these adaptations align with Māori values;
- In the context of climate change adaptation, what are the risks and opportunities for MLTBs in Westland Tai Poutini National Park and its proximate destination townships.

This research thesis was driven by a qualitative approach to enable flexibility to capture the richness of key informants’ experiences and perspectives, allowing emergent themes to naturally arise from the data. A qualitative approach enables a deeper understanding of the subject matter, as the researcher can explore the intricacies and subtleties that may not be apparent through quantitative methods alone. This also allowed the researcher to explore a less-explored research domain without constraints. It also fosters a more organic process, where the themes that emerge guide the analysis, rather than being predetermined by the researcher. This approach can lead to valuable insights and contribute to the development of theory in the social sciences.

The method involved qualitative, semi structured interviews pursuing perspectives on climate change effects and impacts on the tourism industry with MLTB owners, managers and employees/kaimahi, local and national tourism organisations, and local government representatives in in the West Coast/Te Tai Poutini region. This region is a popular tourism destination, particularly because it encompasses two of New Zealand/Aotearoa’s renowned tourist attractions Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere both located in Westland Tai Poutini National Park. These glaciers are major attractions that significantly bolster the region's economy serving as primary drivers

of tourism. Annually, over one million visitors journey through the region (Wilson, Espiner, Stewart., & Purdie, 2014; WDC, 2023).

It is intended that the research has broad policy implications as it may aid governmental bodies, councils and the wider tourism sector in developing climate change adaptation strategies and strategic management solutions that support the prosperity of the region.

1.3 Structure of the thesis

The thesis comprises six chapters. Following the introduction, Chapter 2 presents a literature review relevant to the research topic. This literature includes academic research on the effects of climate change on the tourism industry in New Zealand/Aotearoa, internationally and in the case study region. Also included is literature on the tourism industry and climate change adaptations, and Indigenous-led tourism businesses and climate change adaptation in New Zealand/Aotearoa and internationally. Chapter 2 concludes with a summary that highlights key gaps in the existing literature, thereby underscoring the relevance of this research.

Chapter 3 details the methodology employed in this research. It includes detailed descriptions of the research process, the procedures for data collection, and the analytical approach utilised. Furthermore, it reflects on the qualitative interviewing techniques employed and acknowledges limitations, as well as my own positionality, in relation to the research.

Chapter 4, Part 1, provides a discussion and analysis of how MLTBs in the West Coast/Te Tai Poutini region are experiencing climate change effects through the presentation of key informants' perspectives on the tourism industry in the region. These insights emphasise how the tourism industry, including MLTBs depend on Aotearoa's climate sensitive natural environment (Macinnis-Ng et al., 2024). The chapter then outlines key informants' observations of the effects of climate change impacts currently experienced in the region, and how information is sourced about future climate change scenarios. The case study setting demonstrates the climate sensitive nature of the glacier tourist region, and highlights experiences of extreme weather events creating disastrous consequences such as the Waiho Bridge collapse in 2019 (Stewart, Wilson, Espiner, Purdie, Lemieux., & Dawson, 2016; Strong, Stewart., & Espiner, 2023).

Chapter 5, Part 2, presents and analyses the findings from qualitative interviews with key informants regarding their perspectives on the risks and opportunities arising from climate change impacts, as well as the anticipated effects on MLTBs in the study area. The extent to which Māori values influence potential risks and opportunities arising from climate change and adaptation strategies for MLTBs in the region are also presented. This chapter then examines informants' observations of how

the Māori worldview informs climate change adaptation, followed by discussions on their perceptions regarding the role of Māori values in shaping climate change adaptation policies in New Zealand/Aotearoa, particularly within government legislation.

Chapter 6 serves as a concluding discussion that integrates the findings presented throughout the thesis. This concluding discussion synthesises the research findings to explore the implications of climate change impacts on MLTBs in Westland Tai Poutini National Park and nearby destination towns. First, the discussion highlights key informants' insights suggesting that the tourism sector will face ongoing challenges. Adaptation to a changing environment will require resilience and innovative strategies (Strong et al., 2023; TIA, 2024, p. 14). Second, the discussion presents the documented impacts of climate change observed in the case study area. These effects are widespread, indicating future disruptions due to climate change impacts, including those specific to the study area (Lawrence, Wreford & Allan, 2022; Levy, Naish, Lowry, Priestley, Winefield, Alevropolous-Borrill, Beck, Bell, Blick, Dadic, Gillies, Golledge, Heine, Jendersie, Lawrence, O'Leary, Paulik, Roberts, Taitoko., & Trayling, 2023; IPCC, 2023). Third, it examines the challenges and opportunities for MLTBs in responding to climate change, and the need for MLTBs to diversify their offerings as part of adaptation strategies. The chapter also discusses implications for policy and planning and underscores the significant challenges in integrating the Māori worldview into government-led strategies, highlighting the complexities of incorporating indigenous perspectives into conventional policy frameworks (Johnson et al., 2022a). Lastly, the chapter outlines future research opportunities.

A brief positionality statement of the researcher is outlined as follows and is discussed more in-depth in Chapter 3;

'I have spent the past 20 years living in small towns near Westland Tai Poutini National Park and working in various roles including Outdoor Tour Guide, Park Ranger, and Secondary School Teacher. During this time, I have observed significant environmental changes. I am a member of Ngāi Tahu iwi with ancestral ties to Banks Peninsula/Te Pātaka o Rākaihautū in Canterbury/Waitaha, I have resided in Greymouth/Māwhera in recent years. My personal connection and role in this research have fuelled my passion for undertaking this study, which acknowledges potential biases in data analysis, prompting the use of qualitative research methods to mitigate them'

Chapter 2: Literature Review

2.1 Introduction

This chapter examines literature and intends to offer the research backdrop of the study in relation to the implications of climate change for MLTBs in Westland Tai Poutini National Park, and its proximate destination townships. This chapter concentrates on five sections: The effects of climate change on the tourism industry in New Zealand/Aotearoa; Tourism and climate change effects in Westland Tai Poutini National Park and its proximate destination townships; The tourism industry and climate change adaptations; Indigenous-led tourism businesses and climate change adaptation; Resilience and climate change adaptation.

2.2 The effects of climate change on the tourism industry in New Zealand/Aotearoa

The tourism industry is regarded as a major economic driver worldwide, including in New Zealand/Aotearoa, many communities rely on tourism for economic growth (Brida, Gómez, & Segarra, 2020). The tourism industry depends on the climate sensitive natural environment/Te Taiao (Hughey & Becken, 2014; Lawrence, Wreford, Blackett, Hall, Woodward, Awatere, Livingston, Macinnis-Ng, Walker., & Fountain, 2023). Worldwide efforts to slow global emissions remain uncertain, and the effects of climate change are varying across New Zealand/Aotearoa. The melting of the glaciers and rise of sea levels are already evident. The clean-ice glaciers (Figure 3) are expected to retreat to become small remnants in the high mountains. Anderson, Mackintosh, Dadić, Oerlemans, Zammit, Doughty, Sood., & Mullan's. (2021. p.1) study found, that in the middle of the Southern Alps/Kā Tiritiri o te Moana of New Zealand/Aotearoa, "over the period 2006–2099 further volume loss of 19% reduction is committed under present-day climate. AD 2099 is estimated a reduction of 50–92% relative to present day." The Southern Alps/Kā Tiritiri o te Moana in the South Island/Te Wai Pounamu were identified as a "vulnerable hotspot by 2050" in the same study. Estimated changes to New Zealand/Aotearoa's natural environment/Te Taiao from climate change effects are increasingly recognised (Mannakkara, Elkhidir, & Matiu, 2023; Macinnis-Ng et al., 2024). The effects of climate change on picturesque natural landscapes have the potential to be disastrous for the tourism sector (Bathgate, 2020). As Gössling & Scott (2024, p.1) state, "Climate change is no longer in the future, it is an evolving business and policy reality for tourism". Indigenous-led tourism is increasingly looked upon as a regenerative tourism answer to climate change adaptation (Vogel, Yumagulova, McBean., & Charles Norris, 2022).

Climate change is poised to impact the tourism sector in New Zealand/Aotearoa, either directly or indirectly, if it has not already begun to do so (The Aotearoa Circle, 2023; Ministry for the Environment, 2024). The recognised pressing climate change effects are listed in the latest IPCC report for New Zealand/Aotearoa (Lawrence, Wreford., & Allan, 2022 p.1591). Predicted impacts for New Zealand/Aotearoa are that less snow and glacial ice, increases in winter and spring rainfall are projected in the west of the South Island/Te Wai Pounamu, heavy rainfall intensity is projected to increase over most regions, with reduced relative humidity nearly everywhere, except for the west coast in winter (Ministry for the Environment Manatū Mō Te Taiao, 2022). The receding, disappearing and depreciation in aesthetics of glaciers will have economic and social impacts for the tourism industry. It is probable snow sports and mountaineering activities will be impacted by the predictions of less snow and frost days (Purdie, 2013; Wilson et al., 2014; Espiner & Becken, 2014; Stewart et al., 2016; Purdie, 2020; Cech, 2024). Tropical cyclones will potentially bring stronger wind and rain and cause severe damage. The risk to access of safe drinking water could be affected by the intense rainfalls impacting treatment systems (Salim, Ravel, Deline., & Gauchon, 2021; Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.21).

Evidence of these predictions are already apparent. Cyclone Fehi in 2018 wiped out parts of the Abel Tasman Track in the National Park, washing out bridges requiring trampers to trudge through storm water (Hayward, 2020; Adam, Hilton, Jowett., & Stephenson, 2021). Howden Hut on the Routeburn track in Fiordland National Park has been severely damaged by a storm. The damage to much needed shelters for users of National Parks poses serious risks to the users. During December 2019, heavy rainfall washed out access to several alpine tracks in the Aoraki/Mt Cook National Park (Littlewood, 2019; Somerfield, 2020). Early February 2023, not long before Cyclone Gabrielle hit in the North Island/Te Ika a Maui, the popular tourist spot Cathedral Cove was shut due to a massive landslide from heavy rainfall. With the impending Cyclone Gabrielle, the popular spot was closed with no reopening target date (Moore, 2023; Zakharovskiy, Németh, Gravis., & Twemlow, 2023; Department of Conservation Te Papa Atawhai, 2023a). Maintenance issues and fixing of storm event's damage to infrastructure at some tourist locations is already an issue in New Zealand/Aotearoa (Becken, Wilson., & Hughey, 2011; Rouse, Bell, Lundquist, Blackett, Hicks., & King, 2017; Munshi et al., 2020; Hughes, Cowper-Heays, Oleson, Bell., & Stroombergen, 2021; Elms, McCahon., & Dewhirst, 2022). The Department of Conservation Ta Papa Atawhai (DOC) estimates that roadways to some tourist destinations could be shut off due to more frequent storm destruction and viability of ongoing costs to repair them is at risk (Department of Conservation Te Papa Atawhai, 2020).

Climate change is already impacting New Zealand/Aotearoa's economy (Frame, Rosier, Noy, Harrington, Carey-Smith, Sparrow, Stone., & Dean, 2020; Lawrence et al., 2020; Lawrence et al., 2022). Future predictions of these impacts are to continue, "taxation, public revenues, and debt will be

affected” (Ministry for the Environment New Zealand Treasury, 2023, p.7; Hussain, 2023). New Zealand/Aotearoa’s tourism industry’s economy will be affected due to its reliance on the “climate-sensitive” natural environment/Te Taiao, as mentioned earlier. Recent World Travel & Tourism Council’s annual research reported on the latest economic contributions from the Travel & Tourism sector to world GDP. The total contribution to GDP in 2022 was 7.6%, this was up 22% from 2021 and 23% below 2019 GDP contributions (World Travel & Tourism Council, 2023). International borders are back open and recovering from the worldwide Covid-19 pandemic. Communities are starting to welcome back their much-needed visitors/manuhiri (Swart, Nhamo., & Dube, 2023). A majority of experts still believe “international tourism will not return to 2019 levels until 2024 (38%) or 2025 or later (23%)” (UNWTO, 2023, p.4: Tourism Industry Aotearoa, 2024). Recent statistics for New Zealand/Aotearoa from the ‘Tourism satellite account New Zealand’ (StatsNZ Tatauranga Aotearoa, 2023, p. 6): Year ended March 2023 which provides a picture of the role tourism plays in, shows ‘Key provisional estimates for the year ended March 2023, total tourism expenditure was \$37.7 billion, an increase of 39.6 percent (\$10.7 billion) from the previous year, and international tourism expenditure increased 456.9 percent (\$8.9 billion) to \$10.8 billion’. ‘Tourism generated a direct contribution to GDP of \$13.3 billion, or 3.7 percent of GDP, an increase of 30.9 percent (\$3.1 billion)’.

The probability climate change will affect New Zealand/Aotearoa’s natural environment/Te Taiao, culture, and economic growth has been recognised for some time, however, very few climate change adaptation plans have been put in place (Hennessy, Fitzharris, Bates, Harvey, Howden, Hughes, Salinger., & Warrick 2007). The last 30 years has seen a lack of research preparing the tourism industry on how to effectively prepare and adapt to climate change (Fountain, 2024). The next 30 years a “climate resilient transformation must take place” otherwise the probability of no tourism industry is high (Scott & Gössling, 2022, p.10). Internationally, multiple destinations are on their way to recovering pre-pandemic levels in 2024 or have already done so (UNWTO, 2024).

Debates about the need for a tourism ‘reset’ due to the pressing effects of climate change have been a common theme in both the scholarly literature as well as the popular press (Sigala, 2020; Ioannides & Gyimothy, 2020). However, as Becken, Whittlesea, Loehr., & Scott (2020, p. 1603) demonstrated in their analysis of 101 policy documents representing 61 countries over 17 years, “only 37 documents covered the tourism-climate nexus substantially, suggesting climate change has not yet become a priority for tourism policy makers”. The authors found there is a “lack of explicit tourism and climate change adaptation policies”. A recent EECA's quarterly insight into how the business sector is responding to climate change in New Zealand/Aotearoa states “more businesses are taking steps to get informed on what they can do [about climate change]”. The need and appetite for guidance has never been greater” (EECA, 2024, p. 3). This suggests tourism businesses in New Zealand/Aotearoa could lead the way to a greater understanding of potential adaptation to climate change. Awareness

of the pressing environmental impacts due to climate change in New Zealand/Aotearoa seems to be increasing, especially into tourism dependent townships already experiencing environmental changes (Knight, 2018; Strong et al., 2023).

The Aotearoa Circle's recent *'Tourism Sector Climate Change Scenarios'* report points out that, the effects of climate change on the tourism industry poses considerable "physical risks" and "transition risks". "Physical risks" occur from "chronic changes to climate", for example marine warming and sea level rise, and "acute extreme weather events", such as heavy rainfall and drought. The "physical risk" to tourism in New Zealand/Aotearoa include the "Inability to maintain Aotearoa New Zealand as an attractive destination, loss of species/biodiversity, inability to access attractions and locations, and reduction in operating days/opportunities" (The Aotearoa Circle, 2023, p.19). "Transition risks" occur during the process of climate change adaptation and adapting to a low carbon economy. As the Aotearoa Circle (2023, p. 19) continues to explain, the "transition risk" for the tourism industry in New Zealand/Aotearoa include "Reduction in positive customer sentiment for Aotearoa New Zealand. An increase in climate change regulation drives increased costs pressure on visitors/manuhiri. Inability for the tourism sector to keep up with the rate of change, and inability for operators to effectively conduct financially viable businesses."

2.3 Tourism and climate change effects in Westland Tai Poutini National Park and its proximate destination townships

Westland Tai Poutini National Park is situated in the centre of Te Tai Poutini West Coast region of South Island/Te Wai Pounamu, New Zealand/Aotearoa. Access is via SH6 via Hokitika in the north, and from the south via Haast (Figures 1 and 2, below). Early Māori settlements were located on the edges of Westland's Tai Poutini's lagoons and lakes. Ngāi Tahu tribe/iwi is connected to these areas. The area has cultural significance to Ngāti (Kāti) Māhaki hapu of the wider Ngai Tahu and Ngāti Mamoe tribe/iwi of the South Island/Te Wai Pounamu because of its resources and interconnections to tūpuna/ancestors (Department of Conservation Te Papa Atawhai, 2023b & 2023c; Te Rūnanga o Makaawhio, 2023). By the time Europeans first arrived in the 19th century, Ngāti Waewae a subgroup/hapu of Ngāi Tahu, asserted control over a significant proportion on the West Coast/Te Tai Poutini, they eventually became recognised as Poutini Ngāi Tahu (Nathen, 2016). Further research into how climate change effects are impacting the region will assist locally specific climate change adaptation planning for now and for the future (Brondízio, Aumeeruddy-Thomas, Bates, Carino, Fernández-Llamazares, Ferrari, Galvin, Reyes-García, McElwee., & Molnár, 2021). This research thesis focusses on selected Māori-led tourism businesses (MLTBs) operating within Westland Tai Poutini National Park and its proximate destination townships.

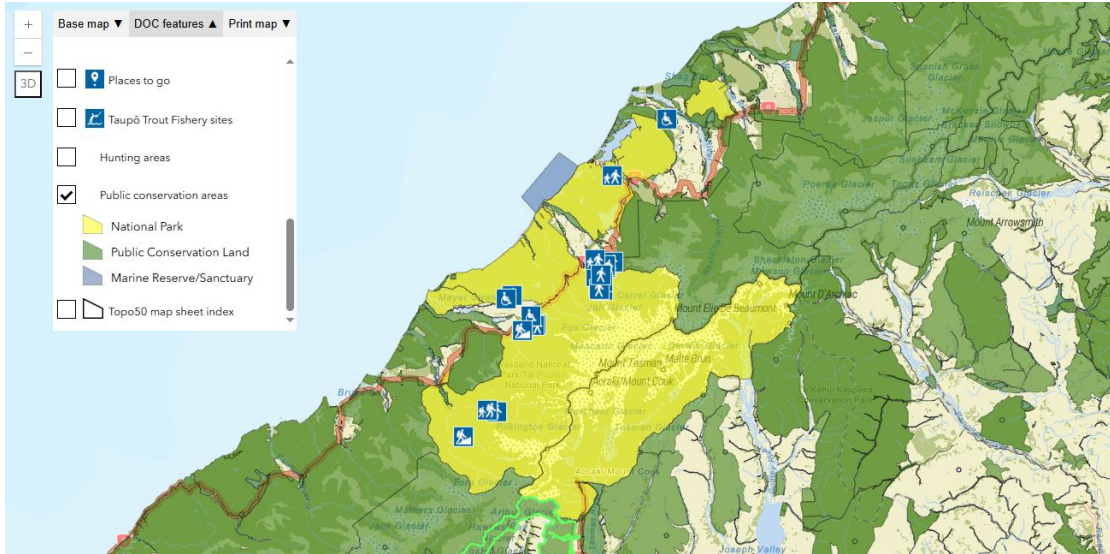


Figure 1

Westland Tai Poutini National Park map showing public and conservation lands (Department of Conservation Te Papa Atawhai, 2024g)

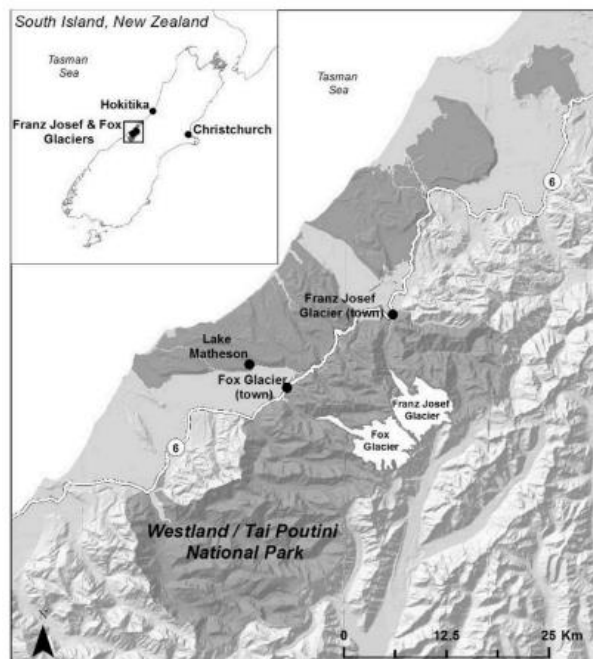


Figure 2

Location of Westland Tai Poutini National Park and Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere (Stewart et al., 2016; p. 381)

Ngāi Tahu Tourism will be directly affected by climate change by being a MLTB operating in Westland Tai Poutini National Park (Ngāi Tahu Tourism, 2024). Westland Tai Poutini National Park, and proximate

destination townships are reliant on tourism and will also be directly affected by climate change (Rahmawati, Jiang, & DeLacy, 2019). Part of Ngāi Tahu's Climate Change Strategy is to "contribute to shaping community climate change adaptation measures". Ngāi Tahu's values may help address the risks and opportunities that exist with climate change adaptation. McGlone (1989, P. 115) stated, "Management of areas set aside to preserve natural values must be based on an understanding of their history and likely future". Growing evidence suggests that investing in initiatives to reduce the impacts of disasters and climate change impacts and fostering regenerative tourism development during recovery and reconstruction is crucial. Ideas such as building back better, disaster risk reduction, resilience and preparedness have become widely accepted principles (Faivre, Sgobbi, Happaerts, Raynal., & Schmidt, 2018; Fountain & Cradock-Henry, 2020; Becken & Coghlan, 2024).

Two of New Zealand/Aotearoa's popular tourist destinations, Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere are situated within Westland Tai Poutini National Park. They are a major draw for tourists to the West Coast region, contributing to the region's economy (Stewart et al., 2016, p. 377). Over one million visitors/manuhiri travel through this region each year (Westland District Council, 2023). The shrinking ice masses may diminish the awe-inspiring views that have drawn people for generations.

For some time now, the area's infrastructure has been under threat from extreme weather events damage. During heavy rain events in early 2019, the Waiho bridge got washed away (see Figure 13), causing major disruptions (Waka Kotahi NZ Transport Agency, 2023). The Department of Conservation Te Papa Atawhai (2020, p.66), suggests "damage from frequent storm events could get much worse in the West Coast region". The expected costs for repairing infrastructure damage will rise. Since "February 2019, Fox Glacier/Te Moeka o Tuawe's roadway access is closed for the indefinite future due to continuous flooding damage" (Department of Conservation Te Papa Atawhai, 2020, p. 11-13 & 2019). An engineering report commissioned by Department of Conservation Te Papa Atawhai (DOC) and Waka Kotahi the New Zealand Transport Agency found it was no longer practical to re-establish road access into the valley. In 2020, at the time of DOC's Climate Change Adaptation Action Plan Te Papa Atawhai he whakamahere hātepe urutau mō te huringa āhuarangi 2020/21 - 2024/25 (CCAAP) release, suggestions were made that it was not possible to visit Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere by foot. Wilson et al.'s (2014, p. 4) earlier research in the case study area suggested "although both glaciers are still able to be accessed by air, this is highly weather-dependent, presenting both commercial/business challenges and issues surrounding customer satisfaction. Given these changes, it is both critical and timely to examine how climate change-induced biophysical changes to the glaciers will affect visitor access and scenic amenity". Tourism in the Glacier region of Westland Tai Poutini is a multimillion-dollar industry (Purdie, 2013).

Climate change adaptation seems necessary for tourism businesses in the region (Sommerfield, 2020; Cech, 2024).

Tourism businesses commercially operating within Westland Tai Poutini's National Park are required to hold a concessionaire from DOC to be able to legally operate within the park (Department of Conservation Te Papa Atawhai, 2023d). Department of Conservation Te Papa Atawhai (2020, p. 67) explains that concessionaires are dependent on the glaciers for their business operations and activities. Retreat of the glaciers and decreased foot access, increasing numbers of helicopter flights and landings associated with glacier tourism. The CCAAP acknowledges the need to expand knowledge on how climate change could affect 'concessionaire' users in Westland Tai Poutini National Park, to precede where constraints may occur and what can be done to mitigate those pressures of use. "For example, glaciers may no longer be a viable destination for tourist helicopter landings if visitor and concession safety is compromised as the glaciers retreat" (Department of Conservation Te Papa Atawhai, 2020, p.65). Changes to the glaciers may hinder helicopter landings in the future. The allowing of commercial concessions is directed by the Westland Tai Poutini National Park, which is periodically and currently under review (Ruru, 2004; Wilson, Purdie, Stewart., & Espiner, 2015; Tibbotts, 2018; Department of Conservation Te Papa Atawhai, 2018; Sommerfield 2020; New Zealand Government, 2023).

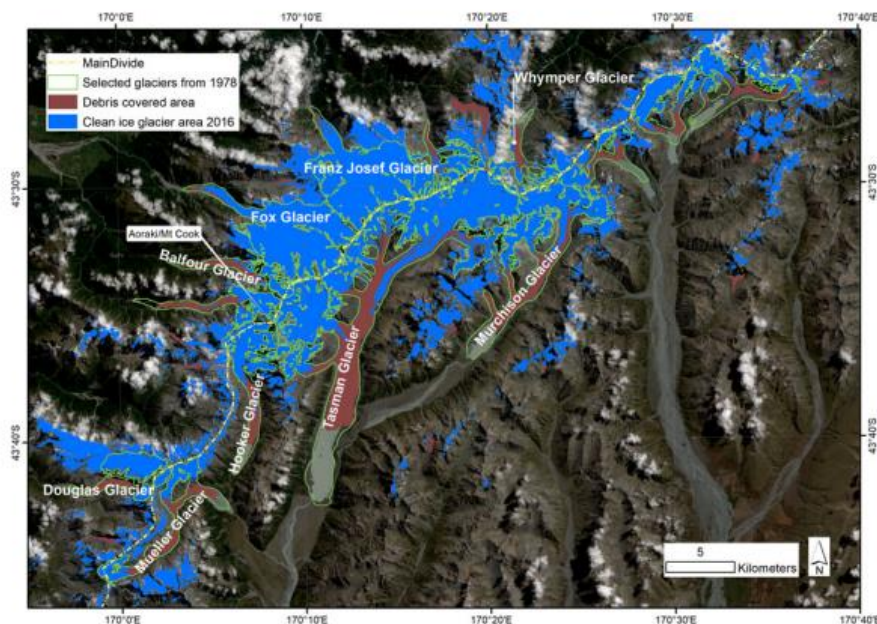


Fig. 11. Tasman, Fox and Franz Josef Glaciers with surrounding glacier area (for location see Fig. 1). Green outline = glacier area from 1978, blue area = clean ice glacier area from 2016, brown area = debris-covered glacier area from 2016 (background image: Sentinel-2 MSI from 12 February 2016).

Figure 3

Image of clean ice glaciers in the Southern Alps Kā Tiritiri te Moana (Baumann et al., p. 23, 2021)

Currently, guiding visitors/manuhiri onto the glacier illustrates the implications of climate change for the tourism sector. In 2022, Tumahai, Ngāi Tahu's leader/Te kaiwhakahaere at the time, describes a recent visit to Franz Josef Glacier/Kā Roimata o Hine Hukatere (2022, p. 2):

“It came as something of a physical shock. A blow to the senses. To visit Kā Roimata o Hine Hukatere for the first time in eight years, was devastating. This mighty glacier, that sits among the ancestors, a taonga of our people, a presence once so physically commanding, is shrinking into oblivion. Kā Roimata o Hine Hukatere has been subdued, humiliated by the actions of humans, actions remote yet undeniable. To see this retreating giant is to understand impermanence, to understand the real and terrible results of industrialisation, of climate change”.

Promotion of and showcasing the West Coast/Te Tai Poutini region for tourism is on the rise compared to 2022 (Development West Coast Te Ohu Whakawhanake o Te Tai Poutini, 2023). The region has been able to move ahead in recent times through projects funded by the International Visitor Levy, for example the new Māori-led visitor attraction has been developed near Fox Glacier township/Weheka between South Westland/Te Wai Pounamu DOC and the local iwi (see Figure 12). The back story to the site's development is a severe storm that washed out the access road to Fox Glacier/Te Moeka o Tuawe in 2019. This site showcases a giant carved waka at a viewpoint that looks towards the mountains, called “Te Kopikopiko o Te Waka”. It is the first Tohu Whenua site in the South Island that represents a tribe/iwi story and the first time a site was nominated by mana whenua (Department of Conservation, 2022). Radio New Zealand's media release in December 2022 stated, “It represented a national-universal story of creation: It is the creation story that goes back to the first people of this land. The site also gave visitors a real opportunity to view the glacier without having to walk several kilometres or take a flight” (Radio New Zealand, 2022). This initiative supported by the International Visitor Levy serve as an illustration of how visitors/manuhiri directly contribute to the preservation of the distinctive natural heritage they experience and the infrastructure they utilise during their stay (Ministry of Business Innovation & Employment Hikina Whakatutuki, 2024). The initiative has notably favoured the West Coast, including Glacier Country, with almost \$6 million NZD allocated for projects over a span of 5 years. These funds may enable Glacier Country and surrounding areas to bolster the resilience of their tourism infrastructure, equipping them to manage anticipated increases in visitor numbers and environmental changes (Strong et al., 2023, p. 12). How have steps been taken to achieve this?

The Alpine Fault is worth noting for this research purposes also. The Alpine Fault as Barth (2014, p. 327) describes, “an 880km long major active plate boundary structure spanning the length of the South Island of New Zealand”. The case study region, Te Tai Poutini lies alongside this fault line. Previous literature suggested there is a 30 percent chance of the Alpine Fault having a major rupture in the next 50 years (Okaya, Stern., & Davey, 2007; McDonald, Smith, Kim, Brown, Buxton., & Seville, 2018), recent

literature suggests there is currently a 75 percent chance of the Alpine Fault rupturing in the next 50 years (AF8 ALPINE FAULT MAGNITUDE 8, 2024). This impending rupture will cause environmental and economic disruption, plus devastating effects on lifelines (e.g. roads, rail, internet etc). Much of the case study area will be inaccessible for months (McDonald et al., 2018). Nonetheless, Lake-Hammond & Orchiston's study "Awareness to preparedness" (2024, p. 141), noted it is essential people and communities are involved with preparation, organising and implementation of projects which "reduce risk and increase resilience, pre- and post-disaster", the same could be said for climate change impacts. Espiner & Becken's (2014, p. 646) research in the case study area found "high levels of vulnerability do not necessarily determine low levels of resilience, nor vice versa. Rather than mutually exclusive, vulnerability and resilience are discrete, but highly compatible concepts that offer much to the analysis of protected area tourism facing global change". This suggests up to date research in this area will be valuable.

2.4 The tourism industry and climate change adaptation

As discussed above, the predicted impacts of climate change on the natural and cultural environments are varied and inevitable (Heathcote, Fluck., & Wiggins, 2017; Masson-Delmotte, Zhai, Pirani, Connors, Péan, Berger, Caud, Chen, Goldfarb., & Gomis, 2021). Already, the effects of climate change are evident in some tourist regions (Scott, Hall., & Stefan, 2012; Gössling & Humpe, 2020; Scott, 2021). The tourism industry is considered to be facing a climate change crisis, including in New Zealand/Aotearoa (Brunton, 2022). Until recently, there has been a lack of relevant strategies on how to respond to climate change effects and adaptation (Insch, 2020; Munshi et al., 2020). How is the tourism industry in New Zealand/Aotearoa responding to climate change adaptation in the current climate?

In 2015, the UN signed up to the 17 United Nations Sustainable Development Goals (UNSDGs), these are well known as Agenda 2030. Goal 13 specifically attains to the urgent need to address climate change impacts. There are 169 targets set within the 17 UNSDGs that combine economic, social and environmentally sustainable development. New Zealand/Aotearoa, a United Nations (UN) member, is committed to the UNSDGs (New Zealand Foreign Affairs & Trade Manatū Aorere, 2023). The United Nations World Tourism Organisation (UNWTO) acknowledges the tourism industry is a key industry contributing to job and wealth creation, economic growth, environmental protection and poverty alleviation (UNWTO, 2017, p.10). A well-designed and managed tourism industry can help preserve the natural and cultural heritage assets upon which it depends, empower host communities, generate trade opportunities, and foster peace and intercultural understanding. That said, the tourism industry contributes to pressures in terms of greenhouse gas emissions, economic leakages, resource management and impacts on local communities and cultural assets (Stoffelen & Ioannides, 2022). As

recently as 2023, New Zealand/Aotearoa's government acknowledges that co-governance efforts will need to be made to achieve the UNSDGs (Moewaka Barnes, Harmsworth, Tipa, Henwood., & McCreanor, 2021; United Nations, 2023a). There needs to be strong collaboration and pivotal action in sustainable development by all stakeholders in tourism to ensure the positive contributions of the sector can be maximised (Farmaki, 2015: Siakwah, Musavengane., & Leonard, 2020).

With the prospect of more severe and continuing extreme weather events, there is a demand for climate change adaptation measures in the tourism sector (Wolf, Filho, Singh, Scherle, Reiser, Telesford, Miljković, Havea, Li, Surroop., & Kovaleva, 2021: Abbass, Qasim, Song, Murshed, Mahmood., & Younis, 2022; Dube, Nhamo., & Chikodzi, 2022). In 2015, New Zealand/Aotearoa also became a signatory to the Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework), which “provides Member States with concrete actions to protect development gains from the risk of disaster” (UNDRR, 2024). Furthermore, in 2016, not long after the publication of the UNSDG's, New Zealand/Aotearoa signed The Paris Agreement, an international binding treaty, currently committed to by 194 countries. This agreement is an international driving force for developed countries to collectively commit to the effects of climate change, and aid developing nations in their climate mitigation and adaptation (Liu, McKibbin, Morris., & Wilcoxon, 2020; Ministry for the Environment, 2024a). The UNSDG's and The Paris Agreement have led to recent development of national led climate change adaptation plans (Bailey, Fitch-Roy, Inderberg., & Benson, 2021; Chan, Boran, van Asselt, Ellinger, Garcia, Hale, Hermwille, Liti Mbeva, Mert, Roger, Weinfurter, Widerberg, Bynoe, Chengo, Cherkaoui, Edwards, Gütschow, Hsu, Hultman, Levai, Mihnar, Posa, Roelfsema, Rudyk, Scobie., & Shrivastava, 2021; Pauw & Klein, 2020). Since 2017, New Zealand/Aotearoa has been engaged in governance restructuring aimed at reshaping priorities and enhancing the handling of natural hazards and climate change (Saunders, Kelly, Paisley., & Clarke, 2020, p. 190). Saunders et al's (2020, p. 202) study suggest “while Aotearoa New Zealand is putting into action its obligations under the Sendai Framework, the UNSDGs, and the Paris Agreement, there are opportunities to improve their implementation”.

The CCAAP has been produced “to provide adaptive actions to reduce climate change impacts in an environment of deep uncertainty” (Department of Conservation Te Papa Atawhai, 2020, p. 11-18). The partnership between tribe/iwi/hapū and the Crown that was established under Treaty of Waitangi/Te Tiriti o Waitangi forms the basis for working together and underpins the CCAAP. Section 4 of the Conservation Act 1987 requires DOC to “give effect to the principles” of Treaty of Waitangi/Te Tiriti o Waitangi in its work. Awareness and working in partnership with Māori and their worldview of “interconnectedness of people and nature is an essential component of the CCAAP”. The CCAAP acknowledges some iwi have already developed and started to implement comprehensive tribe/iwi-led climate change adaptation and mitigation strategies. The CCAAP pinpoints 139 actions to be

achieved by 2025. The CCAAP is the primary document “that builds on and affects many other ongoing efforts” (Department of Conservation Te Papa Atawhai, 2020, p.5). DOC acknowledges that all parts of their work will be hugely impacted by climate change. “Changing climate conditions will affect tourism distribution patterns and visitor risks in many locations, prompting various visitor management issues”.

The CCAAP connects to the development of other strategies including, New Zealand/Aotearoa's first National Adaptation Plan (NAP) released in 2022, discussed further below, and The New Zealand-Aotearoa Government Tourism Strategy (Ministry of Business Innovation & Employment Hīkina Whakatutuki, 2019). Māori culture is at the heart of New Zealand-Aotearoa's tourism offering, and building meaningful partnerships underpins New Zealand/Aotearoa Governments Tourism Strategy. This process requires successful engagement with Māori Treaty Partners. Partnerships between Māori tourism businesses, tribe/iwi, hapū, government, industry, regions and communities will supportively work together towards “improved tourism outcomes”. One of the Tourism Strategy’s long-term success goals is to ensure, “the industry is playing its role in response to climate change and New Zealand-Aotearoa’s transition to a low emissions economy” (Ministry of Business Innovation & Employment Hīkina Whakatutuki, 2019, p.2-14).

The NAP acknowledges climate change will impact the tourism industry, due to the continuing changing natural environment/Te Taiao and effects of damaged infrastructure from extreme weather events. Incorporated within the NAP is the CCAAP’s actions for heritage, recreation and infrastructure of public conservation land and water, reducing risks to tourism from weather events and protect sites that are important for tourism. The NAP further acknowledges, “our adaptation journey will also bring new opportunities along the way”, and “new tourism offerings” could arise (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.21-22 & p.171). The implications of the NAP in the tourism context is for the development of regenerative tourism. The Aotearoa Circle (2023, p.8) a New Zealand-based public private partnership explains, regenerative tourism is about placing high value on the landscapes and communities which are hosts to visitors/manuhiri and ensures that visitors/manuhiri leave the environment better than they found it. Tourism Industry Aotearoa’s (TIA) recent (2024, p. 4), “Blueprint for Impact has been created by the New Zealand/Aotearoa tourism industry to clearly convey ambitions for the future of tourism and the plan for getting there”. TIA’s (2024, p. 28) ‘Blueprint’ suggests better data is needed for the tourism industry, and plan that the:

1. [Tourism] industry to continue to support the Tourism Data Leadership Group and expect substantive progress from it, including data quality and accessibility, with coverage across the regenerative tourism framework and with better regional data.
2. [Tourism] Industry to advocate for a step-change on tourism’s place in the science system, including within the Government’s national statement of science investment.

3. [Tourism] Industry to advocate for an ongoing funding base for tourism innovation processes to build capacity and to ensure rapid industry uptake of innovation and technology.

4. Particular attention is paid to ensuring there is quality data to provide insight into Māori aspects of the tourism industry.

The Aotearoa Circle's recently released plan aims to assist the tourism industry's exploration towards change, to help ensure change is regenerative, adaptive and values-driven using the "Tīwaiwaka set of 6 principles, written by renowned Rongoā Māori practitioner Pa Ropata / Rob McGowan" (The Aotearoa Circle, 2023, p. 10; McGowan, 2023). Emphasis is placed on the need for crucial understanding of the risks, challenges and opportunities from the effects of climate change on the tourism industry. The Aotearoa Circle (2023, p.10) sums up the way forward in these changing times:

...it is time to do things differently. This message is central to what we mean by regenerative in this roadmap – it is about progressing social change that honours Mauri. Regenerative is the goal we strive for but also what we need to achieve with every single touch point we have on the ground. To adapt to climate change we must alter the way we plan and carry out our daily operations.

However, tourism is an inherently extractive industry and as Hussain & Haley (2022, p. 1) point out, "holistic decisions must recognise that all elements in natural systems are interconnected so as the tourism stakeholders". They continue to suggest that "it is critical to pay attention to the indicators and characteristics of 'regeneration' as adopted by regenerative agriculture to apply them appropriately within the tourism context". Subsequently, the tourism industry's climate change adaptation reactions might be construed as maladaptive if they contribute to greenhouse emissions (Hopkins, Campbell-Hunt, Carter, Higham., & Rosin, 2015, p. 573). Maladaptation refers to actions or strategies that may initially seem beneficial or necessary but ultimately exacerbate the very problem they were meant to address (Schipper, 2020). In the context of climate change, actions that lead to increased greenhouse gas emissions can be considered maladaptive because they contribute to the problem they aim to solve, or at least mitigate (Lawrence et al., 2022). As a scenario, recent literature describes how in recent times there has been a risk of people feeling ashamed for flying long distances (Bösehans, Bolderdijk., & Wan, 2020), as a result some tourists feel better contributing to the environment by planting a tree or donating to an environmental cause to compensate for their carbon footprint (Gössling & Humpe, 2020). Consequently, there has also seen a rise in social media 'flight shaming' of people who travel long distances for tourism in particular (Becken, Friedl, Stantic, Connolly., & Chen, 2021). Purdie, Hutton, Stewart., & Espiner's study (2020, p.1) emphasises the necessity of considering glacier recessions impact on alpine access for recreationists and tourists, the need for careful management of increased reliance on aircraft to address reduced access, and the exploration of visitor interpretation that encourage reflection on environmental change and personal

lifestyles for future management decisions in alpine regions facing climate-related change. Furthermore, literature suggests the need to change towards an indigenous focussed worldview lens as the tourism industry resets for a climate changing world (Hutchison, 2021; Hutchison, Movono., & Scheyvens, 2021; Mbah, Ajaps., & Molthan-Hill, 2021; Loehr & Becken, 2021). How can we learn from indigenous-led tourism businesses (Rastegar, Higgins-Desbiolles., & Ruhanen, 2023; Pung, Mackenzie., & Lovelock, 2024)?

2.5 Indigenous-led tourism businesses and climate change adaptation

As Hinch & Butler (2009p. 16) emphasise, “for indigenous people, the essence of their competitive tourism advantage lies in their unique cultures”. However, indigenous-led tourism encompasses a wide range of multiplex and multi-layered issues, often described as a form of tourism developed to ensure positive socio-cultural and economic growth for indigenous peoples and communities (Carr, Ruhanen., & Whitford, 2016; Whitford & Ruhanen, 2016). Worldwide, the effects of climate and environmental changes are increasingly acknowledged as acute “ecological and social crises”. Literature suggests the revival of indigenous-led governance systems may assist with the “ecological and social crises” (Artelle, Adams, Bryan, Darimont, Housty, Housty, Moody, Moody, Neasloss., & Service, 2021, p. 283). Indigenous-led worldviews could advance “effective and socially just approaches to environmental interactions that benefit” humans and the environment.

It is difficult to designate an exact definition of indigenous-led tourism from the literature. It is said, indigenous tourism can change the underpinning of tourism by placing values and connections, including the natural environment/Te Taiao, indigenous and other communities, traditional languages and Indigeneity at the centre of the tourism venture (Higgins-Desbiolles, Bigby, & Doering, 2022, p.209; Scheyvens, Carr, Movono, Hughes, Higgins-Desbiolles., & Mika, 2021). Indigenous tourism is increasingly being looked upon as an opportunity for “indigenous sustainable development”, and up until recent times been regulated by non-indigenous peoples (Ransfield & Reichenberger, 2021, p.49). Carr et al., (2020, p. 1068), describe how the importance of nurturing a passionate academic relationship in the continually evolving complex and globally significant field of indigenous tourism is necessary to learn indigenous worldviews. More than twenty years ago, King et al., (2010, p. 109), noted in response to climate change and its ramifications, that “Māori will do this, not only by defining their own aspirations but by participating in climate change discussion at all levels from the marae and school/kura to regional and national business, science and political forums”. Since the early 19th century Māori in New Zealand/Aotearoa have been involved with tourism in and considered a distinctive pull factor for the tourism industry (Ransfield & Reichenberger, 2021). The “world famous

Pink and White Terraces” in Te Ika a Maui North Island’s Rotorua region were one of the earliest tourist attractions in New Zealand/Aotearoa. Māori tourism dates to guiding in this area from the 1870’s (Tahana & Oppermann, 1998, p.24). Māori tourism businesses today maintain their culture by sharing their worldviews through the connection with the natural world/Te Taiao, Māori culture is at the heart of New Zealand’s/Aotearoa’s tourism offering (Munshi et al., 2020, p.7; (Ministry of Business Innovation & Employment Hīkina Whakatutuki, 2019, p.2).

Indigenous worldviews are frequently acknowledged and weaved into climate change adaptation planning. A reason why indigenous worldviews are weaved into recent climate change adaptation planning could be explained from research with indigenous-led tourism businesses in Fiji, Australia and New Zealand. It was discovered that, these indigenous-led businesses worked in alignment with the United Nations Sustainable Development Goals (UNSDGs). Few of the indigenous tourism businesses researched had knowledge of the UNSDGs, yet their inherent value systems align with the goals. Indigenous people's connection to the environment is entwined into their culture, way of life and values are comparable to the UNSDG’s (Tien, Viet, Duc., & Tam, 2021; Scheyvens et al., 2021; United Nations, 2023b). In Canada, recent research studying ‘Indigenous-Led Nature-Based Solutions for the Climate Crisis’, found that indigenous peoples and communities, play an important role in building adaptive resiliency to lessen the effects of climate change. A variety of mutual gains are appearing in Canadian evidence of ‘Indigenous-Led Nature-Based Solutions’ for climate change adaptation (Vogel et al., 2022). Further research into indigenous-led tourism businesses could benefit the wider tourism industry to work towards the UNSDGs.

The tourism industry worldwide uses indigenous cultures for their distinctive differences to market attractive destinations (UNWTO, 2021; Qiu, Zuo., & Zhang, 2022). New Zealand/Aotearoa for example, markets the distinctive Māori culture. Māori culture is introduced to visitors/manuhiri to New Zealand/Aotearoa in various ways. For example, manaakitanga (looking after our people) and kaitiakitanga (stewardship) are two of many Māori cultural inherent values, which are often used in marketing for tourism (Te Rūnanga o Ngāi Tahu, 1997; Wikitera, 2019). Carr (2020, p. 495) explains how “In 2018 the Tiaki Promise was launched. Informed by Māori values and developed in consultation with Māori Tourism NZ it encourages commitment to caring for the environment for present and future generations”. The Tiaki Promise is a tourist destination pledge promoting regenerative tourism. However, Hutchison’s (2021a, p. 58) research found, “all participants interviewed on the Tiaki Promise expressed the importance of the Tiaki Promise being something that applied to all New Zealanders - not just international visitors”. A further challenge for building and maintaining relationships/whanaungatanga between MLTB’s and communities to enhance regenerative tourism could be due to, as Zhou & Edenheim (2023, p. 9) explain, “Indigenous tourism is generally more attractive to international tourists than to domestic tourists”. Latterly, indigenous-led tourism is seen

as a platform for climate change adaptation also. For example, the regenerative tourism concept centring the indigenous New Zealand/Aotearoa Māori worldview as a climate change adaptation focus (The Aotearoa Circle, 2023; Walker & Moscardo, 2016). The emergence of regenerative tourism encourages engagement for Māori communities with the tourism industry (Fusté-Forné & Hussain, 2022; Pung et al., 2024). This is an avenue to reconnect with cultural traditions, protecting natural resources through a mātauranga Māori worldview, and providing employment for family/whānau (Matunga, Matunga & Ulrich, 2020). A greater assimilation and valuing of Māori cultural values within the tourism industry will benefit indigenous-led tourism and the wider tourism industry (Hall, Mitchell, & Keelan, 1993; Martin, 2008; Martin, 2010; Sciascia, 2012; McIntosh, Zygadlo., & Matunga, 2004; Bremner & Wikitera 2016; Arnt, 2024).

Today, the South Island's/Te Wai Pounamu Māori tribe/iwi Ngāi Tahu with 80, 000 plus tribal members, operates Ngāi Tahu Tourism (NTT), it is one of Aotearoa's biggest indigenously family/whānau owned tourism businesses (Ngāi Tahu Tourism, 2023). Well renowned tourist activities such as, Shotover Jet, the All-Blacks Experience, Dart River Adventures, Franz Josef Glacier Guides, Franz Josef Glacier Hot Pools, Hukafalls Jet and the National Kiwi Hatchery are the 11 tourist activities that Ngāi Tahu Tourism provide across the country/motu in New Zealand/Aotearoa. Ngāi Tahu Tourism is one of Te Rūnanga o Ngāi Tahu iwi commercial activities and assets that are managed by Ngāi Tahu Holdings' (Te Rūnanga o Ngāi Tahu Group, 2022, p,75-82). In 2022, 54 employees/kaimahi out of the 422 total, were Ngāi Tahu family/whānau. Ngāi Tahu Tourism was the largest employer of employees/kaimahi. Ngāi Tahu tourism (2023), affirms "Tourism allows us to host manuhiri, reconnect with ngā awa (rivers), ngā maunga (mountains) and te moana (the sea), and provide lasting memories for our customers."

The NAP acknowledges (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.100);

Climate risks in the natural environment affect Māori cultural, economic and spiritual wellbeing. Climate change will affect culture and customs relating to mahinga kai (food-gathering sites) and urupā (burial grounds), as well as economic opportunities through cascading impacts on tourism and agriculture. The loss of vulnerable species and ecosystems will disturb relationships Māori have with these living taonga.

As discussed earlier the tourism industry relies on the climate sensitive natural environment/Te Taiao, this in turn includes MLTBs (King et al. 2010; Munshi et al., 2020; Macinnis-Ng et al., 2024). What can we learn from MLTB's experiencing these effects already, and/or preparing to adapt to these effects of climate change? Throughout consultations leading to the release of the NAP, Māori put forward that they ought to be more involved in climate adaptation development actions. Processes towards this are being developed for Māori so they "can put together tangata Māori actions that are more climate friendly and resilient". The main guiding principal of the NAP is "upholding the principles of Te Tiriti o Waitangi" (Te Kāwanatanga o Aotearoa New Zealand

Government, 2022, p.8-13). The NAP states, “this means developing adaptation responses in partnership with Māori, elevating te ao Māori and mātauranga Māori in the adaptation process and empowering Māori in adaptation planning for Māori, by Māori. Māori face particular infrastructure challenges in rural and remote areas, and are vulnerable to road closures, power cuts and impacts.”

The NAP indicates that, “Mātauranga Māori at hapū and iwi level will be critical to informing local and central government climate adaptation responses” Action 3.3 Establish a platform for Māori climate action in the National adaptation plan will build on 3 focus areas (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p. 49):

1. Embed partnership and representation
2. Support Māori-led strategy and alignment
3. Activate kaupapa Māori, tangata Māori solutions

The Crown recognise that Māori are already the dominant force leading the way toward climate change action (Ministry for the Environment Manatū Mō Te Taiao, 2022b). According to Te Kāwanatanga o Aotearoa New Zealand Government, (2022, p. 49) Māori operated tourism businesses are involved in community kaupapa Māori, tangata Māori solutions funded by the government. What are these businesses experiencing with climate change, what are their priorities? For the purposes of this thesis, focus area 3 in New Zealand/Aotearoa’s first climate change adaptation plan could be assessed. “Activate kaupapa Māori, tangata Māori solutions – to enable community action, kaupapa Māori, tangata Māori actions and solutions for the climate emergency will be funded”. Interestingly, Hase et al (2021, p. 1) pointed out in their study about “Climate change in news media across the globe”, countries in the Global North through the media talk about climate change all the time. Whereas in the Global South the focal point of climate change is “more on its challenges and implications for society at large, i.e., the societal dimension of climate change”, than possibly on what climate change’s physical impact predictions are. This also highlights the importance of engaging with iwi as part of ‘society at large’. That being said, there may be a lack of engagement with communities regarding climate change predictions and impacts in some regions in New Zealand/Aotearoa, as some literature has pointed out (Archie, Chapman., & Flood, 2018; Schneider, Glavovic., & Farrelly, 2020; Lawrence, Wreford, Blackett, Hall, Woodward, Awatere, Livingston, Macinnis-Ng, Walker, Fountain, Costello, Ausseil, Watt, Dean, Cradock-Henry, Zammit., & Milfont, 2024).

DOC’s CCAAP acknowledges some iwi have already developed comprehensive climate change adaptation and mitigation strategies. Ngāi Tahu’s Climate Change Strategy was released in 2018 (Te Rūnanga o Ngāi Tahu, 2018). Ngāi Tahu Tourism must operate their businesses in accordance with this strategy (Te Rūnanga o Ngāi Tahu, 2022a). Te Rūnanga o Ngāi Tahu values, stated below, are the founding principles guiding their Climate Change Strategy (Te Rūnanga o Ngāi Tahu, 1997):

- Whanaungatanga - (family)
We will respect, foster and maintain important relationships within the organisation, within the tribe/iwi and within the community
- Manaakitanga - (Looking after our people)
We will pay respect to each other, to tribe/iwi members and to all others in accordance with our tikanga (customs)
- Tohungatanga - (expertise)
We will pursue knowledge and ideas that will strengthen and grow Ngāi Tahu and our community
- Kaitiakitanga - (stewardship)
We will work actively to protect the people, environment, knowledge, culture, language, and resources important to Ngāi Tahu for future generations
- Tikanga - (Appropriate action)
We will strive to ensure that the tikanga of Ngāi Tahu is actioned and acknowledged in all of our outcomes
- Rangatiratanga - (leadership)
We will strive to maintain a high degree of personal integrity and ethical behaviour in all actions and decisions we undertake

Ngai Tahu's Climate Change Strategy states (Te Rūnanga o Ngāi Tahu, 2018, P.2):

Seven generations of Ngāi Tahu tūpuna fought for resolution of Te Kerēme, enabling all the opportunities we now have to lift and strengthen our people. We now have a new set of challenges, and we will do all we can to create a legacy for those whānau to come in response to the effects of climate change. We stand strong in the belief that amidst change and loss there is also hope, and opportunities to thrive.

Ngai Tahu values can help address the risks and opportunities from the effects of climate change (Arnt, 2024; Tumahai, 2024). Ngāi Tahu Tourism are engaged in "long-term investment in the tourism industry and recognises the importance of preserving the natural world for future generations". They have successfully trialled an electric jetboat at Shotover Jet. The future will "see the electrification of the entire jetboat fleet at Ngāi Tahu Tourism to meet the aspirational target of being carbon neutral by 2050" (Te Rūnanga o Ngāi Tahu Group, 2022, p.69).

An indigenous centred climate change adaptation planning response from governments can guarantee equity. It has been noted that New Zealand/Aotearoa could be the country/motu to follow with climate change adaptation planning, because Māori worldviews are recognised and adhered to in government policies (Carr, 2020; Higgins-Desbiolles, Bigby, & Doering, 2022). Furthermore, A study by Cradock-Henry, Diprose., & Frame (2021, p. 1-5), suggested "that industry-specific, locally based options and

pathways to support adaptation are needed.” Their case study on Te Tai Poutini West Coast showed “that meaningful climate change scenarios that are credible, legitimate, and relevant can be used to open up material discussions.”

2.6 Resilience and climate change adaptation

The notion of ‘resilience’ has recently garnered attention across various domains, including the tourism industry and climate change adaptation (Amore, Prayag, & Hall, 2018). Spector, Cradock-Henry, Beaven., & Orchiston (2019, p. 543), states, “the concept of resilience is widely used in Aotearoa-New Zealand, where it informs both government policy and research programmes”, although they found that, “research applying the concept of resilience in the rural context is limited in a real extent, largely quantitative in nature, and led by a small number of researchers. There is limited evidence of collaboration”. To address this lack, Strong et al. (2023, p.12; see below Figure 4) propose ‘The Tourism Adaptation Classification Framework’ (TAC), which aims to depict how resilience builds as a destination goes through the reactive, transitional and transformative stages of adaptation. The TAC Framework is based on Pelling’s (2011, p. 4), three “visions of adaptation” which include: 1. pathways leading to resilience (maintaining the status quo); 2. transition (incremental change); and 3. transformation (radical change). The TAC Framework aligns each adaptive stage in relation to key dimensions of the tourism system (Salim et al., (2021) including tourism planning and governance; tourism and business operations and the visitor experience.

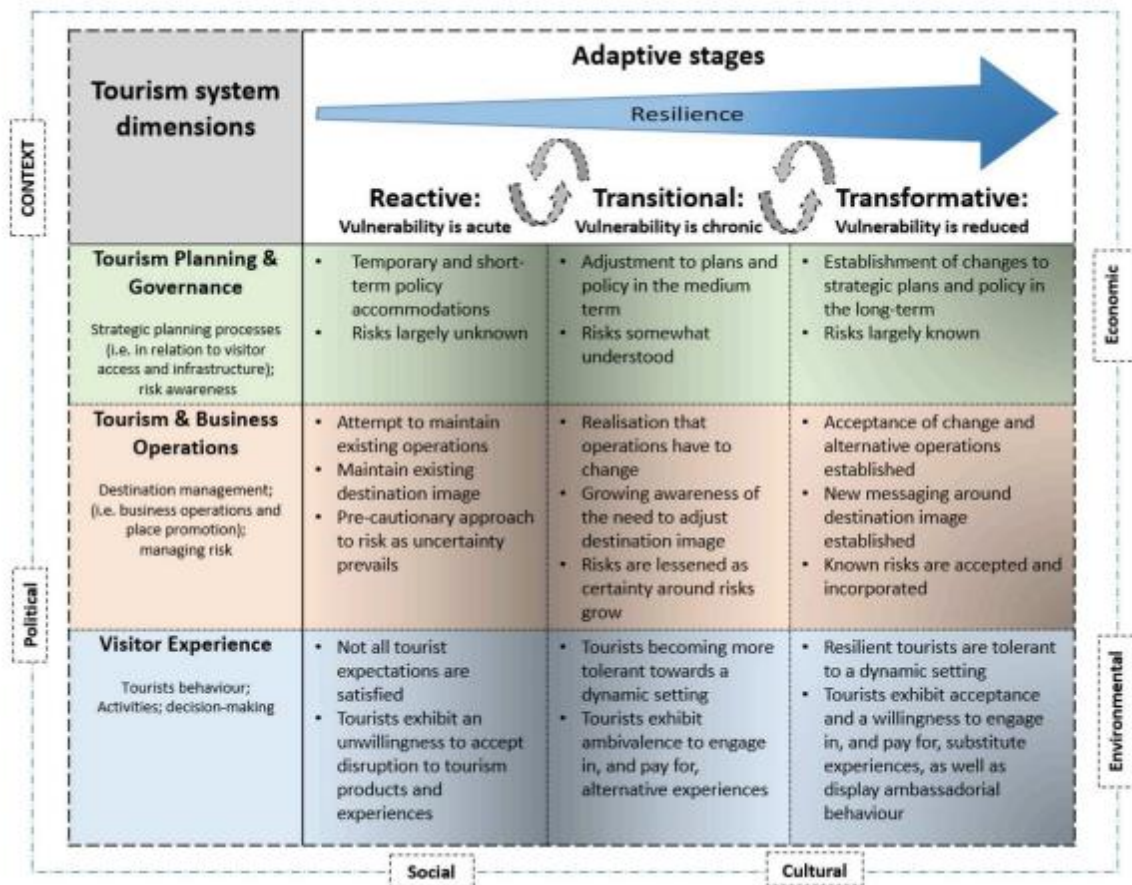


Figure 4

Strong et al.'s Tourism Adaptation Classification Framework (2023, p. 6)

The TAC Framework claims that resilience of the tourism system potentially gets stronger as the system moves through each adaptive stage. During the reactive stage, resilience is fragmented as ad hoc responses become operative. While temporary actions are put into place with the sudden onset of an extreme weather events, tourism offerings are often closed during these times, although attempts are made to remain operative. In the second transitional stage, resilience of the system starts to show possible partial acceptance of the changing environment. New strategies are sometimes put in place, and new tourism offerings are considered as the environment changes allowing tourism operators to continue, although markedly distinct from the past. As the tourism system shifts through to the transformative stage, resilience is grown and vulnerability to shocks in the system are reduced. New strategies and the development of new tourism offerings in the environmentally changed region are positively adopted, and diversification of marketing the destination is underway. Plans are in place for the long-term change, and the entire tourism system is attentive to climate change impacts and necessary adaptation responses (Strong et al., p, 5-12). The TAC Framework conceptual framework endeavours to show resilience is part of each stage and emphasises how resilience grows during the shift into each adaptation stage. This is particularly noteworthy for those who are dependent on

tourism in the affected areas, and for those involved with strategic policy and planning for settings under-going multi-faceted change. Furthermore, the TAC Framework is particularly useful for understanding the adaptive responses of MLTBs in the context of the current study, as the classification was New Zealand-based.

2.7 Summary

The Ministry for the Environment & Stats NZ (2020, p. 64-65) corroborates that discernible shifts in New Zealand's/Aotearoa's climate are already observable. Anticipated shifts in precipitation patterns, including alterations in snow and rainfall, along with the heightened likelihood of drought, stand to modify the levels of groundwater, rivers, lakes, lagoons, glaciers, and soil moisture (Ministry for the Environment, 2020a). The impacts of climate change will extend to Westland Tai Poutini and nearby townships, exacerbating existing challenges (Fitzharris, 2007; Lawrence et al., 2020). Further investigation into the regional effects of climate change will facilitate tailored adaptation planning, both in the present and for the future (Brondízio et al., 2021).

A central theme in the current New Zealand/Aotearoa government climate change adaptation plans is upholding the principles of the Treaty of Waitangi/Te Tiriti o Waitangi and working in partnership with Māori. Literature reviewed thus far suggests the relationship between Māori values incorporated into business plans is an understudied area. Literature reviewed describes the need to align mātauranga Māori with science (Stevens, Paul-Burke., & Russell, 2021; McAllister, 2023; Moko-Painting, Hamley, Hikuroa , Le Grice, McAllister, McLellan, Parkinson, Renfrew., & Rewi, 2023). Wilkinson, Hikuroa, Macfarlane., & Hughes (2020, p. 604) states, "Extensive work has been done by Māori researchers to develop frameworks and models for including Māori knowledge, values and tikanga in research". However, it can be argued, literature is scarce on Māori understanding how closing the "gap between indigenous knowledge and western science" will be accomplished (Puriri & McIntosh, 2019; Ransfield, 2019; Wehi, Beggs, & McAllister, 2019). The Māori value system is not a set of straightforward values, these values deeply intertwine into each other (Simmons, Fairweather., & Lincoln, 2005; Mika, Dell, Newth., & Houkamau, 2022). One value does not sit out on its own, nor is one value more important than another value. In New Zealand/Aotearoa, the Deep South National Science Challenge report, 'Centring Culture in Public Engagement on Climate Change Adaptation: Re-shaping the Future of the NZ Tourism Sector' suggests, the affiliation between climate change and culture can support the testing responses to climate change adaptation (Munshi, 2020, p.3).

Literature is scarce specifically regarding indigenous-led tourism businesses climate change adaptation experiences and planning in New Zealand/Aotearoa. Most people are conscious of the fact climate change is happening, it is real, and it is happening quickly. If we do not start adapting to climate change now, the rate of climate change effects will hasten. There needs to be further research on how MLTBs

are adapting in the face of climate change. Scientists and academics need to build positive relationships/whanaungatanga with Māori communities to reshape working in partnership research practises.

The concept of 'resilience' has emerged as a focal point across diverse sectors, encompassing the tourism industry and climate change adaptation efforts (Amore et al., 2018). According to Spector et al., (2019, p. 543), 'resilience' holds significant sway in New Zealand/Aotearoa, shaping government policies and research endeavours. However, their findings indicate that research utilising the resilience concepts within rural contexts is spatially restricted, predominantly quantitative, and driven by a select few researchers, with sparse evidence of collaborative efforts. The next chapter describes methods used to gather and analyse data for the purposes of this research thesis.

Chapter 3 Methods

3.1 Introduction

The aim of this research is to explore the effects of climate change and climate change adaptation planning on Māori-led and operated tourism businesses using Westland Tai Poutini National Park and its proximate destination townships as a case study.

This chapter presents an in-depth summary of the methods used to carry out this research. The first section of this chapter will summarise the research design process, and selection of the key informants. Subsequently, collection of the data and the two main stages of desk-based research and qualitative interviews will be explained as well as qualitative research technique considerations. Lastly, analysis of the data will be set out and explained including the researcher's positionality and limitations of this research.

3.2 Research Design

This research adopted a qualitative approach and the themes that emerged from interviews with key informants drove the analysis. A qualitative approach is used because it takes a holistic interpretive approach to its topic of research and seeks to understand different points of views other than the researcher's (Emmerson, 1988; Ormston, Spencer, Barnard., & Snape, 2014; Jones, 1995). A further commitment to this approach arose from the literature describing how this research could obtain awareness into whether MLTBs are getting support with their climate change adaptation planning and/or are given the opportunity to lead the way in their communities. A study by Cradock-Henry et al. (2021, p. 1-5) suggested "that industry-specific, locally based options and pathways to support adaptation are needed". Furthermore, what can we learn from Māori led-tourism businesses experiencing these effects already and/or preparing to adapt to these effects of climate change? Regardless of Māori knowledge as the central focus in climate change dialogue, this knowledge and engagement with Māori is thinly documented. Additionally, most available information on climate change can be difficult to understand given the technical language, hindering engagement with communities. More integrated research needs to take place to learn how Māori worldviews can inform the assessment of impacts, risks and opportunities arising from climate change to assist in climate change adaptation planning (Munshi et al., 2020; Johnson et al., 2022a). Considering the latter, a qualitative approach utilising semi-structured in-depth interviews was deemed the most appropriate for this research. Open-ended questions are asked to attain a rich detailed description of the story (Whiting, 2008).

3.2.1 Participants – Key Informants

Interview data was collected from key informants of MLTBs and tourism sector experts. Their perspectives and interpretations on the effects of climate change and climate change adaptation in Westland Tai Poutini National Park and its proximate destination townships are explored. These perspectives and interpretations resulted from answers to open-ended questions in semi-structured interviews. The themes in the interviews were devised from the literature review referring to tourism experiences, climate change impacts, climate change possible future predictions and climate change adaptation, with a particular emphasis on Māori worldview and how the Māori worldview drives climate change adaptation and tourism experiences in the region.

Key informants were initially selected by creating a contact list of MLTBs in the Westland Tai Poutini region. It soon became apparent that these businesses were sparse in the region, so additional contacts were listed from throughout the wider West Coast/Te Tai Poutini region, ranging from Haast/Tiori-patea to Greymouth/Māwhera. Tourism sector experts and key informants that support tourism sector experts were also listed. These key informants were associated with policy planning, Westland District Council, charitable trusts that provide services and support for West Coast/Te Tai Poutini businesses and sectors, government departments administering acts of parliament in the region and local science. Overall, the contact list included 47 key informants for recruitment in the research. Out of the 47 contacts, 13 were recruited, with six Māori-led tourism key informants and six tourism-sector key informants recruited (see Table 1, Section 3.3.1).

The research took place in Westland/Te Tai Poutini and the wider West Coast/Te Tai Poutini area (from Haast/Tiori-patea to Greymouth/Māwhera) of the South Island/Te Wai Pounamu in New Zealand/Aotearoa. Two hapu of Ngāi Tahu tribe/iwi are situated in this case study area: Te Rūnanga o Makaawhio and Te Rūnanga o Kāti Waewae. Each Rūnanga has a tribal boundary defined by law in Te Runanga o Ngai Tahu (Declaration of Membership) Order 2001 (New Zealand Government, 2001). Taiuru describes the boundary areas (2023a; 2023b):

Te Rūnanga o Makaawhio takiwā is centred at Makaawhio and extends from the south bank of the Pouerua River to Piopiotahi and inland to the Main Divide together with a shared interest with Te Rūnanga o Kāti Waewae in the area situated between the north bank of the Pouerua River and the south bank of the Hokitika River. Te Rūnanga o Ngāti Waewae takiwā is centred on Arahura and Hokitika and extends from the north bank of the Hokitika River to Kahuraki and inland to the Main Divide together with a shared interest with Te Rūnanga o Makaawhio in the area situated between the north bank of the Pouerua River and the south bank of the Hokitika River.

This area was chosen for the case study because two of New Zealand/Aotearoa's popular tourist destinations, Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere are

situated within Westland/Te Tai Poutini. They are the biggest 'pull factors' contributing to the region's economy. Over one million visitors/manuhiri travel through this region each year (Westland District Council, 2023). Tourism in the glacier region of Westland/Te Tai Poutini is a multimillion-dollar industry (Purdie, 2013).

Another factor in choosing the case study area is that for some time now, the region's infrastructure has been in danger of damage by extreme weather events. During heavy rain events in early 2019, the Waiho Bridge was washed away, causing major disruptions (Waka Kotahi NZ Transport Agency, 2023). The Department of Conservation Te Papa Atawhai (2020, p.66) suggests that damage from frequent storm events could get much worse in the West Coast/Te Tai Poutini region. In February 2019, Fox Glacier/Te Moeka o Tuawe's roadway access was closed for the indefinite future due to continuous flooding damage (Department of Conservation Te Papa Atawhai, 2020, p. 11-13 & 2019). The expected costs for repairing infrastructure damage will rise.

3.3 Collecting Data

The research method for collecting data consisted of two stages. Stage One involved desk-based research and the creation of a contact list for emailing potential key informants to be interviewed. This included informal discussions with prospective 'gatekeepers' leading to potential interviews with key informants. Stage Two involved emailing key informants who agreed to take part in the research to organise a time and place to conduct the interview, followed by semi-structured interviews online or face-to-face. During interviews for data collection, both the participant and researcher must commit personally, necessitating substantial allocations of time and resources (Adhabi & Anozie, 2017). Therefore, an attempt was made to recruit key informants for interviews before the busy 2023 summer period began. Additionally, an important factor was to recruit key informants, particularly those interviewees who worked in a government role before the October 14th, 2023, New Zealand Parliamentary election (Electoral Commission New Zealand, 2023). The latter will be discussed further in section 3.6 below. The following sections will outline the two stages of the research.

3.3.1 Stage One: Desk-based Research

The initial stage of data collection was desk-based, researching literature about MLTBs and the effects of climate change and climate change adaptation, focussing on the case study area of Westland/Te Tai Poutini National Park and proximate destination towns. This involved reviewing and collating scholarly literature as well as tourism and government sector published reports. In addition, initial identification of potential key informants to interview was part of this stage. A contact list of 48 potential key informants was generated, with seven Māori-led tourism key informants and six tourism-sector key

informants recruited for interview, totalling 13 interviews. Eight key informants were Māori, and five key informants were non-Māori (see Table 1 below).

Table 1

Summary of Māori-led tourism key informants and tourism-sector key informants

Māori-led tourism business (MLTB) key informants (seven identified)		Tourism-sector key informants (six identified)	
General Management: MLTB	1	Iwi representatives: Ngāti Waewae - MLTB; Ngāi Tahu – Strategy Advisor	2
Business Management: MLTB	1	Local government representatives: Westland District Council, DOC	2
Owner/Employee-Kaimahi: MLTB	3		
Service providers: Hospitality; Visitor Information	2	Charitable trusts that provide services and support for West Coast Te Tai Poutini businesses and sectors: The Aotearoa Circle; West Coast Development	2
Māori	5	Māori	3
Non-Māori	2	Non-Māori	3

At this initial stage of data collection, it is important to note that the “sample universe” as described by Robinson (2014, p. 26-27) is the “target population”, members of which needed to be involved within the tourism industry and have some knowledge of the West Coast/Te Tai Poutini region. This allowed for rejecting or incorporating a potential informed key informant and increased sample homogeneity for the purpose of this research’s aims (section 3.2.1).

Contact was initiated with the tourism-sector key informants via an email explaining the research and providing information and requirements for participation (Appendix 1). Potential tourism-sector key informants were based throughout the country/motu in their tourism industry roles, situated in Greymouth/Māwhera, Hokitika, Auckland/Tāmaki Makaurau, Wellington/Te Whanga-nui-a-Tara, Christchurch/Ōtautahi and Queenstown/Tāhuna. Most of these interviews involved an online video conference call, with a minority conducted face-to-face (see section 3.3.2).

Further internet searches were conducted to identify Māori-led tourism providers throughout the West Coast/Te Tai Poutini region. This ‘sample universe’ needed to be situated in the case study area as described in section 3.2.3; this in turn increased sample homogeneity for the purpose of this research’s aims (section 3.2.1). Contact was initiated via potential participants website and an email

was sent for initial recruitment explaining the research and providing information and requirements for participation. This proved to be a challenging task (see section 3.5.2).

Informal discussions were held with three potential 'gatekeepers' within the areas described in Table 1. A gatekeeper can be pivotal for generating and introducing the researcher to potential participants, adding to the 'sample universe' for the purposes of the research study. Gatekeepers are often supportive of the study, with a vested interest in the research due to mutual benefit and contribution toward improvements for their business and/or community involvement (Devers & Frankel, 2000). They generally have a shared concern and understanding with the researcher regarding limits to resources and deadlines. In this study, some key informants were recruited and agreed to participate in the research through a gatekeeper. Key informants were given an outline of the research and asked if they would like to take part. If they agreed to participate, an appropriate time and place was organised for the interview. Qualitative interviewing is described in the next section.

3.3.2 Stage Two: Qualitative Interviews

Qualitative research takes a holistic, interpretive approach to its topic of research and seeks to reveal rich detail about complex phenomena (Emmerson, 1988; Ormston et al., 2014; Jones, 1995). A semi-structured, in-depth interview technique is frequently used in qualitative research to create a unique and close experience. Open-ended questions are asked to attain a rich, detailed description of the story (Whiting, 2008).

The second stage of data collection involved conducting 13 semi-structured qualitative interviews with selected key informants (see Table 1). Out of 47 recruitment emails sent, and with some help from 'gatekeepers', 13 people agreed to participate. A maximum sample size of 25 was set at the planning stage of this research, because as Robinson (2014, p. 28) explains, "Without a provisional number at the design stage, the duration and required resource-allocation of the project cannot be ascertained, that makes planning all but impossible." However, to be able to move forward with the study the researcher accepted a minimum sample size of 13. This was decided upon due to timeline restrictions and in addition, data saturation had been met upon completing the thirteenth interview (discussed in-depth below).

Interviews took place face-to-face at an agreed location, mostly the researcher's own home environment. The researcher also travelled to Franz Josef Glacier/Kā Roimata o Hine Hukatere and Hokitika to conduct some of the interviews in the key informant's work environment, mainly in an office/shop space or outdoor seating spaces, while one interview was conducted at a Franz Josef café. Online and phone interviews were conducted when face-to-face interviews were not possible; this was necessary for key informants who lived outside of the West Coast/Te Tai Poutini region.

While guided by the global research aim and questions (see section 3.2.1), asking additional probing questions during interviews was vital to driving analysis. Probing questions help the researcher achieve a more comprehensive understanding of what the participant is trying to say for a more accurate answer and encourage the participant to feel at ease discussing sensitive information, which subsequently further determines what the researcher can ask next (Roberts, 2020). Verbal and non-verbal probing techniques were solicited to achieve the richest data collection possible. Verbal techniques involved repeating the interviewee's stance and communicating interest with a verbal cue, e.g. a polite nod of the head or a thumbs up action. This gave the interviewee a sense that the researcher was alert to specific information. The researcher also remained silent at appropriate intervals during the interview and enabled the key informant to process their thoughts aloud at times (Lofland, Snow, Anderson., & Lofland, 2022; Whiting, 2008). Each interview varied in duration, taking from approximately 35 minutes to one hour. The researcher had to remain flexible with the time limits due to pressing obligations from the key informants within their working day.

Before interviews were conducted, an initial qualitative, semi-structured interview guide was agreed upon between the researcher and their supervisors that assisted with recognising and managing any unintentional potential biases by the researcher (Roberts, 2020). The interview guide spanned the following topics (Appendix 2):

- (a) Background information on each key informant's connection to the West Coast region; what they valued about the region; what they thought tourism offered the Westland/Te Tai Poutini and West Coast Te Tai Poutini region; and how Māori values (if at all) informed their day-to-day practises.
- (b) Exploring climate change effects and the impacts each key informant had witnessed (if any) in the region; awareness of any climate change effects and the impacts predicted for the future in the region; where they get their information about climate change from and where they would expect to get information from about climate change effects and impacts for the region.
- (c) Exploring tourism businesses and the effects of climate change in the region; what major effects of climate change impacts is each key informant currently experiencing (if any); what they would expect could be the worst effect/risks of climate change impacts to the tourism business they are involved with; and what opportunities and/or positive outcomes may arise from climate change effects and impacts to the area of tourism that each key informant was involved with.
- (d) How the tourism business that each key informant is involved with is responding to climate change effects and impacts; are they involved with any collaborations with community groups and/or other businesses discussing climate change adaptation in the

region? Do they get advice about climate change adaptation and if so, where from? How do they share their information (if any) about climate change effects, impacts and adaptation? Are they aware of New Zealand/Aotearoa's first climate change adaptation plan released in 2022 and how it is driven by a Māori worldview (Te Kāwanatanga o Aotearoa New Zealand Government, 2022)? What do they think would be a priority with climate change adaptation in the region and what prospects for the future do they foresee in the face of climate change? How do they think Māori values drive climate change adaptation?

Each key informant was asked at the closing of each interview 'to sum up':

- (1) Overall, what are your perceptions of the risks that may arise from climate change impacts and adaptation on this business?
- (2) Overall, what are your perceptions of the opportunities that may arise from climate change impacts and adaptation on this business?
- (3) To what extent do Māori values inform the possible risks and opportunities arising from climate change and adaptation for this business?

At the close of each interview key informants were also asked if they had anything else they would like to add and if there were any other questions or ideas that the researcher could have missed.

Interviews were recorded with the key informant's consent and all participants agreed to being recorded. The interviews were saved onto a password-protected android phone and laptop. As soon as possible, each recording was transcribed using Microsoft's speech-to-text feature in Word. Each completed Word document was immediately proofread to stay close to the data and any misinterpreted speech-to-text was edited to reflect a precise transcription (Lofland et al., 2022). This manual check ensured that every single word spoken by the key informant was correct in the transcription.

All participants' names and business names were replaced with pseudonyms for the purposes of confidentiality. Each key informant was given a number that did not reflect the order of interviews conducted. Tourism-sector key informants were given an A beside their number and Māori-led tourism key informants were assigned a B after the number to ensure both types of key informants could be distinguished for analysis. Once each transcription was completed, a reflection of the data was noted in field notes to assist with the analysis stage, ensuring data was consistently analysed during the exploration stage. Flexibility was maintained to allow for further investigation of emerging themes in following interviews and for realisation of data saturation to begin overall analysis (Lofland, 2006).

3.4 Analysing the data

Research analysis was driven by the data collected via the semi-structured qualitative interviews. Each interview progressed the development of interviewing questions and techniques changed slightly to give the researcher confidence to provide more credible results (Kallio, Pietilä, Johnson., & Kangasniemi, 2016). This research took on a working analysis, beginning during the first interview. Microsoft Word was used to highlight initial index coding references (Figure 5).



Figure 5

Initial highlighted index coding after completion of first conducted interview

This initial index coding allowed the researcher to develop underlying ideas. Additionally, each index code was entered into a table in Microsoft Word to manage the data (see Table 2). Each piece of interview data that corresponded to a specific index code was cut and pasted into the table, assisting with electronic retrieval of the data through the reduction and conceptual refinement stages that followed the index coding (Deterding & Waters, 2022). Following this, emerging themes were identified to continue further coding towards final analysis.

Tourism sector and MLTB sector key informants' responses were categorised into groups A and B, respectively. This kept analysis methodical and separated data as MLTB operations and Tourism-sector tourism responses. At times pseudonyms were given for Māori and non-Māori where appropriate for explanation (as described in Table 1), as some key informants were Māori working in the tourism sector or MLTBs and others were non-Māori working in the tourism sector or within MLTBs. Further index coding was explored and named coding was used (see Table 2).

Table 2

Coding for further index coding

B – MĀORI-LED TOURISM PARTICIPANT	A – TOURISM SECTOR PARTICIPANT
B WHAT DOES TOURISM OFFER ON THE WEST COAST?	A WHAT DOES TOURISM OFFER ON THE WEST COAST?
B EXPLORING CLIMATE CHANGE IMPACTS Where they get climate change information: Where they expect to get information from: Awareness of expected climate change impacts on the West Coast:	A EXPLORING CLIMATE CHANGE IMPACTS Where they get climate change information: Where they expect to get information from: Awareness of expected climate change impacts on the West Coast:
B IMPLICATIONS OF CLIMATE CHANGE – POSITIVE/OPPORTUNITES	A IMPLICATIONS OF CLIMATE CHANGE – POSITIVE/OPPORTUNITES
B IMPLICATIONS OF CLIMATE CHANGE IMPACTS – NEGATIVE/RISKS	A IMPLICATIONS OF CLIMATE CHANGE IMPACTS – NEGATIVE/RISKS
B ADAPTIVE RESPONSES TO THE CHANGING ENVIRONMENT “Are you aware of New Zealand/Aotearoa’s first climate change adaptation plan that came out last year?” “Do you think people are aware that we do/might need some climate change adaptation?”	A ADAPTIVE RESPONSES TO THE CHANGING ENVIRONMENT
B VALUES UNDERPINNING CLIMATE CHANGE ADAPTATION “Being Māori yourself, how much of your tours are driven by Māori values?”	A VALUES UNDERPINNING CLIMATE CHANGE ADAPTATION
B IDENTIFYING PRIORITIES	A IDENTIFYING PRIORITIES
B PROSPECTS FOR THE FUTURE “What do think about the gondola idea?”	A PROSPECTS FOR THE FUTURE “What do think about the gondola idea?”
B Covid-19	A Covid-19
B RESILIENCE	A RESILIENCE

To achieve rich analysis, the researcher developed a hand-drawn poster (Figure 6). The act of writing word-for-word from interview transcripts assisted the researcher to delve deep into extensive and thorough coding. Given that coding is an emergent open-ended, and time intensive process, there are often queries regarding the extent and comprehensiveness of its application. Specifically, how many codes should be generated overall and applied to each page of interview transcripts? There is no

definitive answer to these questions as it hinges on the data's richness, the consistency of coding practises, and the interpretive skills and insights of the coders as they engage with and analyse the data. However, neglecting thorough coding diminishes the chances of achieving a robust analysis in the end (Lofland et al., 2022)

This method helped the researcher gain a deeper understanding of how each of the final coding efforts weaved throughout each interview's response. For example, the index coding of 'values' was circled in red throughout as informants responded to each question. Each index coding was weaved throughout this document to ensure a holistic analysis. This allowed the researcher to see a complete picture for final analysis. Though deep and thick information was collected through the key informants' interviews, it is important to point out, for researchers, sifting through narrative responses can be labour intensive, particularly when striving to accurately and comprehensively reflect the overall perspective of all interview responses during the coding process (Turner & Daniel, 2010).

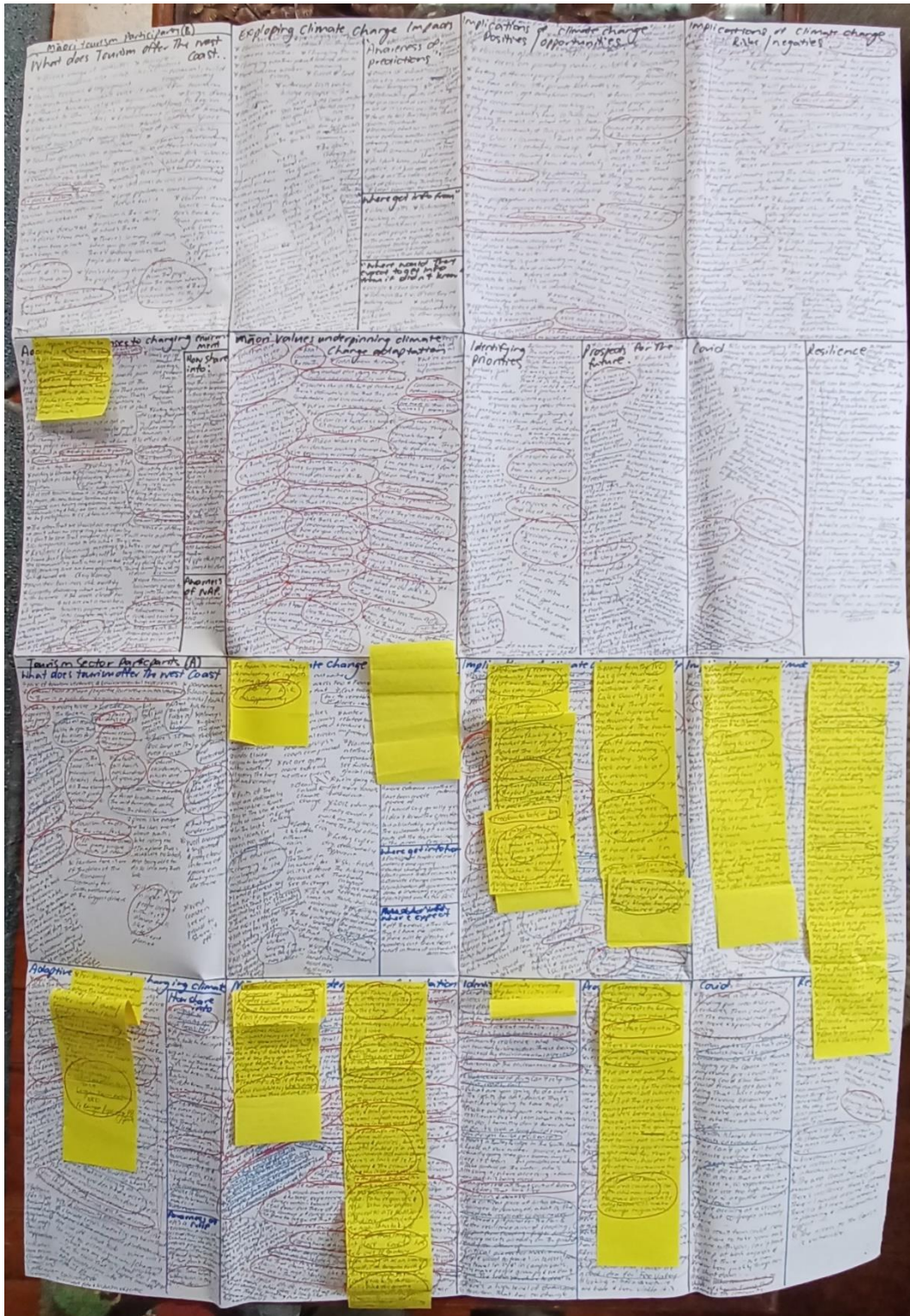


Figure 6

Coding via physical writing and highlighting, including Post-it Notes to add additional data

Table 3*Reduction of index coding for results/discussion*

Part 1:
Tourism offerings
Climate change impacts witnessed; awareness of future predictions; information sourcing
Climate change adaptation; climate change adaptation priority action
Part 2:
Opportunities; prospects for the future
Risks
Māori values; underpinning climate change adaptation; Māori values weaved throughout all responses

Table 3 highlights the final condensing and reduction of index coding into Part 1 and Part 2 for collation of results/discussion, although the overall analysis of this research was driven by interview data collation. While writing the first draft of the results/discussion chapter the researcher developed a structural breakthrough that led back to analysing some of the data further, highlighting the importance of not limiting your analysis too soon (Lofland et al., 2022).

3.5 Acknowledging positionality and limitations

The researcher's biases can never be entirely detached (Niati, 2024), as taking the stance as an insider/outsider/in-between within the community of the case study area will in some way or another have influence on the researcher (Babbie, 2021). Therefore, it is important to acknowledge the researcher's positionality so that others can evaluate the potential significance of this on the research findings. Limitations of the research will also be discussed. As Kilian, Fellows, Giroux, Pennington, Kuper, Whitehead., & Richardson (2019, p. E504) state, "given the history of unethical research in Indigenous communities, there is often apprehension among Indigenous communities toward research carried out by non-Indigenous researchers". This section aims to recognise the researcher's positionality, and the limitations of the research conducted.

First, it needs to be acknowledged that I am a member of Ngāi Tahu iwi, although this part of my ancestry was not acknowledged until 1999 (Head, 2006; Wanhalla, 2015). At that stage I was entering my early 20s and moved overseas to live for a time. I did not grow up identifying as Māori and may be identified as a non-Māori by many, although I have always felt a connection to Te Ao Māori. I am currently on a journey to learn this part of my ancestry. My whanau is still to identify our whakapapa line and has been identified as one of the 'lost whanau' of Ngāi Tahu Iwi. This at times can be conflicting when introducing myself; not only is it hard to identify with my own whakapapa, but it can

also be hard for other people, specifically Māori, to understand and make a connection with me without a marae or whakapapa line to connect back to. For Māori, everything is about connection; it is an important part of meeting and greeting, especially through your mihimihi (Harris & O'Sullivan, 2013). Rigorous development of the semi-structured interview guide may minimise this personal bias (Kallio et al., 2016, p. 2954). However, I know my tūpuna/ancestor, Te Wharerauaruhe (Mrs Matthew Hamilton) lived in Akaroa and died there not long after she signed the Ngāi Tahu Kaumatua Alive in 1848 census (Ngāi Tahu Māori Trust Board, 2002). We are yet to find out where she may have originally come from. I grew up in Ōtautahi/Christchurch and have a deep ancestral/tūpuna link from both sides of my whanau to the area, mainly around Banks Peninsula, which is my Tūrangawaewae. Therefore, as an East Coast Ngāi Tahu member I am an outsider to West Coast Te Tai Poutini iwi. Whanaungatanga building is necessary between iwi and takes time (as discussed in-depth in below). I am currently a member of the Greymouth/Māwhera community and have resided here since 2018. In the past 20 years I have spent much time coming and going from the Westland Te Tai Poutini region. In 2003 I resided in Fox Glacier/Te Moeka o Tuawe while working in hospitality when tourists were visiting the region in droves. This was also the time when the middle of the Franz Josef/Ka Roimata o Hine Hukatere glacier collapsed (Purdie, 2013). I was fortunate to observe this event, which began my thoughts about climate change impacts in the region. In the early 2000s I worked as an outdoor tour guide, employed by Active New Zealand and Adventure South companies at the time. These companies had concessions from the Department of Conservation (DOC) for guides to take paying clients up both glacier valley tracks and other tracks in the region. In more recent years I have been a secondary school teacher and assisted on a geography trip to the glaciers in 2019.

My positionality as the researcher of this study is complex. Consequently, personal observations and experiences over an extended period may create bias in the interpretation and gathering of data about environmental changes caused by climate change effects in the case study area. Though gathering the data and analysing the results could have been influenced by this personal bias (Kallio et al., 2016), I attempted to decrease it by using semi-structured qualitative interviewing guides and techniques such as coding to develop analysis of the data (Tables 5 and 6) (Lofland et al, 2022, p. 186; Adams, 2015). From the researcher's point of view, these direct links and connections formed over the period described above are advantageous to this research. They add valued understanding of the issues being discussed and allow the researcher to bond over a common interest and create a firm connection with many of the key informants.

Aside from recognising the strengths and weaknesses of this qualitative research, it is essential to acknowledge its limitations. The colonial methodology of conducting western science research studies has posed a "long-standing distrust of research" (Moko-Painting et al., 2023, p. 11). This

poses a challenge for Indigenous-centred research and may have led to mistrust of the researcher and hindered recruitment of Māori key informants, as this research is guided by a western science academic structure. Time restraints were given (timetable deadlines, use of university supervisors' time, mentors' time, university enrolment calendars, thesis completion deadline, student loan allocation time and time allocated to conduct qualitative interviews) and the researcher could only work within these constraints. Whanaungatanga – relationship building and maintaining - takes time and is a valuable part of the research process (Dunlop, Boston., & Owen, 2023; Amoamo, Ruckstuhl., & Ruwhiu 2018; Wilkinson, 2020: Te Whata, 2021; Jenkins, 2022). The giving of time is also highly valued in the Māori worldview (Edwards, 2009, p. 53). Previous studies have been conducted in relation to Māori tourism businesses and the environment, but studies in Te Tai Poutini region are sparse (Johnson et al., 2022; Ransfield & Reichenberger, 2021; Cradock-Henry et al., 2021; Munshi et al., 2020; Puriri & McIntosh, 2019; Hopkins et al., 2015). This also highlights the need to continue building relationships/whanaungatanga between local iwi and local universities. A key limitation of this study was the difficulty in recruiting MLTBs, and key informants involved with MLTBs in the region, the researcher faced time constraints, limiting their ability to engage fully in whanaungatanga/relationship building, which is crucial in the indigenous research process (Dunlop et al., 2023; Amoamo et al, 2018; Wilkinson, 2020; Te Whata, 2021; Jenkins, 2022). While previous studies have explored Māori tourism businesses and the environment, there is a scarcity of research in the West Coast/Te Tai Poutini region, this could pose challenges in recruiting potential participants due to a lack of knowledge about researchers roles (Johnson et al., 2022; Ransfield & Reichenberger, 2021; Cradock-Henry et al., 2021; Munshi et al., 2020; Puriri & McIntosh, 2019; Hopkins et al., 2015).

Additionally, the timing of the New Zealand Parliamentary Election may have further hindered key informants' engagement during the data gathering and analysis stage due to apprehension of a changing governing political party in New Zealand/Aotearoa (Electoral Commission New Zealand Te Kaitiaki Take Kōwhiri, 2024). One potential tourism-sector key informant mentioned that they would like to take part in this research, but said they were too busy leading up to the parliamentary election. Many tourism-sector key informants did not reply to the initial or second email. The few that did reply, whether they were a tourism business in the region, part of the wider tourism sector within the region or out of the region, said they did not have anything to do with MLTBs or had no one on staff that could discuss Māori kaupapa. Two potential Māori-led tourism key informants did reply and mentioned they would have liked to take part, but their tourism businesses had since closed down. Two Māori-led key informant interviews and one tourism-sector key informant interview were secured when the researcher made initial face-to-face contact when on the ground, but unfortunately this was not feasible in a time-limited study.

Lastly, it is important to note there may also be weaknesses in using one method of qualitative research, i.e. semi-structured interview methods only. The research could lack depth beyond surface level descriptions or make generalisations that are not firmly grounded in robust methodological practices. As Diefenbach (2009, p. 893) states, 'at the end of the day it only counts what is written on paper—and nothing else. Researchers come and go, the findings remain.'

3.6 Summary

This research thesis was conducted using a qualitative approach, chosen for inherent flexibility in capturing the depths and nuances of key informants' experiences and perspectives (Lofland, 2006). Such a process allowed for the emergence of themes organically from the data, enriching the study with diverse insights. This chapter has documented the qualitative research methods used in this study to gather information from 13 key informants. This included descriptions of the data collected from key informants and how this data was managed and collated for final analysis. A reflection of the methodology used for this research was discussed, including the researcher's positionality and limitations of the research. The subsequent chapters outline the research findings, with particular emphasis on the qualitative data which most effectively addresses the key objectives outlined in chapter one.

Chapter 4: Case Study Findings

4.1 Introduction

As Lawrence et al., (2023, p. 1) describe, “Climate change is being felt across all human and natural systems in New Zealand/Aotearoa and is projected to worsen this decade as impacts compound and cascade through natural system and sectoral dependencies”. This chapter provides an analysis of how MLTBs in the Westland/Te Tai Poutini region are experiencing climate change effects. Firstly, before exploring the effects of climate change in the case study area, this research’s findings revealing key informants' perspectives on the tourism industry in the region are presented in the section below. These insights emphasise how the tourism industry, including MLTBs depend on New Zealand/Aotearoa’s climate sensitive natural environment/Te Taiao (Macinnis-Ng et al., 2024). Secondly, the chapter outlines key informants' observations of the effects of climate change impacts currently experienced in the region, and information sources about future climate change scenarios.

4.2 Perspectives on visitor experience to Westland and the wider West Coast Te Tai Poutini region

This section discusses key informants' perspectives and observations of what tourism and Māori-led tourism offerings are in Te Tai Poutini. The areas of tourism commonly discussed by are divided into sections: Landscape, Activities, Māori Culture and Tourism and the economy.

4.2.1 Tourism and the landscape

Without exception, the findings uncovered that landscape was an integral component of the tourism experience as perceived by the informants taking part in this research. Key informants suggested that people visit the region for a ‘nature experience’; this is possibly one of the reasons “why people come to the West Coast (#2A)”. A local Māori hospitality/manaakitanga employee/kaimahi in the region summed up how they think visitors/manuhiri “probably visit for our environment, especially here on the West Coast. It’s natural, wild, rugged country, lakes, mountains, the coastline, still comes across as untouched”. The natural environment/Te Taiao was also mentioned one way or another. One informant noted how “there's so much DOC land/whenua on the West Coast, so much of the land/whenua is protected (#3A)” by government legislation (as described in Chapter 2: land/whenua was allocated to DOC as honourable treaty partners in 1987 to be managed and protected under stewardship/kaitiakitanga status; Department of Conservation Te Papa Atawhai, 2024a; 2024b; 2024c). Figure 7 below shows DOC’s public conservation areas in Te Tai Poutini in the South Island/Te Wai Pounamu.

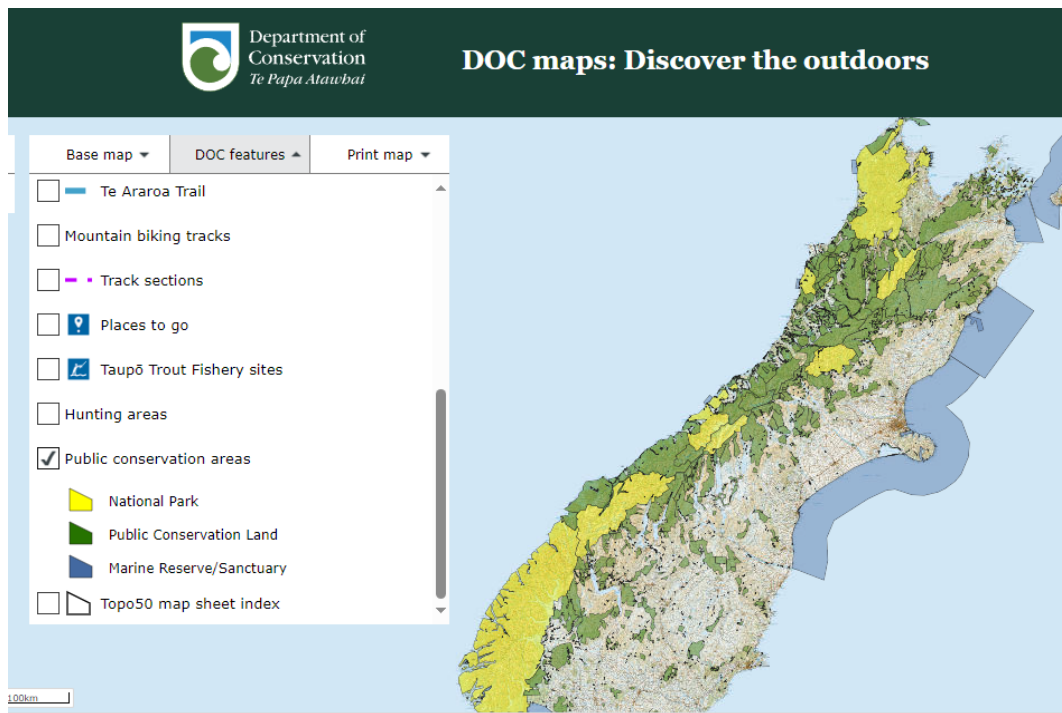


Figure 7

Department of Conservation Te Papa Atawhai Public Conservation areas, highlighting the West Coast/Te Tai Poutini region, South Island/Te Wai Pounamu, New Zealand/Aotearoa (Department of Conservation Te Papa Atawhai, 2024c)

One local tourism business advisor for the region stated (#3A):

Most parts of the bush here is still as it was hundreds of years ago, and specific to the to the West Coast and the South Island/Te Wai Pounamu are the natural rainforests. Those are really important things, like an actual rainforest, because I think, you know once you understand the rainforest and what it does in relation to producing moisture, rain, but also producing oxygen. I think that's an amazing thing. People can learn to watch the forest breathe, watching the mist form after rains and watch the clouds form (Figure 8).



Figure 8

*Clouds form above and around the rainforest near Franz Josef Glacier/Kā Roimata o Hine Hukatere
(Photo by: Abby Hamilton 10 October 2023)*

The view of some key informants is summed up in the suggestion of one that it “doesn’t actually matter that it’s raining because it’s a rainforest, there’s still heaps of other stuff to do” (#10B). The observations of informants revealed a strong sense of how the natural environment/Te Taiao is a major attraction in the region. A representative from a voluntary initiative responding to the rehabilitation of New Zealand/Aotearoa’s natural resources for future generations to come, The Aotearoa Circle pointed out that the “significant attraction of the area is around those untouched authentic natural landscape experiences” and how there are “fewer and fewer places in the world that offer an untapped world”. There is “wonderful bush, great swaths of it to walk through” (#1A). As a strategy advisor for the region’s tribe/iwi pointed out, “it brings people in right, and people can connect with it, it almost feels like a different planet”. Comments like “(the) natural elements, make it pretty spectacular to be able to show people (Te Tai Poutini region)” were common during the interviews. It can be affirmed that the Māori worldview and the connection to the land/whenua is an integral part of Te Tai Poutini region’s attraction to visitors/manuhiri.

A local business manager of a MLTB in the Westland/Te Tai Poutini National Park indicated that there is a sense of freedom and space in the region (#7B): “there’s so much space, you can go somewhere, and you can feel like you’re the only person” and suggested how “the isolation is part of it, isn’t it? That’s a huge positive right, but it also comes with the challenges as well, for isolation”. Aside from the possible challenge of isolation, they continued that:

...tourism to a degree, it builds a sense of pride in your region, and in a way I guess, promotes looking after things, because there is value in caring for our natural whenua, and our natural

assets, and the cultural heritage and tourism to a degree promotes, you know looking after all that kind of stuff (#7B).

Through sharing their stories about connection to the land/whenua, a sense of care and stewardship/kaitiakitanga among MLTBs sets a precedence and may lead to community-based environmental actions to aid in times of environmental change (Higgins-Desbiolles et al., 2022). One informant commented on how in Te Tai Poutini there is an “opportunity to be able to access some unique parts of nature, in a place that’s relatively isolated, and being able to do so in a way that’s safe, well managed and supported, and pretty clear in terms of the options of what you can do there” (#5A). The natural landscape was repeatedly mentioned throughout the findings as a considerable pull factor, particularly referring to how it feels like a different world that attracts tourists to Te Tai Poutini region. Interestingly, only a minority of the informants explicitly mentioned the glaciers when directly questioned about the region as a tourism setting. Of those who did refer to the glaciers specifically, it was noted that glacier tourism is still a major draw card. For instance, a local scientist noted that visitors/manuhiri do come to the region “mostly to see the glaciers” and reiterated how “people still just want to see the glaciers, but it’s such an amazing place in other ways as well, but it’s always the glacier, the glacier, the glacier” (#2A). It appears that although the natural rainforest, lakes, mountains and beaches are a major draw card, amongst the region's environmental offerings the glaciers are still a big part of Te Tai Poutini’s attractions in the region.

4.2.2 Tourism activities

Key informants typically characterised tourism activities in Te Tai Poutini region as being nature-based, including a diverse range of outdoors activities that are, as a local government representative said, “...if we focus on the Westland District, there is a mix in terms of environmental experiences. That's anywhere from pounamu through to glacier country and environmental aspects in terms of, walks, talks, history and cultural” (#1A). Many key informants persisted with the notion that, “a lot of tourism operators are a gateway into a different world”; as one local glacier guide said (#8B2):

...for a lot of people that come here the West Coast is unlike anything they’ve ever seen before, whether it will be as simple as kayaking tours into the lakes, or into bird sanctuaries, or if it’s with us, you know Heli-hiking on the glacier, showing people areas that they previously didn’t realise were a thing, a lot of people have never even set foot in a complex national park like we have in New Zealand.

Nature-based tourism experiences in protected areas such as Westland Te Tai Poutini National Park can take place provided that those activities do not negate the conservation of the area (Abbott, Cameron., & Woody, 2021, p. 9). As discussed in Chapter 2, current legislation is in place that allows this. Observations from informants demonstrated positive outcomes of visitor/manuhiri engagement

with conservation efforts in the region. Some key MLTBs run conservation groups and tourists can be involved with conservation efforts in the area through their visitor experience, by planting a tree and/or donating to conservation efforts in the region (further explored in Chapter 5). Such conservation and hands-on nature-based experiences for employee/kaimahi and visitors/manuhiri in the region have been made possible through conservation groups such as the Ōkārito Plant Project in South Westland/Te Tai Poutini (Figure 9).



Figure 9

Plantings at Okāritō Lagoon (Photos by Abby Hamilton, 9 October 2023)

As Figure 10 below shows, at Kā Roimata o Hine Hukatere viewing point visitors/manuhiri are eager to walk to see the glaciers. However, the road into Fox Glacier/Te Moeka o Tuawe valley walk is permanently closed (Department of Conservation Te Papa Atawhai, 2019; 2020, p. 11-13; also discussed in Chapter 2). Currently, there is a maintained track where visitors/manuhiri can do “a walk on the south side where they can go to the viewpoint and see the glacier, the glaciers a few kilometres”

away; as one DOC representative said, “...it doesn’t look particularly pleasant trying to go any further” to try and get a closer view of the glacier. The walking track is a 6.4 km return track that also allows mountain biking (Department of Conservation Te Papa Atawhai, 2024d). The DOC representative further explains that if there wasn’t “anything in the Fox Valley there would be trouble because people would be going, I’m here, I’ve gotta go and do the thing (see the glacier), we’re kinda trying to get people away from the sole glacier focus”. The same informant added that they “think for most people, because they’ve got to walk from the start of the road to get up there, there’s a bit of a hill and by the time they get there they kind of feel like, oh I’ve gotta walk all the way back, and for a lot of people that feels like enough of a walk”. Reference was made to how visitors/manuhiri used to feel the same about the walking track up the valley “before the river kicked us out”, as the DOC representative described walking to get close to the terminal of Kā Roimata o Hine Hukatere. The track is now 1.7 kilometres return (Figure 10) to a viewing point much farther away than the point reached previously by walking up the valley floor (Department of Conservation Te Papa Atawhai, 2024e). Additionally, the DOC representative expressed how, “from a New Zealand perspective, the trek to the glacier viewpoint is [now] a bit blah”. They also point out that “about 85% of the market are not from New Zealand, they’re from overseas, to them it’s quite a cool thing” and how, in their opinion, “we’ve got to try to remember this at times”. Subsequently, one could question who these public conservation areas are managed for, and if it is a problem from a Māori-led tourism perspective, that the management focus of the walking track is dominated by internationals.



Figure 10

Franz Josef Glacier/Kā Roimata o Hine Hukatere viewpoint track (Photos by Abby Hamilton, 10 October 2023)

The findings suggest that Te Tai Poutini region offers an authentic, nature-based experience. These experiences include kayaking on the rivers and lakes, mountain biking along the cycle-friendly roadways and tracks, walks with guided nature tours in and around the National Park and walks along the coastlines, in the natural forest and the mountain glacier environment, where visitors/manuhiri can get views of the glaciers or take a Heli-hiking tour to land on the glaciers.

Outlined in Chapter 2, greenstone/pounamu is culturally significant to Māori and can only be sourced and utilised in Te Tai Poutini under the Ngāi Tahu by government legislation (Pounamu Vesting) Act 1997 (Gibbs, 2001; Wheen, 2009; Floyd, 2023; New Zealand Government, 2024). Observations were made by informants about how there are Māori-led tourism experiences using greenstone/pounamu as a tool for tourism experiences in the region. A local district council representative described how “there is a sprout up of greenstone tours just around in Hokitika itself, in terms of the fossicking [for greenstone/pounamu], greenstone related carving experiences and being able to tell histories and

cultural significance”. However, it may be argued that there is an issue that “people aren't going to go to” all of the greenstone/pounamu experiences; “they're going to go to one and then move on”. A point was made about “how do you create a marketing venture that makes them come to yours after being to someone else because you can only have so many greenstone/pounamu related carving premises for example” (#1A). That being said, a local Māori employee/kaimahi noted that greenstone tours get to “tell the stories of our people here, and that’s really good”, adding, “also, people want to buy [authentic] pounamu from here”, especially from “the local hapu that has their shop here too”. The findings revealed visitors/manuhiri to the region had plenty of options to experience greenstone/pounamu-related tourism activities south of Westland/Te Tai Poutini National Park. Conversely, some informants observed a possible lack of greenstone/pounamu experiences, including cultural experiences north of the National Park, which in turn leads to a possible lack of cultural storytelling that could be of value to the area. For instance, a Māori hospitality/manaakitanga employee/kaimahi in Franz Josef Township/Waiau suggested that culturally focused tourism offerings were “mostly up in Hokitika and Greymouth” and that they felt there needs to be more “Māori culture down this way”. The following section will discuss results gathered about Māori-led tourism experiences in Te Tai Poutini.

4.2.3 Tourism and Māori culture

The potential for tourism employees/kaimahi to communicate cultural narratives to visitors/manuhiri in Te Tai Poutini and the wider region was observed by many key informants. There seems to be a growing need for diversified visitor experiences in the region as many informants expressed a desire for further awareness and development of Māori-led tourism in the region.

A MLTB owner in the Westland/Te Tai Poutini National Park area described in a heartfelt way how “...it is really important to understand Māoridom, it's important for us, that connection to the land”. They described what the connection to the land/whenua means to them and their tourism business as guardians of the land/whenua, saying “We're all kaitiaki’s here. We're all just looking after the place - it's not just for us”. As explained by the Environment Foundation (2018), “Kaitiaki have a responsibility to provide for everyone and ensure everyone benefits”. MLTBs are ultimately “developed by Māori about Māori” (Puriri & McIntosh, 2019, p. 89). As a MLTB business manager in the region explained, “Tourism is their voice. Tourism tells the story of what’s there”. Similarly, a local Māori visitor/manuhiri guide in the region reiterated “...it's part of our culture and it is our stories that are being shared. Manuhiri are hearing from the people, from the mana whenua of their stories and their connection to the land and their way of life”. They stated that “some people actually come here, and they want to know about the culture of the indigenous peoples”, adding “If I went to America I would be interested in learning about the natives, the First Nations people, and their way of life rather than just the

Americans". Another tribe/iwi representative said they thought that discussing what MLTBs offer visitors/manuhiri was "an interesting space:

...because for a lot of Māori-led tourism businesses, it's not just, say, you're gonna take them on a boat ride. You're taking them on that boat ride and telling them all the history of the place. You'd teach them about the importance of the place and why we have to look after it and why we have to respect the land that we're on, and all of those sort of things. Those businesses, those things that they offer is like a wealth of knowledge because they have that connection to the land, and they know all the stories and the history. So, it's not just a boat ride, it's everything. It all just comes into one.

The ability to share New Zealand/Aotearoa's distinct Māori culture through MLTBs could be a draw card for the growing demand of visitors/manuhiri seeking an authentic experience when visiting a destination (Chen, 2023, p. 1). One MLTB general manager put forward that their MLTB business, which is owned and operated by the South Island/Te Wai Pounamu tribe/iwi, aims to deliver "high yield experiences" in the region. A recent study by Kheiri (2023, p.1) suggests there is a greater depth of behavioural and psychological engagement and enjoyment when tourists have these kinds of experiences through authentic cultural aspects. It could be argued that encouraging high yield cultural experiences only offered through MLTBs could attract many more different types of visitors/manuhiri. Cultural "tourism brings diversity to the region (#7B)" and in turn, this diversity can help "unlock positive social outcomes" (Tang & Xu, 2023, p.75).

Observations were made by several informants during interviews that there is a "push for growing cultural tourism from a Māori perspective" in Te Tai Poutini region. A local Westland District Council representative commented that the growth of MLTBs in the region is "currently in the initial development" stage. This could suggest that MLTB experiences are somewhat lacking in the region. However, a local tourism industry employee/kaimahi in the region confirmed the growth of MLTBs and excitedly commented on a new MLTB tourism venture due to open in December 2023, stating how it will be positive for the region. They explain "there's the Pounamu Pathway coming...that will be even better" for cultural tourism offerings. This new Māori-led tourism venture is an immersive visitor experience described on the Pounamu Pathway Untamed Natural Wilderness website (2023): "four immersive visitor experience centres are now in development on the West Coast from Haast to Westport". These visitor centres will tell "stories that bring to life the history of the region, anchored by early Māori history". The first Pounamu Pathways experience (Figure 11), created in collaboration with Weta Workshop and Poutini Ngāi Tahu, opened in Greymouth/Māwhera on the 8th of December 2023 (One News Reporters, 2023; Floyd, 2023; Bywater, 2023; Weta Workshop Ltd, 2023).



Figure 11

Inside the Pounamu Pathways experience in Greymouth/Māwhera (Photos by Abby & Liz Hamilton, 17th April 2024)

Additionally, the new Māori-led visitor attraction has been developed near Fox Glacier township/Weheka between South Westland/Te Tai Poutini DOC and the local iwi (Figure 12) and described in section 2.2. In a media release by DoC in December 2022, Te Rūnanga o Makaawhio chairman Paul Madgwick said, “...this is a great new addition to the South Westland tourist trail. As both a Tohu Whenua and a linkage in the future Pounamu Pathway that's being created the length of the West Coast, it is another reason to stop and interpret the beauty of Fox Glacier”, Wayne Costello (DOC) said, “We were confronted with what could have been a disaster for local tourism. Department of Conservation Te Papa Atawhai, Te Rūnanga o Makaawhio and the community came together to find

solutions to sustain tourism and build the glacier country’s economic resilience in a changing climate”. (Department of Conservation Te Papa Atawhai, 2022).



Figure 12

Te Kopikopiko o Te Waka at Fox Glacier/Te Moeka o Tuawe viewpoint near Fox Glacier/Weheka township (Photos by Abby Hamilton, 9th February 2023)

A local DOC representative commented that the International Visitor Levy helped pay for this new Te Kopikopiko o Te Waka cultural visitor attraction in the region, which has also been pointed out in Strong et al’s study (2023). The DOC representative continued to discuss how the emerging cultural aspect of the area is different now from 20 years ago: “It was different times, and that long ago. I guess Ngāi Tahu was still probably really processing their Treaty settlement and what that kind of meant for them, so yeah, nah, that’s quite a change”.

New Zealand/Aotearoa’s MLTB generate authentic, meaningful experiences for visitors/manuhiri to this country/motu. Māori-led tourism enhances high yield experiences that differentiate New Zealand/Aotearoa from the rest of the world (MBIE, 2023). Māori-led tourism plays a central role in showcasing this country/motu to the world. It influences cultural and commercial management within MLTBs while also providing revenue to New Zealand/Aotearoa’s economy. Recent International Visitor Survey responses released on the 5th of March 2024 related to “Enjoyed experience of Māori culture”

when visiting New Zealand/Aotearoa (Tourism Evidence and Insights Centre, 2024). The responses show a high percentage of enjoyment from international visitors/manuhiri experiencing New Zealand/Aotearoa's authentic Māori culture.

4.2.4 Tourism and the economy

The tourism industry is regarded as a major economic driver worldwide, including in New Zealand/Aotearoa (Fusté-Forné & Hussain, 2022). Many communities rely on tourism for economic growth, including Te Tai Poutini region (Brida, Gómez, & Segarra, 2020; Nel & Connelly, 2020; Alam & Nel 2022). Some key informants recognised the importance of tourism to Te Tai Poutini's economy. One MLTB business manager (#7B) proposed that "without tourism, the region would rely on agriculture", adding how tourism in Te Tai Poutini region "builds a sense of pride for the community, also an obvious revenue source, but goes back to that pride". Although tourism appears important to the region for economic growth, there seems to be a correlation between economic growth and community identity; tourism is obviously a revenue source, but there is also pride:

West Coasters want to show off what they've got. They're really proud about it. Everyone wants everybody to see how amazing what they've got is, and be part of it, and experience it, and take it home. It's quite (a) different sort of mentality from like, if you were thinking of Wanaka, or even Stewart Island. (#10B)

Most key informants explained how tourism generates economic gain for the region. As local one MLTB employee/kaimahi stated, "infrastructure probably wouldn't exist if it wasn't for tourism". A local DOC representative also stated that "tourism here is one of the drivers of the economy, certainly, for South Westland, one of the biggest drivers". As mentioned earlier, non-New Zealand/Aotearoa visitors/manuhiri make up 85% of users walking the Franz Josef Glacier/Kā Roimata o Hine Hukatere viewpoint track, which in turn demands regular maintenance for ease of access and use. It could also be argued that regular severe weather impacts (such as heavy rain) increase demands for regular maintenance. This correlates with a local MLTB employee/kaimahi's statement regarding how economic revenue from tourism helps with infrastructure costs.

It is important within the region to build good working relationships/whanaungatanga with each other to help create employment and economic benefits through tourism (Matunga et al., 2020; Lawrence et al., 2023). MLTBs continue to build community and economic resilience within Te Tai Poutini region in the face of climate change impacts. Before we can explore this, it is important to understand what climate change impacts the region is already facing.

4.3 Climate change effects currently experienced in Te Tai Poutini

This section will present and discuss results gathered from qualitative interviews conducted with key informants pertaining to their observations and experiences of current climate change effects and impacts in the case study area, Te Tai Poutini. Informants discussed their views about climate change and how their businesses, work environments and experiences living and working in the area are affected in the current climate. Further discussions in this section relate to informants' awareness and information sourcing of the predicted climate change effects and impacts in Te Tai Poutini.

4.3.1 Experiences of climate change in the current climate

The effects of climate change and its impacts in current times are experienced widespread throughout New Zealand/Aotearoa (Lawrence et al., 2023; Harrington, Dean, Awatere, Rosier, Queen, Gibson, Barnes, Zachariah, Philip., & Kew, 2023; Wilson, Chambers, Prickett, Broadbent., & Kerr, 2023; Nixon, 2024). Overwhelmingly, although not surprisingly, many informants commented on how very few people and businesses in the region could say they are not experiencing the effects of climate change in some way or another. The Charitable Trust representative mentioned that "I would almost say that there isn't a tourism business which isn't affected by climate change in the region already", suggesting, "there will certainly be some that have been affected more than others". Similarly, a MLTB manager (#4B) operating in the Westland/Te Tai Poutini National Park area presumed that, "there would be a number (of tourism businesses suffering climate change impacts now) that are probably around changing weather patterns, which ultimately influences departures etc, and the ability to operate". A local government representative described when, as shown below in Figure 13, the "2019 weather event took out the Waiho Bridge in Franz", creating devastating consequences for the businesses in town (Somerfield, 2020).

Material removed due to copyright compliance

Figure 13

Waiho Bridge collapse in 2019 (Heard, 2019) from:

<https://www.stuff.co.nz/national/111673913/waiho-bridge-will-take-longer-to-reinstate-than-first-thought--nzta>



Figure 14

Waiho Bridge, October 2023 (Photo by Abby Hamilton, 11 October 2023)

A MLTB manager who witnessed the Waiho Bridge collapse in 2019 said:

...it was a surreal feeling. We stood down there and watched it happen. It was unbelievable. There was a lot of confusion at the time, a lot of questions, and you do feel like you're the end of the road essentially, there is that real isolation. I had whānau just on the other side that I'm really close with. That was challenging, because you're so close, but you can't make that connection. It was hard at the time, although, that builds a huge sense of community.

The majority of informants acknowledged that road closures and impacts from extreme weather events have been happening for some time. The local scientist observed that "we are getting more

extreme weather events. We are going to get more roads getting washed out, and I think it is clearly linked with climate change”. They noted how “parts of the road are definitely vulnerable” and gave examples such as “Bruce Bay with the sea and the sea wall” (see Figure 15 and 16 below, showing the main road in front of Te Tauraka Waka a Māui Marae located in Bruce Bay/Mahitahi) (Te Rūnanga o Makaawhio, 2021; 2023). Where the sea compromises the road, the sea wall was constructed to mitigate washouts (New Zealand Transport Agency Waka Kotahi, 2024). This suggests that informants have observed examples of climate change effects, impacts and adaptation in the case study area.



Figure 15

Arrow showing sea wall constructed in front of Te Tauraka Waka a Māui Marae located in Bruce Bay/Mahitahi (Te Rūnanga o Makaawhio, 2021)

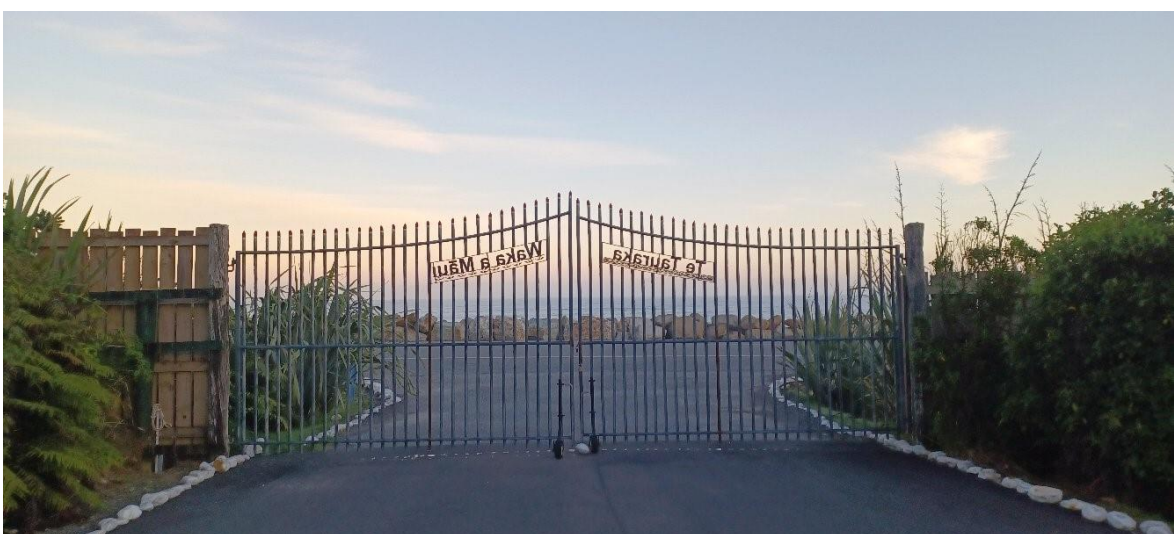


Figure 16

Looking towards the sea wall from inside the gates of Te Tauraka Waka a Māui Marae (Photo by Abby Hamilton, 5th April 2024)

Discussions and observations on the impacts to infrastructure due to extreme weather events were a leading theme throughout the interviews. Many informants referred to how “access to the coast is vulnerable” and as a result, it was suggested that “people are wary of being stuck on the coast” (#9A). It could be said that there is an element of apprehension for MLTBs and visitors/manuhiri in the region due to the vulnerability of the transportation infrastructure. It is possible that some of the apprehension expressed by a few informants could be the result of having witnessed the indefinite closing of walking tracks and roads that were once often used to access walking tracks to view Fox Glacier/Te Moeka o Tuawe and Kā Roimata o Hine Hukatere. Additionally, climate change impacts witnessed by informants correlate with DOC’s CCAAP statement (Department of Conservation Te Papa Atawhai, 2020, p. 66):

Associated with the glaciers are access roads, road-end car parks, toilets, walking tracks and bridges. This infrastructure is already frequently subject to storm damage. In particular, the Fox Glacier/Te Moeka o Tuawe access road had been washed out and rebuilt so frequently over the past few years that it was decided it would no longer be maintained in August 2019. Storm damage for the West Coast region may worsen under climate change, with much higher rainfall predicted. Therefore, increased infrastructure damage and repair costs are expected.

The results revealed there could be a growing acceptance of what climate change means for tourism in the region. The local DOC representative confirmed that the “cost is too great for DOC to reinstate the Fox Glacier road”. They continued to describe how community members were given an opportunity to go up and look at the damage, “so they could gain an understanding that it’s a big problem, (that) mother nature has just dealt us...a big one”. A local Westland District Council representative suggested that eventually “neither of the glacier roads will be reinstated” due to the colossal cost of rebuilding the roads, adding that the “rivers are wanting to break out of channels where man-made channels have been made”, compromising parts of the infrastructure that may not be reinstated in the future. Figure 17 (below) refers to what is currently happening in the Franz Josef Township/Waiiau community, as described by the local DOC representative:

If you wander out (to the river), you’ll see them frantically building stop banks. There seems to be a high level of things staying as they are or were. There’s not really a whole lot of acceptance I guess that things are changing necessarily, but I think people are kind of hoping that things don’t change too much (#6A).



Figure 17

Working on building stop banks on the Waiho River in Franz Josef Glacier/Kā Roimata o Hine Hukatere (Photo By Abby Hamilton, 11 October 2023)

Most informants discussed their observations of changing weather patterns in the region. A local MLTB owner and operator in Westland/Te Tai Poutini National Park described noticing “plants and animals changing due to the warming...different fish in the sea and different, more intense fruiting and flowering season” (#4B). Observations of drier, warmer weather were described by several informants. A local Māori Business Adviser described how living in Te Tai Poutini, “for us it's different, because we see the changes. I'm in the taiao, I'm in nature, and the environment is changing”; it is “definitely apparent” to them that it is “getting super dry”. A local iwi representative mentioned how their local swimming holes are getting shallower, saying that, “before it used to be quite deep, which I always thought - that climate change, the West Coast always gets wetter - but the water's getting shallower. I don't understand”. The local Westland District Council representative mentioned that in the region there are “low lakes as we're coming out of winter”, which in turn effects the “water-related tourism

ventures". A MLTB employee/kaimahi in the region noted that they were "realising winters aren't as long as they used to be" and that they feel there are "spikes in temperature, for sure"; that for them it also feels as if "summers are harsher". Other informants observed that currently, "under El Nino, it is supposed to be getting wetter weather", although the region is "not getting the heavy rain we normally do" (#1A). Although informants commented that the climate is drier, this is at odds with the broader scientific understanding perception of the West Coast in New Zealand/Aotearoa being wetter under El Nino weather systems (Glantz, 2022; Lawrence et al., 2022; University of Auckland, 2023). Most informants stated that they had witnessed physical changes in the glaciers as a response to what they perceive as an effect of climate change. A MLTB owner summed up the impact of climate change, stating they had witnessed the "obvious massive retreat in the glaciers" (#4B). Informants mentioned the glacier changes as evidence of climate change, mainly commenting on the retreating glaciers. A MLTB manager and lifelong resident of South Westland/Te Tai Poutini stated that "it was the end of an era, when you finally couldn't walk on the glacier in 2012". Additionally, a Westland District Council representative confirmed that, visitors/manuhiri to the glaciers can "no longer access Fox and Franz glaciers by foot". Observations were made by some informants that "the glaciers have always been going backwards". A local South Westland/Te Tai Poutini DOC representative described their 20-year experience in the region and pointed out, "anyone who's lived here, no matter how long, overall, the glaciers have been going backwards, so no one can say they didn't know. The glaciers aren't coming back anytime soon". This observation aligns with Baumann et al.'s (2021, p. 23) future prediction of clean ice glaciers becoming small remnants high up in the mountains, as explained in Chapter 2 and Figure 3. During the interview, the same informant pointed to a picture on the wall and said, "the glacier, she no look like that anymore" (Figure 18 below).



Figure 18

Historic tourism poster of Franz Josef Glacier/Kā Roimata o Hine Hukatere (Photo by Abby Hamilton, 10 October 2023)

The DOC representative continued to describe how they have witnessed “hillsides falling down, because the glacier’s not holding them up” anymore and how “repeat visitors saying, ‘I’m sure the glacier was closer,’” to local DOC staff on the ground in the National Park. Additionally, informants commented that the recession of the glaciers has created “issues catering for people wanting to get close to the glaciers now”. As Strong et al. (2023, p. 3-4) explains, helicopters have been used since 2012 to access the glaciers, due to walking access becoming too “treacherous”. A local government representative said:

It is an issue over summer for helis to find somewhere to land. They have to go higher and higher to find safe places. That is a challenge for operators that don't have a concession to land in the park...outside the park is lower.

The emphasis some informants put on changing access at the glaciers might suggest that there would be concerns about the future of tourism, although this was not articulated by most key informants, with comments such as, “I think people are still wanting to come here and do stuff. I’m not aware of it

declining or anything. They're still coming here and doing stuff" (#6A). A potential contradiction was discussed by a few informants, who commented on the rapidly receding glaciers in the region, despite the region being called 'Glacier Country'. A local MLTB manger commented that "conversations certainly come up around the name 'Glacier Country'". This could suggest an example of preparing for climate change adaptation. As the informant continued, "there's been a conscious shift away from only promoting things that are glacier-orientated".

4.3.2 Knowledge of climate change predictions and information sources

In the previous section key informants' observations and perceptions of climate change effect and climate change impact in Te Tai Poutini were examined. In the following discussion, key informants deliberated about their knowledge of predicted climate change effects in the region. Discussions in this section relate to how and where informants get information pertaining to climate change effects and future impacts. DOC's CCAAP mentions, irrespective of climate change mitigation, that "we will experience some ongoing physical impacts related to climate change (e.g. sea-level rise, increasing temperatures, retreating glaciers)" (Department of Conservation Te Papa Atawhai, 2020, p. 6). The research predicts that a 1.5°C and 2°C increase in temperature will see the west coast of the South Island/Te Wai Pounamu experiencing recurrent, severe rainfall during winter months and less rainfall during summer by 2090 (Ministry for the Environment, 2018; Bodeker, 2022, p. 29). The NAP acknowledges that "climate risks in the natural environment affect Māori cultural, economic and spiritual wellbeing...as well as economic opportunities through cascading impacts on tourism" (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.100). MLTBs operating in the case study area are and will be exposed to further "climate hazards" (Hendy et al., 2018; Macinnis-Ng et al., 2024). Throughout discussions regarding future climate change scenarios, most key informants said they were "well aware" of the predicted climate change effects and climate change impacts for the region. It could be argued that this stems from what has already been observed by informants. This could be affirmed by what a MLTB manager said: "...increasing what we've seen already, more extreme weather events, glaciers retreating, and coastal erosion". Key informants commonly noted "it's forecasted that we're going to get more erratic changes in weather" (#8B1) and "more severe rain, because we've experienced a lot of that across the country" (#5A). An Aotearoa Circle representative summed it up this way: "The West Coast, because of how and where it's situated on the country, will continue to be impacted, it could be directly, so I would suggest the region is quite vulnerable and susceptible". Observations frequently referred to rises in temperature, with one local MLTB employee/kaimahi suggesting that "cyclones are going to come further south from the equator and potentially more cyclones will hit the South Island eventually as the climate in the South Island shifts and is warm enough to allow cyclones to do so".

Overall, key informants showed some awareness and knowledge of projected climate change predictions for Te Tai Poutini, as shown by comments such as, “it’s not something that I have been made aware of, although I do reckon there’s definitely change going to happen” (#3A) and “I don’t know the specifics, but absolutely understand the vulnerability of various parts of the tourism industry in the region” (#5A). This correlates with the above argument that informants’ knowledge of what is predicted for climate change effect stems from environmental changes already experienced. Further engagement with MLTBs operating in Westland/Te Tai Poutini National Park and proximate destination townships will be beneficial for tourism operators, managers and the wider tourism sector in relation to responding to climate change impacts.

However, some informants felt there was a disconnect between what they have heard and the reality as they have experienced it. For instance, a local MLTB owner said that they are “aware of what they’re saying, and also very aware of fear mongering when it comes to climate change information”. They continued, saying that there are “definitely parts of it happening and you can sort of see it happening. A lot of it (climate change information) seems over the top”, suggesting (in relation to Kā Roimata o Hine Hukatere and Fox Glacier/Te Moeka o Tuawe) that it is “hard to tell the story as these glaciers fluctuate”. Some visitors/manuhiri and tourism operators in the area may disregard the current climate change predictions due to fluctuation of the glaciers. In Wilson et al.’s study (2014, p. 64) in 2014, in response to “change to the glacier [Kā Roimata o Hine Huakatere] in the next 20 years”, 15% of respondents said that they “thought that it would either fluctuate, or stay the same, or did not know what would happen to it”. This correlates with the current study’s findings.

Another example of the disconnect between scientific predictions and the reality of climate change came from a young local iwi member who grew up on the Arahura Pā site. This informant said: “...(I) thought that climate change predictions were that the West Coast gets wetter”, describing how “the water is getting shallower. So, I don’t understand, it’s hard to (believe what the experts are saying) and it’s obviously not getting wetter. We’ve had an amazing summer so far, we’ve hardly seen the rain”. They went on to explain how their iwi “started in Māwhera and made our way down to Arahura, then a couple to 400 hundred years later, here I am”. It is possible that western science predictions of climate change effects in the region may not be understood and accepted by some. Māori who live and work around in areas where their tūpuna lived already have an inherent knowledge system of adapting to environmental changes in the region. Is it possible therefore that some of this knowledge is a barrier to adopting other (western scientific) perspectives.

Key informants had differing views about how climate change information is coming through in children’s/rangatahi’s education, with a MLTB general manager commenting that “our children are so aware of climate change”. They commented on the potential for getting up to date climate change information from students/rangatahi, as they perceived that climate change is “in their education, not

just through social media, through school. You just need to sit at a table, and they'll (rangatahi) challenge you, especially if your actions are un-environmental. They'll say to you, 'what are you doing that for? You're killing our environment'. However, a young iwi member spoke of their recent local public school education experience in relation to climate change, saying "I think it was always the same old 'look after the planet', but it was never more than that". From this it could be said that there is a possible lack of western science and Māori worldview curriculum content pertaining to climate change effects to engage some Māori students. A local scientist acknowledged that "at university level we just don't get many Māori students coming through into earth sciences in particular" and that they "can see why universities will be unfriendly places". As a scientist, they said that they "accept the role that universities and science has played in colonisation as well, and not in a positive way for Māori and other indigenous people". Continuing with education as a credible source for future scenarios of climate change effects and climate change impact, the local scientist described how a colleague is:

...building up this relationship with Franz Josef Glacier guides and also running this programme called *Girls On Ice*, taking them up to Ruapehu with a real focus on Māori girls, on indigenous knowledge as well, not just earth and science. That's the kind of thing we need to do, build those bridges - but (we are) at quite an early stage.

It is possible that through education, when relationship/whanaungatanga is established and maintained, bridges can be built connecting the gap between western science practises and indigenous knowledge, particularly in the education of climate change effects and future environmental changes for our children/rangatahi (Zink, 2020; Ritchie, 2024). The young local tribe/iwi member acknowledged that they were lucky to attend a climate change symposium in Christchurch recently, hosted by Te Rūnanga o Ngāi Tahu (Te Rūnanga o Ngāi Tahu, 2023): "The way that I see it, is that everyone should be able to get an opportunity to learn it (climate change) from the experts". About the symposium, they continued, "There's the scientific people, and then there's the indigenous ones. It's adding all of the perspectives, all of these people with different perspectives in one room" teaching, learning and listening together about climate change.

Some key informants observed that most people get future climate change prediction information by watching the news or going onto the Google search engine. As an example, the general manager of a MLTB said, "I literally would have googled 'climate change' and what does it mean for me, and then I would've gone for a bit of a search on - not 'the world's ending', but 'what can I do and what are the impacts for me in my everyday life?'" . Results from Google may lack credibility with regards to scientific climate change information; it may be seen as "scare mongering and over the top", which, as discussed above, could obscure correct scientific information. As the literature suggests, there "needs to be critical evaluations of online scientific information" (Sinatra & Lombardi, 2020, p. 120; Rowland, 2024).

As the findings emerged, it became clear that most MLTBs in the region used more than a Google search when it came to gathering information about future climate change effects. This could suggest that MLTBs take gathering and sharing information about climate change effects seriously. A MLTB manager indicated that “science does talk in long term, 50 to 100 years (perspectives)” and that “there’s a lot of questions that come up (about climate change) for us because we’re so close to the glacier”. They added how important it is to be “working collaboratively with other agencies, such as NIWA, Metservice and local scientists and how we can assist them and their science” as they see the evidence daily as they operate in Westland/Te Tai Poutini National Park. Some informants implied that climate change discussions in the community and within businesses are not really happening currently. As one MLTB owner said, “When I go to community meetings occasionally it might come up, but no it’s not a common thing” to discuss climate change, and/or climate change effect and adaptation. The local DOC representative said they what they discuss with the community is “maybe not so much about climate change, but we’ve certainly been talking to them about what the future might hold as far as what assets the department might have and might be prepared to hold on to. But it’s all theoretical at the moment”. This suggests there is low engagement between local government, businesses and the community about climate change effects. Some informants noted that they perceive that tourists expect a level of education about climate change effects in the region from tour guides working in the Westland Te Tai Poutini National Park, though some employee/kaimahi in the area said “I don’t think a lot of, well in our region on the Franz, not a lot of updated science has been done”. The local scientist mentioned that they “have almost no funding to work on New Zealand glaciers”, which they perceived as a barrier to gaining ‘updated science’ in the region. Discussions led to how practising relationship/whanaungatanga for learning about the past, present and future of the environment is also:

...about the work people have put in organisationally to build and maintain relationships with scientists, and that’s great, but that information shouldn’t be that hard to access. I think that it’s really valuable that it’s all grounded in relationship and my understanding of Māori values is that reciprocity in relationship building is also a part of that.

However, building and maintaining relationships/whanaungatanga with the likes of research institutions for climate change-related knowledge can pose challenges. A Ngāi Tahu strategy advisor (#9A) described relationship/whanaungatanga:

It’s one of those things, that those relationships require investment, and that investment takes time...I don’t think we’re quite there with some of those relationships, but I know Papatipu Rūnanga have relationships with institutions themselves. I think those relationships are there at that regional level, it’s just less so at the Te Rūnanga head office level.

It seems that if relationship/whanaungatanga is built and maintained between MLTBs, scientists, research institutions, iwi and local government representatives, climate change information and climate change adaptation information could be better understood. Informants felt that there is a lack of credible knowledge sources, which could also be attributed to a lack of accessible Māori worldview knowledge sources pertaining to climate change effects and climate change adaptation, particularly in Te Tai Poutini (Jones, 2022; Mannakkara, 2023). Building and maintaining of relationships/whanaungatanga is vital for MLTB in the region, and while some are working collaboratively with other agencies, including government departments, to gain further knowledge about climate change, the findings show that some MLTBs are more likely to act on their inherent genealogy/whakapapa value system when it comes to gathering credible information about environmental changes.

4.4 Summary

This chapter has presented insights into what visitors/manuhiri can expect to experience through tourism ventures, in particular what Māori-led cultural experiences can be engaged with in Westland/Te Tai Poutini National Park and proximate destination townships. This included coming to see the glaciers, although the perception of glacier tourism seems to be waning, and more focus is on the wider surrounding natural environment/Te Taiao. Results showed activities for visitors/manuhiri to the region as being nature-based, including outdoors activities. For most key informants, the natural landscape was at the heart of the tourism experience in the region. These results demonstrate a high reliance on the 'climate sensitive' natural environment/Te Taiao for visitor experiences. Interestingly, mention of greenstone/pounamu visitor experiences in the region were sparse, although an influx of these experiences on offer was alluded to, particularly in the Hokitika area. Results highlighted the importance of cultural tourism in the region, largely for offering a unique cultural visitor experience. Expressions were made of how important an authentic Māori-led visitor experience is, hearing from the people of the land/whenua's historic and current ways of life through their own cultural storytelling. The results highlight that there is a lack of cultural experiences, particularly south of Hokitika in Te Tai Poutini. There is a growing trend of pride in the region regarding what they have to offer visitors/manuhiri, which in turn results in positive economic and employment benefits for the region, including MLTBs.

This chapter then presented selected key informants' accounts of climate change impacts experienced and awareness of future climate change predictions in the region, and climate change information sourcing was also discussed. Results highlight that many key informants referred to repercussions of extreme weather events, including landslips and major damage to infrastructure, as the major impact of climate change experienced in the region. Most key informants referred to recent and past road

closures due to landslips and bridge washouts, resulting in devastating consequences for tourism businesses in Te Tai Poutini. Key informants recognised that warming temperatures and drier conditions were apparent in the region and reference was also made to more extreme rainfall due to climate change. Some key informants mentioned that this has not felt like the case for them in recent times, noting that they have not seen heavy rainfall as usual. Most key informants were aware of climate change predictions and indicated that what they have already witnessed is becoming more apparent (although they are not necessarily using credible information sources). Findings emphasise the importance of credible information gathering about climate change impacts. Key informants that work directly with visitor experiences and glacier tourism were generally educated about climate change. This is due to visitors/manuhiri wanting to know about climate change relating to apparent changes to the glaciers in the region. Results highlighted that online and news sources were common places for key informants to retrieve climate change prediction information. Those working in the face of climate change seem to get credible information from local scientists and the global climate change community. Results also alluded to the fact that awareness of misinformation and scaremongering was a challenge and that sometimes, climate change information can feel 'over the top'. Further results showed that working collaboratively with other businesses in the community is another way to collect up-to-date climate change information. Practising relationship/whanaungatanga for learning about the past, present and future of the environment is also beneficial.

Chapter 5: Results/Discussion

5.1 Introduction

This chapter will present and discuss key informants' perspectives of the risks and opportunities arising from climate change effects, and the predicted climate change impacts for MLTBs in the case study area. As discussed in Chapter 2.4, Māori values can help address some of the risks and opportunities in climate change effects. MLTBs offer a distinct cultural perspective on our way of life in New Zealand/Aotearoa (Munshi, 2020; Kurian, 2021). One aim of this study was to explore to what extent Māori values inform the possible risks and opportunities arising from climate change and adaptation for MLTBs in the region. This chapter will present and discuss evidence of the climate change adaptation responses of MLTB's key informants in Westland/Te Tai Poutini National Park and proximate destination townships. Also presented and discussed are the ways in which Māori values underpin climate change adaptation in a MLTB in the case study region. As discussed in Chapter 2.5, Cradock-Henry et al. (2021, p. 1-5) suggested "that industry-specific, locally based options and pathways to support adaptation are needed". It has been said that New Zealand/Aotearoa could be the country/motu to follow with climate change adaptation planning, because Māori worldviews are recognised and assumed in government legislation (Carr, 2020; Higgins-Desbiolles, Bigby, & Doering, 2022). Studies indicate that government agencies lack willingness to apply Māori values to legislation due to a lack of knowledge of the Māori worldview (Maxwell, Awatere, Ratana, Davies., & Taiapa, 2020; Jones, 2022).

Lastly, this chapter explores informants' observations of the Māori worldview underpinning climate change adaptation and further discussions are presented on informants' views on the perceived role of Māori values underpinning climate change adaptation in New Zealand/Aotearoa, particularly in government legislation.

5.2 Risks and opportunities relating to the predicted climate change impacts for Māori-led tourism businesses

As discussed in Chapter 2, planning for natural hazard risks such as climate change effects is often rooted in methods of western science and the beneficial Māori worldview is regularly neglected when planning for risk (Black, 2024). Māori have been managing the risk of environmental changes for hundreds of years (Kenney, Phibbs, Meo-Sewabu, Awatere, McCarthy, Kaiser, Harmsworth, Harcourt,

Taylor, Douglas., & Kereopa, 2023). There is awareness of the potential risks and opportunities for MLTBs in relation to climate change effects. These are discussed in-depth below.

5.2.1 Potential and actual risks occurring as a result of climate change effects

This section discusses the potential future risks and the actual risks already occurring as a consequence of climate change in the case study area. During the interviewing stage of this research, the case study area was experiencing the aftermath of a major climate change impact. As one MLTB manager said, “We are already seeing the risks. We didn’t have people come from the south a week ago because the Haast Road was closed”. On the 24th of September 2023, Waka Kotahi NZ Transport Agency’s website stated that, “The Haast Pass link between the South Island’s West Coast and Otago/ Queenstown is remaining closed this weekend due to the massive amount of slip material needing to be removed at Muddy Creek bridge and either side of it... It is a huge job.” Predictions of climate change effects in the case study area are for increased frequencies of heavy rainfall, which in turn impacts vital infrastructure such as access to Te Tai Poutini via the roading network (Ministry for the Environment, 2024; 2024 Te Tai o Poutini Plan West Coast, 2024; Macara, 2016). It appears there is a level of apprehension among tourists visiting Te Tai Poutini region about the vulnerability of the infrastructure network during and after weather events (Cui, 2022). Informants made numerous references to visitor apprehension, with statements such as “people are avoiding coming here because of the big storms, and because of how long it takes for them to open the roads” (#4B) and “it totally affects their plans (visitors/manuhiri)” (#12B). Not knowing when or if the roads will be reopened after each storm event makes it difficult to plan a trip to the Te Tai Poutini (Cui, Fountain, & Espiner, 2023) and informants are aware that “If the flow of tourists dried up, either domestic, international or both, it will be devastating for tourism” (#9A). Having infrastructure to deal with road closures after a big storm should be considered, as “when there is a big storm, having the road crews onsite quicker, and more efficient would be much more useful” for MLTBs, “because it’s going (to) happen more and more. Instead of going, ‘oh, look it happened’, maybe being a bit more prepared and having a bigger budget. People do want to come here (and) the stop of traffic is disastrous” (#4B).

Informants often discussed resilience when referring to the risks of climate change and climate change adaptation. It is possible that one risk for MLTBs in the case study area is the inability to build resilience to climate change adaptation, due to the lack of consistency in cleaning-up and reopening arterial transportation links so that MLTBs can remain operating. An example of this (when the Waiho Bridge washed out in 2019) was in Chapter 4.3.1 (Figure 13). Delays to re-opening main road networks create devastating consequences for local businesses; it seems the community is willing to take actions themselves to keep the main access routes operable after big weather events have affected infrastructure. As one informant pointed out, “that real South Westland resilience, that West Coast

resilience started coming out...amazing people, getting this big dump truck and getting people across the river. We're still here, we're still open for business if people want to come and visit us" (#7B). Interview discussions pertaining to building resilience specifically with vulnerable infrastructure was a key theme. This correlates with literature around key network vulnerability in the region (Rouse et al., 2017; Fountain & Cradock-Henry, 2021; 2020; Aghababaei, Costello., & Ranjitkar, 2020; Strong et al., 2023). The challenge is that "building resilience is difficult in the region due to the key transport networks being quite limited, even though the infrastructure has such a role in bringing people to the place. If they're wiped out, it's devastating for tourism operators" (#9A). Slowing down effective adaptation practises for keeping main roads functioning after extreme weather events in Te Tai Poutini poses a risk to building resilience (Lawrence et al., 2023; TTPP, 2024, p. 101), as seen in comments such as, "in terms of climate change preparedness, the access to the coast is vulnerable" (#9A). One MLTB general manager mentioned that the West Coast's "infrastructure is not very resilient at all" and that they think "that there's a huge amount that has to be done" to build a resilient infrastructure network. Despite these weaknesses, other research found resilience continues to grow within local people and communities, especially responding to climate change impacts such as extreme weather events (Espiner & Becken, 2014; Wilson et al., 2014). These findings correlate with previous research undertaken in the region, for example, in the Westland/Te Tai Poutini area, Strong et al. (2023, p. 7) proposed that there existed "a robust resilience among the local tourism industry forged in part by strong self-efficacy and an embedded social practice of innovation". Discussions regarding community responses to post-weather event damage often led to informants raising concerns about what has been seen in other regions.

The Aotearoa Circle representative commented that there are:

...real issues in terms of access to machinery to do clearing of key places, whether it was agricultural or tourism based, so having those assets either already on the ground or knowing that they're going to be readily available and accessible to be brought in if needed, that would be critical as well. Shoring up alternative infrastructure options - and that's everything from planning and what is going to be the immediate response if one of the critical pieces of infrastructure does get damaged - being aware and understanding that, so that the community and the businesses are already prepared (for) what the plan Bs are. But also, in terms of where you can invest in creating better resilience around those areas, making sure that the susceptible parts of the roading have been invested into, in terms of proper drainage control, etc (#5A)

Resilience of network infrastructure was what most informants suggested should be the priority risk response to climate change adaptation. The local scientist confirmed that "everyone would like to say

the priority is probably to make our transport support network more resilient” (#2A). Resilience building and planning, particularly with a focus on keeping infrastructure and businesses operating in Westland/Te Tai Poutini National Park and proximate destination townships in the face of climate change impacts, seems to be an ongoing scenario and currently under development.

The risk of lack of diversification in tourism offerings in the region was discussed by most informants as a response to the changing environment. As literature suggests, there needs to be knowledge sharing amongst planners, communities, climate scientists and indigenous peoples on how best to diversify tourism offerings in climate sensitive tourism destinations (Hambira, 2020; The Aotearoa Circle, 2023). A Westland District Council representative said that they “use the word ‘resilience’ lightly, but it is about the community resilience” and that planning that resilience for “what is the West Coast beyond the glaciers”, adding “if you are putting in commercial tourism activities, then what are they, and how have you planned for the future where they won't be impacted by environmental aspects such as climate change?” (#1A). Findings showed some MLTBs are currently examining whether they have “got enough resilience and alternative options so they are not dependant on one product only” (#1A). A MLTB general manager said that within their business goals, a “whole resilience planning session is happening this year on what else we can do in this beautiful area that is not 100% dedicated on weather, so our manuhiri, we can still look after them too” (#7B). Most informants discussed the risk “that people just stop coming because they can't see the glaciers anymore” (#2A). Even if that could become the case in time, the results show that there are diverse tourism offerings in the region, lowering the risk of “sole focus on the glaciers” (as discussed throughout Chapter 4). Ten years ago, Wilson et al. (2014, p. 67) revealed that, when asked if they would “still visit if there was a possibility of not seeing the glacier”, 45.6% of respondents responded “no, definitely not”. Further research needs to be undertaken to understand if visitors/manuhiri would still visit the region if they could not see the glaciers.

Current results also presented another risk, which was “if people...decide that flying is no longer something that they can in good conscience continue to do...that's a massive problem for an island nation” (#9A). One MLTB general manager asked, “is flight shaming becoming (worse)? Should we be looking at a different type of virtual experience?” (#10B). Flight shaming - people being made to feel ashamed for contributing to carbon emissions by flying long distances - is said to be a possible reality, especially through social media platforms, as the world embraces climate change impacts (Becken et al., 2021; Andersen, 2024). As one informant stated, “knowledge is key” (#10B); lack of collaboration and discontinuation of research into key areas such as flight shaming and diversification of tourism offerings as people wane on visiting the glaciers could pose a future risk, particularly if MLTBs focus solely on a tourism offering that relies on parts of the landscape that are predicted to be impacted by

climate change (such as glaciers) or access to parts of the landscape that could be temporarily or indefinitely cut off.

Another risk in the region that was identified by most key informants was about living, working and operating their tourism business on the Alpine Fault Line (discussed in Chapter 2.3) - specifically, the economic disruption if the fault line ruptures (McDonald et al., 2018, p. 57). However, a local Māori employee/kaimahi in the Franz Josef Township/Waiau area commented that people who live in the area are already resilient, saying: “what I like about the West Coast is everybody’s prepared. They all know we’re on a fault line, like for me at home, I’m prepared” (#12B). When discussing using the Alpine Fault as a platform for building resilience into their business strategies, a MLTB general manager explained:

We have Alpine Fault training...we are going, ‘how resilient are we, how can we work with our local Marae?’ It is key kōrero for Franz Josef’s main building at the moment. We’ll probably end up being a community hub, so there’s the preparedness, and then there’s the future: how do we carry on after? How do we make ourselves resilient enough so that we’re ready, we can react, and we can carry on? What’s the next step? (#10B)

Literature has shown that a natural intergenerational path to planning exists within the Māori worldview and suggests that resilience building takes place naturally at any stage of the climate change adaptation response (Kenney & Phibbs, 2015; Mason, Lindberg, Haenfling, Schori, Marsters, Read., & Borman, 2021; Kenney et al., 2023). The results presented here show a resonance between the literature and what informants in this study had to say about the “limitations, particularly in the West Coast in terms of what land can be utilised for with impacts of climate change” (#1A). The local Westland District Council representative confirmed that “in terms of West Coasters themselves, they’re resilient, they’re adaptable. Generation after generation, they know where there’s good footing and where there isn’t” (#1A). It could be said that Māori intergenerational knowledge and genealogy/whakapapa worldview (Salmond, 2012) supports this informant’s observation. Overall, informants observed a strong sense that the social capital dimension of resilience is intact in Te Tai Poutini, which in turn helps to mitigate the risks of climate change impacts. This suggests that MLTBs operating in Westland/Te Tai Poutini National Park and proximate destination townships are resilient to the risks and effects of climate change impacts. Indeed, it could be said that MLTBs see risk as an opportunity to diversify. However, informants observed that physical transportation resilience is lacking in Te Tai Poutini, posing a risk for MLTB operations in the face of climate change. Further research is suggested in collaboration with local tribe/iwi and MLTBs to gain an understanding of how better to build resilience and mitigate the risk of infrastructure damage after extreme weather events in the region.

5.2.2 Potential opportunities in predicted climate change impacts

As discussed in Chapter 2.5, indigenous tourism is increasingly looked upon as an opportunity for “indigenous sustainable development” (Ransfield & Reichenberger, 2021, p.49). In this study, key informants indicated that there are opportunities for MLTBs in Te Tai Poutini region in the face of climate change effects. These potential opportunities are outlined below.

Diversification of tourism offerings in the region was identified as an opportunity arising from climate change effects. As discussed in Chapter 2.2, the literature suggests the need to change towards an indigenous worldview thinking as the tourism industry resets for a climate changing world (The Aotearoa Circle, 2023). Recent studies have reiterated the need for education to enhance deeper understanding of why indigenous values are necessary for growing resilience to environmental changes (Jones, 2022; Mannakkara et al., 2023). As one informant commented, “there’s not many places more beautiful than the West Coast and tourism businesses all around the world want to learn about climate change adaptation” (#5A). Most key informants commented that there are “few...places in the world that still have an untapped natural wild landscape”. The Aotearoa Circle representative suggested that the “untapped natural landscape”:

...in itself is a big opportunity to demonstrate and showcase the fact that you still can be resilient even if you’re in a small, isolated community that’s so susceptible and kind of on the leading edge of the effects of climate change. There’s an opportunity to engage tourists through to the actual adaptation measures that the councils might be taking, or the tourism businesses might be taking, and having people come along for experienced trips to understand a place that’s kind of hanging in the balance of climate change (#5A).

Currently, glaciers are one of the main tourist attractions in the region, but key informants suggested that there is a push to shift the focus of the region and promote the ‘mountains to ocean landscapes’ beyond the glaciers. This is not a new idea, as Mcsweeney (1981, p. 19) suggested “Tourism is in the unique position to be able to provide both employment and, cooperating with the Park, ensure the preservation of natural features and wildlife which attract people to the region”. More recent literature also describes changes in glacier tourism and comparable perspectives of Westland/Te Tai Poutini National Park offering more than the glaciers (Espiner, 2001; Espiner & Becken, 2014; Wilson et al., 2014; Stewart et al., 2016; Strong et al., 2023). Research from a Māori culture perspective could enhance momentum and understanding of this shift in focus. A MLTB owner suggested that there is an “opportunity of being able to focus more on nature and getting different people pushing towards the change from glacier to nature” (#4B). As the focus in the region shifts from ‘Glacier Country’, there is an opportunity to diversify and make a conscious move away from only promoting that are glacier orientated. The recently completed cultural landmark, Pounamu Pathway in Greymouth/Māwhera (Figure 11) exemplifies the expansion of cultural tourism offerings in the region. While it could be

proposed that additional indoor attractions in the case study area might be beneficial, the idea was not raised by key informants during interviews. However, name changes for the region was a main theme among some informants, some of whom believe there is “absolutely” (#7B) an opportunity for the use of the Te Reo Māori names of the region to be at the forefront of the change from ‘Glacier Country’. A strategy advisor stated, “the place of Māori, the place of Ngāi Tahu, is increasingly recognised by domestic tourists and by international tourists. I think there’s going to be a high level of interest in Māori-led tourism, because of the authenticity” (#9A). Local MLTBs have an “opportunity to share our stories, our culture, our way of living, our history, and what’s important to us, and I think people want to hear those stories”. A Māori hospitality worker in Franz Josef Glacier/Kā Roimata o Hine Hukatere Franz Josef Township/Waiāu commented that they “would like to see more Māori businesses” (#12B) in the area. Although no visitors/manuhiri to the region were included in this study, there is an opportunity for future research into what visitors/manuhiri to Te Tai Poutini desire to learn and experience about the region.

Most informants discussed opportunities to work together on enticing visitors/manuhiri to stay for longer in Te Tai Poutini. This suggests a building relationship/whanaungatanga among tourism providers in the region. A Westland District Council representative suggested “bringing together collective action” and pursuing the opportunity of “creating enough attraction for people to stay 1 or 2 nights” in the region, to work together on “how to move forward to a world without glaciers” (#10B). A DOC representative similarly said:

If you can get tourists to see this area as more than just the glaciers, you can get people to stay longer, even if it’s only two nights instead of one night. It’s one night longer. There is definitely economic opportunity there, if people can grasp that and see that as an opportunity rather than as a problem (#6A)

Literature argues that longer-length-of-stay is a key criterion to addressing climate change and responsible travel issues in the tourism industry (Gössling et al., 2018). It has also been recommended as one way for the tourism industry to pledge commitment to the UN’s Sustainable Development Goals (UNSDGs; Gössling et al., 2018, p. 2087-2088; United Nations, 2023b). One key informant commented that “there is some really positive signals out there” in tourism industry business networks, and said that they are:

...hearing bus theories, that they will actually spend more time on the Coast. We know that we need a bigger window for visitors/manuhiri to see the region because it’s a great place to visit, and that inevitably means more in the economy. But it also means a more richness of knowledge about the area, and really getting behind the scenes to get to know the people, and the place that you’re visiting, versus the quick in and out (#10B)

The opportunity to build a gondola up Franz Josef Glacier/Kā Roimata o Hine Hukatere Valley was raised by some informants. However, the literature and current findings show that there are consistent conflicting views on building a gondola in Westland/Te Tai Poutini National Park. Although it seems like a good idea to decrease the use of helicopters, issues were raised regarding the “significant engineering challenges” of building a gondola (Wilson et al., 2014; Bradley, 2016; Ryan, 2019; Somerfield, 2020). Glacier guides felt that it is “a great idea - it would be cheaper (and) from a mountain guide’s point of view, so much easier to access the glacier” (#8B1). Another glacier guide recognised that there would be some destruction of the environment to put the structure in place, which could portray a devaluing of the landscape. However, they thought “that it would be a relatively small drop in the bucket as far as environment destruction goes”. They jokingly continued that “it doesn’t sound good when you say it out loud” and went on to say that “when you fly helicopters every single day, having one alternative would be good” (#8B2). They also point out that the area is earthquake prone, and queried how a gondola structure could stay standing: “We watch those cliff sides collapse every single day. There’s just no way that thing (a gondola) would stay standing”, in the end admitting, “(I) don’t think it’s feasible in the long run”. A MLTB owner could “see the benefits for the community”, but as a conservationist they thought “it would be a complete eyesore”. Reference was made to current government legislation that would have to change to allow for a gondola to be put in place and it would come with further challenges:

It’s a National Park. The only way to get a gondola in a National Park is to change it into an amenities area, and then you’re opening up a can of worms. You’re allowing other people to go, ‘Hey, this is the present preset here, we can change National Parks’. We always joked about McDonald’s being up there if there’s any amenities... McDonald’s can build a McDonald’s up in the mountains (#4B)

It was also suggested that Franz Josef Glacier/Kā Roimata o Hine Hukatere Valley may not be the place to construct the gondola, “because in that valley there is still foot access into it, for now at least”. That it would be an “eyesore” was reiterated by the DOC representative, who said ‘if it was there right now today, you would have people walking underneath the gondola, and do people even want that? Probably not’. They suggested that if a gondola was to be constructed in Westland/Te Tai Poutini National Park, the Fox Glacier/Te Moeka o Tuawe Valley might be the better option, because “there isn’t really foot access - well, you can’t get very far, so it would be less of a visual thing” (#6A).

Key informants suggested starting up small MLTBs that are “eco-tour conservation orientated, including hunting tours in terms of sharing pest management strategies and survival strategies in the bush” (#1A). For example, the local district council representative recommended ‘start(ing) up a small hunting/eco-tour venture by establishing rules that enable a little venture to operate without resource consent. Then when they meet a certain criterion where it’s potentially going to impact on the

environment, reassess for growing into a resource-consented commercial enterprise”. They continued by saying that in the region there is too much focus “on the big-ticket stuff. They’re (MLTBs) not actually coming down to grassroots level and saying, ‘Hey, let’s start down here...how can we prop up our people?’ because people might come to the little ventures and discover the big-ticket items” (#1A). Furthermore, as discussed earlier, visitors/manuhiri tend to visit small ventures if they stay longer in the region (Gössling et al., 2018).

However, the status quo standard of living might be hard to give up. As illustrated by a local Māori tourism employee/kaimahi:

Do we go back to eco-sort of living, or do we still want to keep it so we still have our KFC? Because we’ve become comfortable with it. Do we want to have a flush toilet, off the grid or power? Do we want to change our whole livelihoods, or do we still want to keep these things that make us more comfortable? (#13B)

It could be argued that if Māori have a perceived disconnect from their tūpunas, climate change adaptation ‘buy-in’ could prove difficult as people could perceive changing their ways in order to adapt to climate change too hard. The above statement demonstrates how important it is for Māori to stay interconnected with their environment and tūpuna, to keep building intergenerational resilience. The growing awareness of indigenous knowledge to help combat climate change may generally improve the relationship between all people and the environment (Williams, 2023), p. 320). Some MLTBs are affiliated with South Island/Te Wai Pounamu’s Ngāi Tahu tribe/iwi and align their business practises with Te Rūnanga o Ngāi Tahu’s Climate Change Strategy/He Rautaki Mō Te Huringa O Te Āhuarangi (2018). Ngāi Tahu’s values, as explained in Chapter 2, could help address the risks of and opportunities from the effects of climate change (Te Rūnanga o Ngāi Tahu Group, 2022, p.69). Te Rūnanga o Ngāi Tahu’s strategy (2018, p. 9) states:

Te PŪTEA - The economic base of Te Rūnanga o Ngāi Tahu is built on leading climate responsible, innovative and adaptive businesses and partnerships, meeting the needs and aspirations of Ngāi Tahu Whānui, while applying Ngāi Tahu values to address the business risks, challenges and opportunities associated with climate change. Ngāi Tahu businesses provide employment for whānau as well as practical solutions and innovations to deal with climate change impacts.

The next section outlines the current research's findings regarding MLTBs responses to climate change adaptations in Te Tai Poutini.

5.3 Māori-led tourism businesses’ responses to climate change adaptation

The literature indicates that MLTBs are driven by Māori values, which aim to protect and improve their tourism offering (McIntosh, Zygadlo & Matunga, 2004; Ringham, Simmonds & Johnston, 2016;

Ransfield, 2019; Puriri & McIntosh, 2019). In the face of climate change, MLTBs are already affected and will continue to be so (NIWA Taihoro Nukurangi, 2023), as discussed throughout this thesis. Section 5.3.1 will discuss informants' observations on 'business as usual', i.e. a "reactive" (maintaining status quo) climate change adaptation approach. Secondly, section 5.3.2 will present a 'making changes' section, including informants observations of MLTBs climate change adaptation processes currently taking place, such as transitional (incremental change) and transformative (radical change) climate change adaptation processes (Pelling, 2011, p.4). Strong et al's., TAC Framework (2023, p. 12), as described in Chapter 2.1, suggests that resilience builds up as a destination goes through the reactive, transitional and transformative stages of climate change adaptation. Finally, this section will examine what level of climate change adaptation resilience MLTBs in Te Tai Poutini are at for "futureproofing their businesses" from climate change effects (Munshi et al., 2020, p.26).

5.3.1 'Business as usual'

The current research findings show that reactive climate change adaptation responses, such as maintaining access to the glaciers by foot, seem to be waning. For example, as discussed earlier, the access road to reach Fox Glacier/Te Moeka o Tuawe by foot will no longer be maintained and open for public use (Strong et al., 2023; Department of Conservation Te Papa Atawhai, 2024f). It could be said that DOC's 'business as usual' approach is to maintain and keep a walking and biking track open on the south side of Fox Glacier/Te Moeka o Tuawe (Department of Conservation Te Papa Atawhai, 2024d). Some informants commented that a certain level of fitness is needed for visitors/manuhiri to use the track. No observations were made by key informants regarding whether any MLTBs currently utilise this south side track; there could be an opportunity for MLTBs in Westland/Te Tai Poutini National Park to use this track. Further research should be undertaken to gain insight into this. The road to Franz Josef Glacier/Kā Roimata o Hine Hukatere is currently open, so buses, campervans and self-drive visitors/manuhiri can still access the carpark and walk various tracks to viewing points of the glacier (Figure 19).



Figure 19

The main road leading into the carpark to access walking tracks to view Franz Josef Glacier/Kā Roimata o Hine Hukatere glacier (Photos by Abby Hamilton, 10th October 2023)

The main walking track up the valley to the base of Kā Roimata o Hine Hukatere glacier is now permanently closed and will not be reinstated (Chapter 4). However, as discussed in Section 4.2.2 and shown in Figure 10, there is still access for visitors/manuhiri to walk to a viewpoint of the glacier. Some informants surmised that a reactive climate change adaptation response to “up close” (#6A) glacier viewpoints may not viably continue, which confirms the literature (Stewart et al., 2016; Strong et al., 2023). A local government representative commented regarding potential future washouts of roads due to extreme weather events: “neither of the glacier roads will be reinstated with the cost being too great for the Department of Conservation” (#1A). A local DOC representative confirmed the issue with reinstating the roads to the glaciers, saying, “the last time that we put the Fox carpark back, a big flood wiped everything out, and it all got put back. That cost just a bit over a million dollars to do”, adding that to reinstate the road again in 2019 “was going to cost way more than that and that’s why we

pulled out of the Fox”. They continued, “if the road goes again, we might not be putting it back, or it might be the last time we put it back, because it’s really expensive” (#6A).

In contrast, some informants suggested that a reactive climate change adaptation response is likely to keep continuing with the roading network in the region. For instance, one local scientist remarked how:

Waka Kotahi will just pay whatever it takes to get the roads open. I don’t think there’s any doubt about that, unless it’s something so catastrophic, but even if there’s an Alpine Fault earthquake the road will be reopened. It might cost billions of dollars and take a year or two, but it will be reopened (#2A)

This may be “because we’re one road in, one road out”, as a MLTB manager in the region stated (#7B). Although there is only one road in and out, there may come a time that “no matter how many millions, billions you put into the roading network, it just gets knocked up by a rockfall” (#8B2). A glacier guide suggested that “there’ll be a point where road slips are so much that they stop fixing it”. This may not happen “anytime soon”, but they “imagine there will become a point where it just slips and then maybe too much of the road falls into the ocean” (#8B2). This suggests that the region’s infrastructure climate change adaptation planning could benefit from further community engagement between tribe/iwi, local and central government, transport agencies and tourism operators on how better to understand climate change effects and climate change impacts to the region’s infrastructure. The latter is set out in Te Tai o Poutini plan, a combined district plan for the West Coast (TTPP - 2024 Te Tai o Poutini Plan West Coast, 2024).

A local Māori government representative suggested that there:

Needs to be foresight, not ‘What do we do with what we've got now? or ‘What do we do after? What does the West Coast or what does Franz Josef look like in five years' time?’ - because I wouldn't even say 10 years' time - ‘What does Fox Glacier look like in five years' time?’ so when that five years actually comes up, because otherwise you start packing up the bags now and retreat, retreat somewhere else, and it will just become a ghost road (#1A)

While mindful of glacial recession, some informants highlighted key adaptations possibly as “a reaction to the glaciers being harder to get to” (#6A). One local researcher thought that “there is more diversity of what tourism businesses offer than 20 years ago” (#2A), mentioning how “it’s a hard conversation to have, when I guess the whole area has been built around the glaciers” and how “all of a sudden, you’re being told, well actually, possibly your business isn’t going to be viable for too much longer”. However, they also suggested that “they’ve adapted, and the business (glacier guiding) is still viable, but now it’s a very weather dependant business, a very helicopter dependent business” (see Figure 20 below) It could be argued, as literature suggests, that in this case, short-term economic gain outweighs

long-term climate change adaptation planning at this stage. There may also be a misunderstanding of the difference between adaptation and maladaptation, considering the apparent paradox of running a high-carbon activity in the face of climate change (Espiner & Becken, 2014; Kurian et al., 2021; Lv et al., 2023).



Figure 20

A helicopter flies below cloud cover towards Franz Josef Glacier/Franz Josef Glacier/Kā Roimata o Hine Hukatere (Photo by Abby Hamilton, 11 October 2023)

Most key informants had an opinion on the maladaptive practise of using helicopters to get visitors/manuhiri onto the glacier. Findings indicated some informants perceived that “more and more people” are participating in Heli-hiking activities on the glacier. Consequently, “only a certain amount of visitors/manuhiri are going to be able to afford to fly in. That’s only going to get more unaffordable as the cost of avgas goes up, or the cost of the carbon zero initiative (increases)” (#1A). A local researcher debated, “at what point do you say, well, you know, we’re emitting a huge amount of greenhouse emissions to get these people up to the glaciers or we’re having a physical impact on the park” (#2A). They conceded that “it’s really difficult” to navigate these decisions. With further retreat of the glaciers predicted (Anderson et al., 2021; Carrivick, 2022; Strong et al., 2023, p. 5-6); Lee et al., 2023), continuing helicopter flights onto the glaciers is a controversial subject. The findings revealed there is an adaptation plan for a MLTB operating heli-hiking onto the glacier to reduce the amount of helicopter flights landing on the glaciers through “a landings reduction plan. Instead of doing 300 hundred landings a day, we’ll do 50. We have an actual reduction plan with three key tiers to assess where we will be and where we are going” (#10B). The general manager of a MLTBs suggested that innovation is needed in the space of types of helicopters flying.

Many informants recognised “that helicopter tourism isn’t the greenest idea” (#8B1). Additionally, a strategy advisor said, “there is a growing appreciation, even though the glaciers are retreating and it’s devastating in terms of the mythology, and the pūrākau that are connected with those places, it’s a phenomenal opportunity to share that landscape and story with manuhiri” (#9A). The findings show there are adaptation practises in place through some MLTBs sharing the story of climate change and being transparent about their business’s sustainable actions. Notably, some MLTB that are affiliated with Ngāi Tahu tribe/iwi have business plans that need to align with the tribe/iwi’s climate change strategy (Te Rūnanga o Ngāi Tahu, 2018; Tumahai, 2022b). A MLTB general manager explained that “Ngāi Tahu has its sustainability strategy with its 88 initiatives, and how NTT very much falls under that” (#10B). They described how the tribe/iwi strives to be a leader in their response to climate change adaptation, to use their voice and share the journey of climate change-adapting times with all of their visitors/manuhiri. The MLTB general manager said their priority through the transitional phase of climate change adaptation is to “identify the low-hanging fruit” (#10B). This low-hanging fruit can be described as adaptation practises throughout MLTBs, such as “electrification of all vehicle fleets, solar infrastructure, set targets for tree plantings and waste and water reviews conducted in their businesses to gauge how to remove and reduce use”. The MLTB general manager described how doing all the aforesaid “basically gives your business a license to...(currently, in good conscious)... operate in the changing environment”. This shows how a MLTB operating through tribe/iwi climate change adaptation processes is attempting to practise what they preach. For example, the MLTB general manager said that if “someone walks in” to one of their tourism businesses, the visitor/manuhiri “can see at the very least that there are five initiatives right then and there, and we’re actually doing what we’re saying. At every touch point of the visitor’s/manuhiri’s experience, there needs to be something” (#10B). To achieve these initiatives, “each of the businesses have their own sustainability committee” as well as a “group-wide committee” that “connects into the wider Ngāi Tahu committee”, which in turn aids “learning from each other”.

5.3.2 ‘Making changes’

This section on ‘making changes’ encompasses key informants’ observations of MLTBs and the overall tourism sectors current climate change adaptations in the case study area. These processes include both incremental (transitional) and radical (transformative) adaptations, as described by Pelling (2011, p. 4). At this stage, new strategies are being implemented, and tourism offerings are being reconsidered as the environment evolves, enabling tourism operators to sustain their operations (Strong et al, 2023). According to the Aotearoa Circle (2023, p. 19), there are identified “transition risks” during this adaptation phase towards a low-carbon economy, specifically for the tourism

industry in New Zealand/Aotearoa. These risks may involve a decline in positive customer perception of New Zealand/Aotearoa as a tourist destination, heightened cost pressures on visitors, challenges with keeping pace with the rate of environmental change, and difficulties in maintaining financially viable tourism operations.

A key response to climate change effects which could be identified as climate change adaptation for most MLTBs in the case study area is planting and predator control plans are currently underway. A DOC representative touched on the Predator Free South Westland project that is currently in its fourth year of a 5-year plan (Predator Free South Westland, 2024; Ross, Ryan, Jansen., & Sjoberg, 2020). Their thoughts were, “It sounds like in theory it should work, (although) the actual hard reality of making (it) happen is going to take a lot of hard work” (#6A). They indicated that “it’s showing some promise, and it would be pretty amazing if between the Waiho and Whataroa Rivers you didn’t have predators, then the bird life would go pretty mental, I’d imagine”. To undertake such projects, collaborative relationships/whanaungatanga must be in place and maintained to make change happen (Peters, Hamilton., & Eames, 2015; Palmer, Mercier., & King-Hunt, 2021). Results revealed that collaborative relationships/whanaungatanga are in place, or in the process of being put in place, as people actively work on and towards planting and pest management projects in the case study area for some MLTBs. For example, a MLTB manager discussed how they are working collaboratively with the agricultural sector to undertake further planting on unused farmland, saying, “by bringing the tourism industry and the agricultural industry together, collectively we can make some big changes” (#7B) to adapt to climate change. They explained how their MLTB is “looking at a community site in Franz” for planting trees, and how “that could tell the story (of climate change adaptation, which) people can go and visit, and that’s something very visual”. They continued that as a company, they “do a lot of planting” and have several sites around the wider community (refer to Section 4.2.1., Figure 9). Another point worth mentioning is that employee/kaimahi of this business get involved with the planting projects as team building exercises and when their usual tasks are put on hold, particularly on weather-affected days. Planting trees seems to be an important community, employee/kaimahi and visitors/manuhiri engagement exercise, as well as a visual storytelling tool to show visitors/manuhiri what they are doing as a business to combat off-set carbon use and adapt to climate change.

Not all MLTBs are affiliated with Ngāi Tahu tribe/iwi and although the findings showed that these businesses did not have specific climate change adaptation plans, they offered opportunities for customers to partake in climate change adaptation practises. For instance, a MLTB owner said “we’re moving more into getting our clients to plant trees, getting involved in the trapping. They’re able to put money into places to offset their carbon and stuff like that” (#4B). These MLTBs may be moving towards “greener vacation” tourism offerings “that focus on environmental conservation” (Wright,

2023; p.130). Perhaps too the cultural storytelling of the past, present and future will add value to these experiences.

As previously discussed, there is a push for electrification of vehicles to move employees/kaimahi and visitors/manuhiri around the region. However, the idea of electric vehicles and buses in the region was a contentious subject with informants. One informant stated that “we need lower carbon ways of getting tourists around New Zealand” (#2A) and many informants agreed on needing to change to more environmentally friendly ways of operating in the tourism industry that these MLTBs are part of. As the DOC representative said, “I would imagine over time there will be pressure on tourism operators, including rental companies, to offer more environmentally friendly choices for people, I think - whether people like it or not” (#6A). Conversely, many key informants indicated that the technology just is not available yet: “if they’ve got the technology and it works, it’s a great plan. But it’s not there yet”. As one informant who owns “a fully electric vehicle” explained, such vehicles “can go anywhere in the South Island/Te Wai Pounamu from Queenstown/Tāhuna - except for Franz Josef” because there is nowhere to charge their vehicle between Wanaka and Franz Josef Glacier/Kā Roimata o Hine Hukatere. They continued:

I cannot get to the West Coast from Queenstown/Tāhuna. Not only are there permanent road closures, but the ability to electrify and drive electric vehicles does not exist. It’s really bad and what ends up happening is if you do care about the environment and you’re in an electric rental, you won’t go to the West Coast (#10B)

As Figure 21 (below) shows, there is a lack of charging stations from Otago to Hokitika (Waka Kotahi NZ Transport Agency, 2024). It appears there needs to be further development in the electrification realm on the West Coast Te Tai Poutini. Some key informants suggested that electrification and other technologies are needed to support activities within the tourism industry “to be done more efficiently, in lower emissions ways” (#9A).

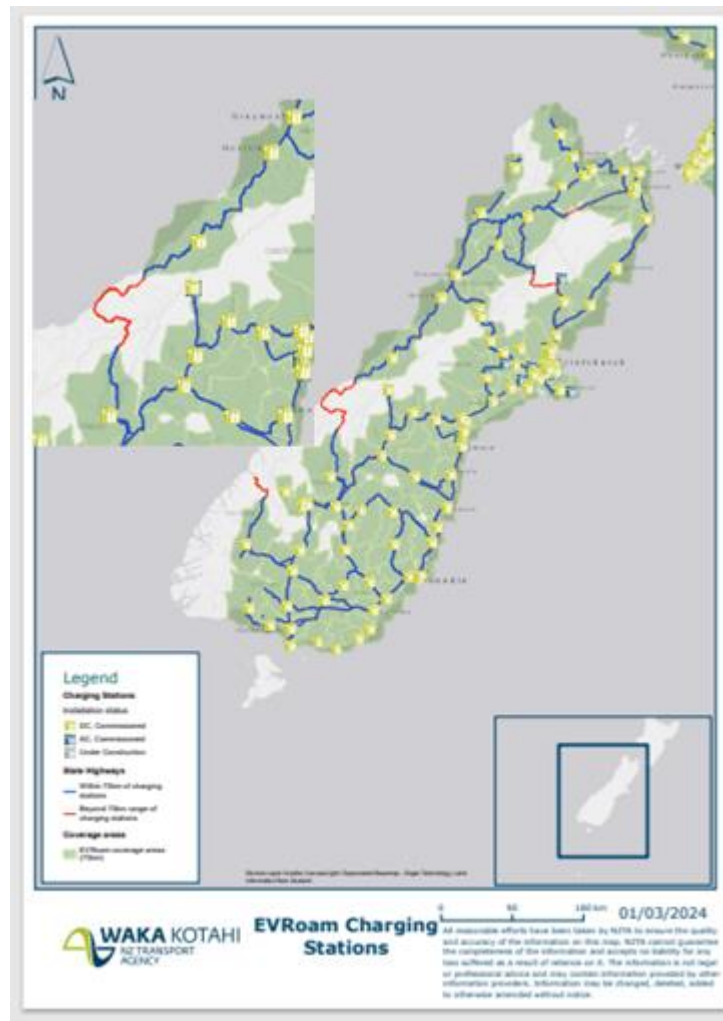


Figure 21

Electric vehicle charging stations around the South Island/Te Wai Pounamu (Waka Kotahi NZ Transport Agency, 2024)

Aside from electrification and other new technologies needing advancement, the results indicated that adaptation responses are underway in the region, providing new cultural attractions and activities for visitors/manuhiri to experience, moving the focus away from glacier experiences only (as discussed previously). The newly opened Pounamu Pathways experience in Greymouth/Māwhera (described in Chapter 4.2.3) operates under Ngāi Tahu’s climate change strategy (Te Rūnanga o Ngāi Tahu, 2018). One of the strategies for the products sold in these businesses is that they must align with the climate change strategy’s direction and be sourced from tribe/iwi-run businesses, which in turn should also align with the climate change strategy’s direction (Tumahi, personal communication, January 31, 2024). The development of cultural assets in the region may encourage visitors/manuhiri to stay longer (as discussed in section 5.2.2).

The diversification of tourism offerings in the region was a focal point of discussions with informants as a response to climate change adaptation and some MLTBs have new products underway. A MLTB

that operates on the glacier mentioned that they have “introduced a new product just this year which is a full day experience” and how “it’s catered to a different market. It’s one helicopter to take a group up to the glacier (and) the guides spend longer with their clients, (who then have) that real high value experience” (#7B) that could in turn encourage visitors/manuhiri to stay longer in the region, a focus at present for climate change adaptation in the case study area. As discussed in Chapter 2.5, any tourism business operating in Westland/Te Tai Poutini National Park is required to hold a concession from DOC to do so. The DOC/Te Papa Atawhai (2020, p. 67) explains that concessionaires are dependent on the glaciers for their business operations and activities. This study’s results show that MLTBs in the region are preparing for changes and are aware of the need to shift focus away from the glacier. For example, one MLTB that only operates on the glacier already has a “concession to work out on the coastline near the marine reserve” (#7B). However, no data was gathered in relation to new tourism offerings along the coastline and further research is needed in this area. Although there is some evidence of diversification in tourism offerings, further developments are needed and the development and enhancement of MLTBs in the region could aid with diversification in tourism offerings. A strategy adviser summed this up, saying:

...there’s more work to be done in terms of (diversification and adaptation)...I know there’s tourism industry transformation plans being lead out at a central government level in that context of people staying here for longer and spending more money because the idea of flying to the other side of the world for a week will become increasingly more palatable. And I think it’s just how Ngāi Tahu might pivot to meet new demand or change in demand and offer more higher value and more meaningful experiences to people.

The topic of managed retreat (as discussed in Chapter 2) was occasionally raised. A Westland District Council representative mentioned that “we’re starting to hear now, some of that adaptation planning is moving people away from the coastal area” (#1A), although they questioned “what does that look like, that sort of kōrero? Managed retreat, whether we like it or not, it is something that will have to be looked at with a fine-tooth comb”. It appears that this should be a priority discussion within communities living and working near the coastlines in Westland/Te Tai Poutini with the current climate change impacts predicted for the region (Wisniewski, 2023; Te Tai o Poutini Plan West Coast, 2024). It could be said that within the Māori worldview, managed retreat is not new: “there’s elements of adaptation that weaves it’s way through Ngāi Tahu whakapapa, in the context of managed retreat and those kind of western ideals of property ownership and retreating from the risk” (#9A). As the strategy adviser explained:

Taking that to the table again, of being reminded...(that) there (is) archaeological evidence of Pā sites moving due to environmental impacts over generations, and a conversation lead at (each) place by whānau at (each) place. Having those difficult conversations about where

can we move our business to from here, and those conversations of managed retreat and climate change adaptation scenarios.

Most informants noted that the land/papatūānuku had a chance to breath during the global Covid-19 pandemic lockdowns, which many suggested was a good thing (Higgins-Desbiolles et al., 2022). A local Māori tourism employee/kaimahi in the region said that during the lockdown “Papatūānuku was breathing again. Mountains became visible, and animals were seen”. A young local Māori also remarked, “Did you see how good the planet was when everyone was in the Covid lockdown?”, adding that “we need to take action now, because we’re the problem”. A balance is needed as a priority action for climate change adaptation for MLTBs in the region: a balance of visitors/manuhiri and tourism businesses that enhance the environment rather than damage it (Carr, 2021). The findings reveal that this could be happening, with tree planting and lower use of helicopter flights to the glaciers. As discussed in Chapter 2, post-Covid-19 tourism numbers are on the rise: “The November 2023 number of overseas visitor arrivals is 82 percent of the pre-Covid-19 numbers” (StatsNZ Tatauranga Aotearoa, 2024; p. 1). Findings show that some informants were not supportive of tourism numbers rising too much, suggesting that hospitality/maanakitanga and stewardship/kaitiakitanga, care of the land/whenua, could take precedence to higher numbers of visitors/manuhiri. A MLTB owner explained that:

We don’t need mass tourism. It was quite nice to have the tourism numbers knocked back again. It made a big difference for people’s attitudes. People are a lot nicer to tourists now, so there’s definitely a balance between enough tourists to survive and to keep people in communities like this going...especially when you’ve got community people that are very focused on saving it, and keeping the environment cared for.

Lawson, Dean, He., & Huang’s 2021 study (p. 2) reflected this informant's perspective, noting “that nature-based settings must be designed and managed with considerable care to minimise the perception of over-crowding and the deterioration of the site experience, particularly for return visitors”. As 2025 approaches, some ambitious climate change adaptation targets are set to be achieved (as discussed in the literature review). However, it remains to be seen whether some targets will be achieved. The results here show that there is some apprehension about these targets. Regarding Ngāi Tahu’s climate change strategy, a senior strategy advisor said, “it’s fair to say that these were ambitious targets. We’ve got some work to do to stocktake against where we’re at. We have to do a bit more convincing at this point than what we thought we might necessarily need to do”. Strong et al. (2023, p. 5) explain that climate change is an ongoing, ever-evolving eventuality that demands continuous adjustments to the predicted environmental changes. Informant discussions in this study show there appears to be some climate change adaptation adjustments that have been made and developments underway for future adjustments to tourism offerings, including MLTBs in the region.

Māori values are embedded in MLTB business planning (McIntosh, Zygadlo & Matunga, 2004), which in turn could be naturally guiding climate change adaptation responses.

5.4 Māori values underpinning climate change adaptation in a Māori-led tourism business

Whakapapa is central to Māori worldview and signifies interconnectedness between everything (Salmond, 2012; Kenney et al., 2023), as discussed in Chapter 2; the creation of all existence links to Māori through their tūpuna (Roberts, 2013). Māori-led businesses commonly embrace multiple values for sustainable business practises (Harmsworth, 2009, p. 97). This section will present informants' observations on understanding and comprehending Māori values that drive and underpin MLTB's operations and climate change adaptation practises in Te Tai Poutini.

Businesses operated by tribe/iwi must be clear about business reporting, as no single CEO is making the overall decisions. As one MLTB general manager said:

Even our safe operating procedure will have to say, 'What's the kaitiakitanga on that? and 'What's the damage on that? How are you going to reduce it?'... (the procedure) has to be really clear on it and it's what we're held to account to, because when we do our monthly board reporting it goes to the exec, it then goes to the board, it then goes to the rūnanga.

The inherent connection to the environment through genealogy/whakapapa guides daily and future business directions for MLTBs. For some MLTBs, environment comes before monetary gain. A MLTB owner insisted, "we're not a money-making business, we're a family business, so we definitely don't focus on trying to make money, which is probably why we don't have any money. Our conservation values are more important than our money values". Another MLTB general manager explained how their business plans "need to not just answer the 'Oh, why can't we deliver our mahi because of weather impacts?', but actually, what is our footprint on what we are doing, and what are we doing to reduce it?". As discussed in the previous section, the footprint of helicopters being used to land on the glaciers is hard to ignore. A glacier guide added that they "can see particular values coming out in the way that they get introduced to what this job is and what the company is about, and that's not about making dollar signs". Using an intergenerational lens for planning how MLTBs operate in the region puts family/whānau, employees/kaimahi, visitors/manuhiri and the environment before making money.

Reiterating that environment is at the forefront of MLTB operations, most informants talked about how they are personally connected to the land/whenua, and that drives how their business operates; in addition, employee/kaimahi of these businesses tend to share the MLTB philosophies. A MLTB manager in the region said, "we're lucky. The people that work within this business are so connected and passionate about the whenua. They have this strong connection that everyone wants to play their

part”. As discussed previously, some MLTB in the region operate under the local tribe/iwi’s core values, and this drives all of their decision making, including climate change adaptation planning.

The value of stewardship/kaitiakitanga was mentioned regularly when discussing caring for the environment. Glacier guides talked about how their jobs include the act of showing manaakitanga:

...hand on heart, myself and a lot of people here would say that they do their best to show their guests - whether it be friends, family or random people - to educate them about appropriate use of the land. They probably wouldn’t call it kaitiakitanga, just because they don’t have the words like that to say it (#8B1).

Another glacier guide stated that “having a business operating with a principal of kaitiakitanga as a foundation is very different, for example, than other businesses in town that have different priorities on paper” (#8B2). This research did not reveal what different priorities led other businesses, although it is possible that businesses operating without a values system like the Māori worldview may have different priorities.

Connection to land/whenua does not stand alone (Simmons et al, 2005). As mentioned above, stewardship/kaitiakitanga is also an integral part of connection to the land/whenua. Many informants mentioned how Māori values are woven through MLTB operations. A strategy advisor confirmed that “the value of manaakitanga is embedded through Māori owned businesses; it’s just part of what they do”. Manaakitanga helps build a sense of pride, as (discussed earlier in section 4.2.3) when it comes to showing off the environment to visitors/manuhiri (Munshi et al., 2020; Moore, 2022). Having pride for the region sets the scene for taking care of the land/whenua.

Underpinning the above discussions sits relationship/whanaungatanga, and relationship building and maintaining is an important guiding principle in Ngāi Tahu’s climate change strategy (Te Rūnanga o Ngāi Tahu, 2018). Findings show that some key informants maintain this value. International relationships/whanaungatanga are maintained also to help monitor and gain insight into what is happening globally about climate change adaptation. A MLTB general manager stated passionately how relationship/whanaungatanga is fundamental to climate change discussions, saying “we’ve got a strong relationship with Tourism New Zealand. We work with MBIE. We are part of that table of hearing what we need to hear, before it’s too late, and local relationships/whanaungatanga on the ground with DOC, emergency response and with sustainability groups is key because they know what is happening on the ground” (#10B). Practising relationship/whanaungatanga can also present a challenge. As a tourism business advisor noted, “it takes time to get those relationships and again, you know, everywhere you go, there’s good apples and there’s bad apples”. Further challenges were presented in the findings and at times key informants (mostly Pākehā working in a MLTB environment) discussed the conflicting nature of tourism’s effects on the environment and how they line up with Māori values. A Pakeha working in a MLTB environment said they:

...don't know how, as a whole, the concept of running a business, especially in an industry that (has) undeniable negative climate impacts, like through helicopter use. How do you reconcile that with actual kaitiakitanga at its most fullest? But that is, like, a fundamental big ole question mark. Is it possible to do both? What I see looks like a business where there are lots of values that underpin how that's done, but part of the goal is still to make money, and if it wasn't, would we exist, or what format could we exist in where that wasn't the goal? (#8B2)

For some key informants, trying to understand how Māori values drive a tourism business and how they are actioned in the day-to-day running of the business was conflicting. A MLTB general manager often wondered if the employee/kaimahi on the ground understood the meaning of the values that drive their expected day-to-day actions, and the sustainability actions of the business, questioning if “the message was getting through” (#10B) to employee/kaimahi on the ground about how Māori values drive business direction. A MLTB general manager stated that “it felt that it's real (because) everything they build in a business plan, everything that they present, must reflect the values and it must reflect in reality how that means for the tourism business”. They continued that they were “hoping that follows down”, although they did not “think they are quite there yet”. Further research needs to take place to gain a deeper understanding of how Māori values guide MLTBs.

A Ngāi Tahu o Te Rūnanga employee/kaimahi describes Te Ao Māori as being a good ancestor, for our mokopuna, for their mokopuna... If this is where the Te Ao Māori worldview plays into it, then obviously those principles of stewardship/kaitiakitanga and hospitality/manaaakitanga are all woven through our climate change strategy. “What is good for Ngāi Tahu is good for Aotearoa” (#9A) (Te Rūnanga o Ngāi Tahu, 2018, p. 3).

5.4.1 Māori worldview underpinning climate change legislation

A Pākehā scientist acknowledged that Māori values underpinning government legislation are lacking, noting that they:

...kinda see why the idea of National Parks could be an anathema to Māori as well, because it's putting things in a box over there, and with these sorts of cultural values enshrined in the National Parks Act which aren't Māori values. But that's what we've got and good luck to anyone trying to change that (#2A)

Despite the perceived lack of recognition of Māori values within the government sector, there was some acknowledgement that in the environmental sphere, this was changing. A local MLTB owner acknowledged that Māori values are “definitely having influence in big decisions in parliament, which is good, and a lot of it is around protecting nature, and protecting the environment” (#4B). One public sector informant confirmed that, regarding the use of Māori values “they're put into national

regulation, legislation, standards, policy” and that “there's a change going through with the Civil Defence Emergency Management Act, in terms of greater involvement with iwi” (#1A) (National Emergency Management Agency Te Rāukau Whakamarumarū, 2024). While some informants felt there was more recognition in terms of the environment, others felt it was still largely tokenistic. The local government representative argued that the use of Māori values within the local government sector is lacking and explained what they think of the “afterthought” use of Māori values within government decision making: “I would say now, at a regional level”. (Māori values are) not used”, adding however that “at a wider Ngāi Tahu level, they do have input in because that's where the voice and the representation are”. They also said that it is “potentially the same at the rūnanga level, in terms of feeding back into Ngāi Tahu, or into government agency groups” They continued:

As with all things, all they can do is inform. That doesn't mean that it's taken on board and implemented, just as with local/regional councils we are all at the whim of the uninformed decision making of government based on who makes the biggest noise at the end of the day and which particular agency or industry that they're trying to please, i.e. by changing the RMA so that the government can call forward on applications to fast track them through, despite the fact that they may have environmental consequences to Māori, to Te Ao iwi, or to whoever, but because for the sake of the developer and expansion for a commercial industrial enterprise on our Awa, we'll pull it forward and beg for forgiveness later. So it's an issue...we'll get to a point by the time the government wakes up, (but) it's too late in my view (#1A).

A strategy advisor pointed out barriers to implementation of the Māori worldview within government-led strategies, saying, “It's one of those things where the 3-year parliamentary cycle are real impediments to affecting intergenerational change” (#9A). They argued from a tribe/iwi point of view that “it's not hard to drive our own climate strategy or climate policy responses. That's what Te Rūnanga is here for. I think it's harder to embed it in central government-led work streams, just to a lack of Te Tiriti literacy and the crown”. They asserted the need to push for “Mātauranga iwi, or Ngāi Tahu responses, and Ngāi Tahu worldviews, supposed to Te Ao Māori worldview, particularly in the Ngāi Tahu takiwā, to enable that rangatiratanga at place” (#9A). This perspective aligns with Boston, Bagnall, Barry, Head, Hellyer., & Sharma's report (2019, p. 10), suggesting options for enhancing parliamentary scrutiny of long-term governance.

Most key informants had limited knowledge of New Zealand/Aotearoa's first government-led National Adaptation Plan (NAP) published in 2022, and some informants had no knowledge about it (Te Kāwanatanga o Aotearoa New Zealand Government, 2022). A MLTB owner thought that they “might have read bits of it, but I'm not really that keyed up on it”. Another Māori business advisor said, “Yeah, heard something about it, but don't know anything about it”. There was evidence of possible resistance

to learning about the NAP (2022). For example, when asked about it, a young local tribe/iwi member bluntly responded, “I don’t listen to anything about the government, don’t want to have anything to do with it” (#13B). A Māori business advisor also expressed resistance to government input, saying, “Look, if you’re telling me to look after our resources, which I’m already looking after now, why would I implement something, as it’s good for some and not for others. It’s good for Auckland, but not for the West Coast”. A local Māori public sector worker stated that the NAP is not fit for purpose: “It’s a reaction - it’s a case of, ‘Oh, we screwed it up in the North Island, so what can we put in place to restrict people from doing anything in the south? The reality is, people in (the) south are actually more environmentally conscious, and we’re not destroying our environment anyway” (#1A). The same informant continued to talk about Māori values and how, from a planning and decision-making perspective, they are taken into account, especially when a tourism business needs a consent to operate. However, they said “most Māori commercial-type activities are of protecting those things” (in reference to environmental impacts). They also commented that “it’s getting better, but there is a lot of room for improvement, referring to local government’s use of the Māori worldview for planning and decision making”. The strategy advisor commented that Ngāi Tahu tribe/iwi fed into the NAP during the draft consultation stage (Caine, 2022) and continues to feed into numerous emissions reductions plans currently underway. However, they continued that currently:

We are still waiting for the Climate Adaptation Act to come out, which is part three of the resource management reforms and it’s been on a slower track, but immediately pre-election the government kicked it out into the next term, so you know we’re not sure what an incoming government might mean for that legislation...it’s harder to operate in the context of promises to repeal the Zero Carbon Act, for instance. We’re kind of grappling with (it) at the minute, depending on the make-up of the incoming coalition government, so I guess we’re doing what we can to advocate, to influence those other structures, but we are somewhat constrained by the environment, the political environment we’re operating with.

To a limited extent, the current findings show how the notion of personhood is accepted in parts of New Zealand/Aotearoa’s legislation to protect the environment from future changes (Strang, Kopnina, Washington, Kopnina., & Washington, 2019; Łaszewska-Hellriegel, 2023). The concept of personhood was raised by some participants in relation to features in the natural environment/Te Taiao, including some threatened species, such as whales. To some extent, this can be characterised as a Māori values-informed response/adaptation to climate change. A local scientist responded to the idea of the glaciers being given personhood, suggesting that:

It would be great. It’s a solution that sort of fits in both worldviews in a way - the idea of a legal person, which is something that we can understand through companies, or trusts, or

whatever else for which we call people, then also the idea that some of these natural features are tūpuna for Māori as well, like it is very much a person (#2A)

5.5 Perspectives of Māori values driving climate change adaptation

As discussed in Chapter 2, the worldview of indigenous peoples is recognised as a valuable component of climate change adaptation planning. It has been noted that indigenous people's connection to the natural environment/Te Taiao is woven into their culture, way of life and values, which are comparable to the UNSDGs (Scheyvens et al., 2021; United Nations, 2023b). As for Māori culture, genealogy/whakapapa is an integral part of fostering deep connections among all things (Kenney et al., 2023).

Māori view the world as most indigenous cultures view the world: through a long-established cultural knowledge system that encompasses comprehension of everything from visible to invisible existing in the world, from past to present (Hikuroa, 2017). The current data revealed awareness of a Māori worldview, building on the spiritual connection and how all indigenous cultures share the same worldview. As a local hapu MLTB employee said:

I think it's because the way that you view it from a Māori point of view is, it's not really like the planet we need to look after, this is Papatūānuku. We've personified the way that we see all things, so when you put that mind-set into it it's like, man, would you throw rubbish onto papatūānuku?...Respecting the planet like it is a human...It's quite an emotional connection I'd say...a spiritual connection...I feel like it's not only just a Māori worldview, it's indigenous, because man, there are so many cultures that have the exact same perspective, not just Māori. (#13B)

The current study shows that some non-Māori informants were unsure how to discuss Māori values. However, it is clear through their comments that their values aligned with Māori values, as the following quotations reveal:

I would say I'm not too sure, because I'm not too sure with how well my values are in line with Māori values...I don't know enough around specific Māori values to know if those are the values that underpin my environmental efforts...(but) kaitiakitanga, the stewardship of the land, that's something that sits well with me. (#8B1)

I know that my personal values align in many ways (with Māori values), but I'm also not tangata whenua, let alone mana whenua. We talk about manaakitanga, kaitiakitanga, and I think we all practise it, without necessarily having all of the language to articulate it. (#8B2)

Interestingly, most key informants used the words stewardship/kaitiakitanga and manaakitanga to describe Māori values. One non-Māori said:

I'm tangata Tiriti myself, not Ngāi Tahu and don't whakapapa to Kai Tahu, so I'm sort of coming in as an interloper...I'm not quite able to speak to the Te Ao Māori worldview, but I think that the guiding whakatauki of te rūnunga is Mō tātou, ā, mō kā uri ā muri ake nei – for us and our children after us, and then obviously those principles of kaitiakitanga and manaakitanga.

Some non-Māori informants mentioned recognition of Māori values in general for managing businesses with the environment, stating, “presumably that will come more and more, especially now that Ngāi Tahu has bought some of these really prominent businesses, like Franz Josef Glacier Guides and Shotover Jet” (#2A). Another non-Māori recalled that there was very limited to no cultural experience when visiting the glaciers 20 or more years ago, saying, “It was different times, and that long ago I guess Ngāi Tahu was still probably really processing their Treaty settlement and what that meant for them. That's quite a change” (#6A).

Most non-Māori key informants had a general understanding of Māori worldview in relation to being more connected and holistic. One non-Māori said that they “don't understand the relationship between Māori and the natural world. I can't say I don't try to...it's something that's outside my worldview. I can't actually expect to fully understand that” (#2A). They continued, describing their experience of serving on a conservation board:

There's a real fear out there of Pākehā losing control of conservation, and we just have to let go of that fear. We have to accept that actually, Māori ran this place pretty well for hundreds of years before we turned up, and we've just pretended that knowledge doesn't exist, and we've stuffed it up. There is a real fear there, right, and from that fear comes, comes a backlash.

A similar viewpoint was expressed by a Māori informant: “Not all Māori are willing to let it grow together, because they think that the Pākehā is going to take it away, and it's not like that at all. They want to know about the Māori history, they're interested. You've got a lot of them that want to talk te reo” (#11B). Contrast, a few Māori informants perceived that numerous non-Māori have a similar worldview to Māori and are embracing the Māori worldview. A Māori tourism industry employee suggested that “a lot of Pākehā are quite spiritual as well, and they care about the land, and being good stewards of the land”. Another Māori hospitality/manaakitanga employee added that what they see “is Pākehā willing to grow amongst our culture”.

A young Māori working with their tribe/iwi's tourism businesses alluded to why the Māori worldview was suppressed and how new generations today are embracing their Māori worldview in the face of climate change:

I think the generation before me and the generation before that was obviously quite colonised, so my grandparents had, how do you say it, quite a colonised way of thinking

about things and the environment and how to look after the planet pretty much, whereas now, all of those teachings are starting to come back into the new generations, and with that is how to look after the planet. And yeah, and how we do that with a Māori point of view, an indigenous point of view (#13B)

A local Māori business advisor believed that the parts of the Māori worldview that underpin climate change adaptation in the tourism industry are “the modern view that’s taken and used: Tiaki, Manaaki...you know, Tiaki is really about tourists coming here and treating it like it's your own house” (#3A) (e.g. the ‘Tiaki Promise’ initiative, discussed in Chapter 2; Carr, 2020; Hutchison, 2021).

5.5 Summary

This chapter discussed perspectives of key informants regarding risks and opportunities related to climate change impacts for MLTBs in the case study region. During interviews, a MLTB manager mentioned risks already occurring due to climate change. Informants suggested a “business as usual” climate change adaptation response to “up close” glacier viewpoints may not viably continue, correlating with the literature (Stewart et al., 2016; Strong et al., 2023). Observations were that in the eventuality of further washouts of roads due to extreme weather events, neither of the glacier roads will be reinstated, with the cost being too great for the Department of Conservation. Road closures and impacts from extreme weather events have been happening for some time in Te Tai Poutini: There is an element of apprehension for MLTBs and manuhiri in the region due to the vulnerability of the transportation infrastructure. Informants made numerous references to the level of apprehension for visitors/manuhiri, with statements such as, “people are avoiding coming here because of the big storms, and because of how long it takes for them to open the roads”; “it totally affects their (visitors/manuhiri’s) plans”. Not knowing when and if the roads will be reopened after each storm event makes it difficult to plan a trip to Te Tai Poutini (Cui et al, 2023). Further research in collaboration with local tribe/iwi and MLTBs needs to be conducted in this area to gain an understanding of how better to build resilience and mitigate the risk to MLTB operations due to infrastructure damage after extreme weather events.

The chapter then discussed diversification of MLTB offerings in the region as a response to climate change adaptation. There is a push to shift the focus of the region beyond the glaciers and to promote the mountains to ocean landscapes. Development of cultural assets in the region, such as the new Pounamu Pathways in Greymouth/Māwhera and the Te Kopikopiko o Te Waka installation at the newly named Tohu Whenua cultural heritage site (previously Peak Viewpoint in Fox Glacier/Wheka), may encourage visitors/manuhiri to stay longer in the region. Some key MLTBs saw value in operating conservation groups with employees/kaimahi, the community, other businesses and tourists, all of whom can be involved in off-setting carbon-based travel by planting a tree and/or donating to

conservation efforts in the region. MLTBs often refer to Māori values such as stewardship/kaitiakitanga, manaakitanga/hospitality and relationship/whanaungatanga in daily practices and future planning, such as climate change adaptation. MLTBs are adapting to climate change via their inherent connection to the land/whenua and the resilience that is needed to move through climate change adaptation responses is also inherently built upon throughout generations (Kenney & Phibbs, 2015; Mason et al., 2021; Kenney et al., 2023). Industry-specific, locally based options are crucial for supporting adaptation. New Zealand/Aotearoa recognises and assumes Māori worldviews in climate change adaptation planning, but government agencies sometimes lack knowledge of the Māori worldview. Planning for natural hazard risks often neglects the beneficial Māori worldview. Te Rūnanga o Ngāi Tahu promotes climate change adaptation priorities through their Te Kounga Paparangi Climate Action Plan, by which some MLTBs in the region operate their businesses. Māori have a long history of managing environmental changes. The results of this research offer insights via a Ngāi Tahu cultural lens and a MLTB perspective for climate change adaptation, which is sparsely used. The findings will inform strategy discussions among tourism operators, local authority managers and planners and the wider tourism sector in relation to climate change resilience and adaptation planning.

Chapter 6: Concluding Discussion

6.1 Introduction

This concluding discussion draws together the findings of this research with the aim of addressing the implications of climate change impacts for MLTBs in Westland Tai Poutini National Park and its proximate destination townships. First, discussion focuses on the tourism sector which continues to encounter upheaval, and how resilience and innovative ways to adapt to a changing environment will be necessary (Strong et al., 2023; TIA, 2024). As outlined by the Strong et al. (2023) in their TAC Framework, resilience evolves across the stages of adaptation. The current study reveals the importance of ensuring that resilience endures through every phase of climate change adaptation. Māori cultural values may mitigate the emphasis placed on these adaptation phases, as the revised TAC Framework using a Māori worldview shows (Figure 22). The Māori worldview, including Ngāi Tahu Tourism's guiding values, may help address the risks and opportunities that exist with climate change adaptation (Te Rūnanga o Ngāi Tahu, 2024).

Second, discussions relate to the observed climate change impacts in the case study area. Documented effects of climate change are widespread and there will be further disruption, including in the case study area (Lawrence, Wreford & Allan, 2022; Levy et al., 2023; IPCC, 2023). MLTBs will continue to be directly affected by climate change; findings showed current effects and impacts of climate change are experienced and awareness of future predicted climate change effects and impacts are common.

Next, challenges and opportunities for MLTBs in the face of climate change are presented. Challenges around essential infrastructure damage from climate change impacts and diversification of MLTBs' offerings in the region were a focal point of discussions throughout interviews as a response to climate change adaptation. There is a push to shift the focus of the region to promote the mountains-to-ocean landscapes beyond the glaciers. The results of this research offer insights via a Ngāi Tahu cultural lens and a MLTB perspective for climate change adaptation, which is sparsely used elsewhere in the literature. MLTBs' adaptation to climate change in the case study region are considered. The data in Chapters 4 and 5 showed that, at least to some extent, a Māori worldview drives MLTB operations in the region. Lastly, this chapter outlines limitations and future research opportunities.

This concluding chapter then presents implications for policy and planning. The obstacles to incorporating the Māori worldview into government-led strategies are indeed considerable, highlighting the difficulties of assimilating indigenous viewpoints into conventional policy frameworks (Johnson et al., 2022a). Looking ahead, it is imperative for the tourism sector and local and national government to sustain robust relationships/whanaungatanga with tribe/iwi and MLTB organisations,

prioritising the acknowledgment of Māori voices and expertise in shaping and executing climate change adaptation strategies.

6.2 Māori values drive climate change adaptation practices

The focus of this research was to examine climate change effects and climate change adaptation planning for MLTBs operating within Westland Tai Poutini National Park and townships on its boundary in the West Coast/Te Tai Poutini region. The case study region is reliant on the climate sensitive natural environment/Te Taiao for visitor/manuhiri tourism experiences and will be directly affected by climate change impacts (Rahmawati, Jiang, & DeLacy, 2019; Hambira, 2020; The Aotearoa Circle., 2023). Genealogy/Whakapapa is foundational for guiding intergenerational planning, especially for environmental changes. It is common practice for MLTBs to refer to Māori values such as stewardship/kaitiakitanga, hospitality/manaakitanga and relationship/whanaungatanga in daily activities and long-term planning. Genealogy/Whakapapa is an integral part of nurturing deep connections among all things, which appears necessary for climate change adaptation planning (Kenney et al., 2023; Mannakkara et al., 2023).

Indigenous peoples' deep connections to the natural environment/Te Taiao, rooted in their cultures, ways of life and values, offer valuable insight into sustainable practices and resilience strategies. The recognition of indigenous peoples' connection to the land aligns with the principles of the UNSDGs (Scheyvens et al., 2021; United Nations, 2023b). This connection emphasises the necessity of incorporating indigenous knowledge and practices into climate change adaptation initiatives, as they offer holistic perspectives and time-tested approaches to environmental stewardship/kaitiakitanga and community well-being. By acknowledging and valuing indigenous worldviews, societies can work towards achieving the objectives outlined in the UNSDGs more effectively and inclusively, fostering a more sustainable and equitable future for all. Māori culture, with its emphasis on genealogy/whakapapa, exemplifies this interconnectedness, fostering a profound understanding of the relationships/whanaungatanga between all things in the world, both seen and unseen, across time (Kenney et al., 2023). By incorporating indigenous perspectives into climate change adaptation strategies, societies can tap into centuries of wisdom and stewardship/kaitiakitanga, enhancing the effectiveness and sustainability of efforts throughout environmentally changing times.

Resilience has become a focal point in various sectors recently, including the tourism industry and efforts related to climate change adaptation (Strong et al, 2023). In New Zealand/Aotearoa, resilience is extensively employed in both government policies and research programmes, as highlighted by Spector et al. (2019). Amid increasing awareness of environmental changes affecting glacier regions and their tourism dependent communities, there is growing recognition of the imperative to adjust to

these shifting conditions (Strong et al., 2023). Such adaptation is crucial not only for tourism operators, managers and planners, also for the visitors themselves, contributing to the development of resilient tourism systems. Strong et al, (2023, p. 6) introduces a conceptual framework that outlines potential stages of adaptation in glacier tourism destinations. Known as the Tourism Adaptation Classification (TAC) framework (see Figure 4), it categorises adaptation into three distinct stages of adaptation: reactive, transitional and transformative. Drawing from Pelling's (2011) conceptualisation of adaptation, which encompasses pathways toward resilience maintenance, incremental change and radical transformation, the TAC aligns each stage of adaptation with crucial dimensions of the tourism system, including tourism planning and governance, business operations, and visitor experiences (Salim et al., 2021). The TAC claims that the resilience of the tourism system potentially gets stronger as the system moves through each adaptive stage (Strong et al, 2023). For the purpose of application to the current research, I argue that resilience is inherently strong throughout each adaptation stage, if Māori cultural values are at the forefront of MLTB tourism enterprises, the necessary resilience will already be an inherent part of the system, thereby reducing the need for the resilience evolution trajectory envisioned by Strong et al. (2023). Instead, these values ensure that resilience is more constant than evolving. This research found that resilience is already in place for MLTBs at all stages of adaptation due to their inherent genealogy/whakapapa ancestral/tūpuna links. Hence, Figure 22 (below) presents a revised TAC Framework highlighting that resilience is strong with intergenerational genealogy/whakapapa has been developed for future researchers to consider.

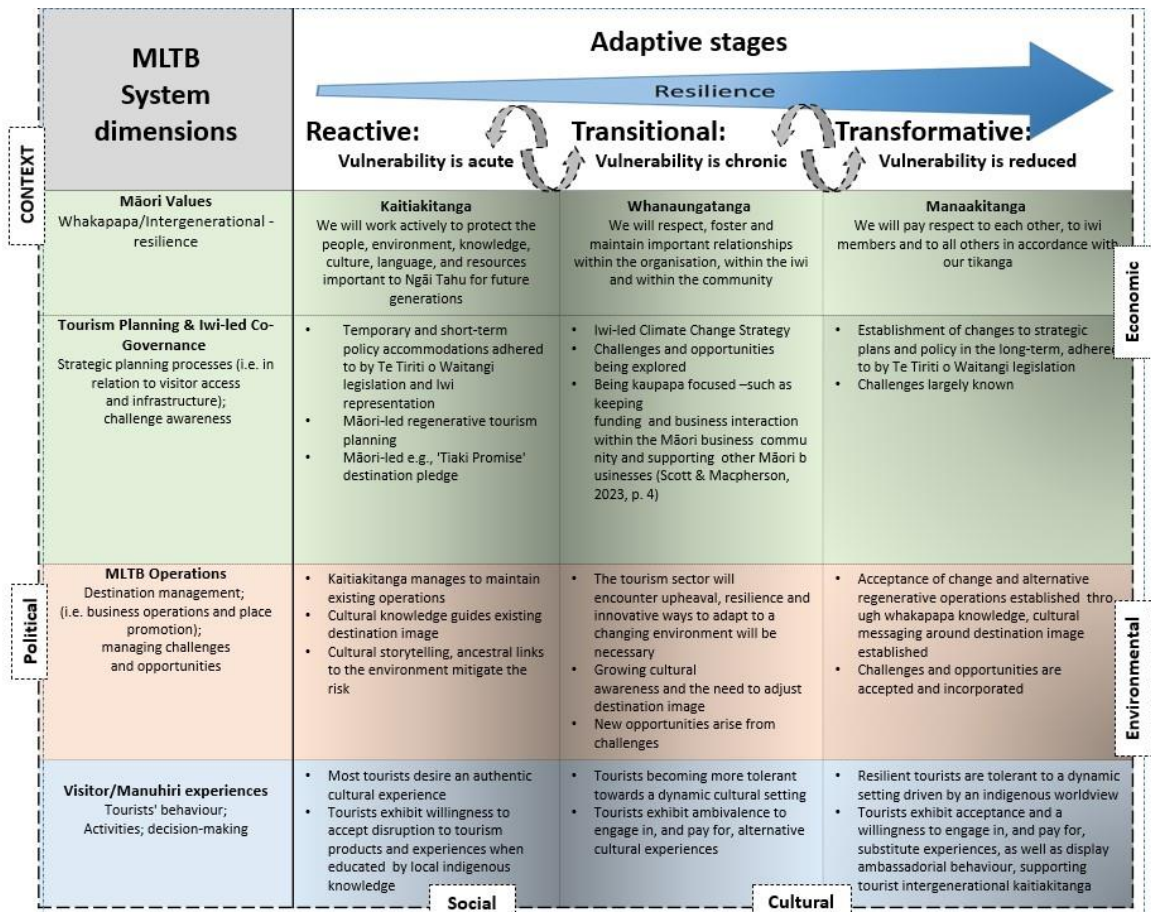


Figure 22

Revised Tourism Adaptation Classification Framework (after Strong et al., 2023)

By incorporating Māori values into Strong et al's., (2023) TAC Framework, it shows that perhaps a basis in intergenerational genealogy/whakapapa supports building resilience throughout environmental changes. MLTBs operating under Ngāi Tahu iwi's climate change strategy engage in proactive efforts to safeguard well-being, environment, culture, language and resources vital to Ngāi Tahus future generations (Te Rūnanga o Ngāi Tahu, 1997; Te Rūnanga o Ngāi Tahu, 2018). MLTB operations through kaitiakitanga, whanaungatanga and manaakitanga manage to maintain existing operations, and Māori-led regenerative tourism planning will take place as cultural knowledge guides existing destination image. Cultural storytelling exists through ancestral/tūpuna links to the environment, which in turn can mitigate the perceived risk of environmental changes.

Most tourists desire an authentic cultural experience and tourists exhibit willingness to accept disruption to tourism products and experiences when educated by local indigenous knowledge (Scheyvens et al., 2021). As the revised TAC (Figure 22), shows, when relationship/whanaungatanga is used at the transitional stage, tribe/iwi-led co-governance tourism planning takes place, tribe/iwi-led climate change strategies are in place, and challenges and opportunities are explored collaboratively,

for example by being kaupapa (plans based on Māori values) focused, such as keeping funding and business interaction within the Māori business community and supporting other Māori businesses (Scott & Macpherson, 2023). MLTB operations grow cultural awareness and realise the need to adjust the destination image, as new opportunities will arise from challenges in the face of climate change. When hospitality/manaakitanga, “pay respect to each other, to tribe/iwi members and to all others in accordance with our tikanga” (Te Rūnanga o Ngāi Tahu, 1997) is used at the transformative stage, tribe/iwi-led co-governance tourism planning takes place, establishment of changes to strategic plans and policy in the long-term are adhered to by Treaty of Waitangi/Te Tiriti o Waitangi legislation and challenges are largely known. MLTB operations show acceptance of change and alternative regenerative operations are established through genealogy/whakapapa knowledge, cultural messaging around destination image is established and challenges and opportunities are accepted and incorporated. At this stage, visitors/manuhiri are resilient tourists and tolerant of a dynamic setting driven by an indigenous worldview. Tourists will exhibit acceptance and a willingness to engage in, and pay for, substitute experiences, as well as display ambassadorial behaviour, supporting tourist intergenerational stewardship/kaitiakitanga, demonstrated by actions such as tree planting initiatives and decreased reliance on helicopter flights to glaciers.

6.3 Māori-led tourism business perspectives on climate change impacts in the case study area

The findings of this research further highlight the significant impact of extreme weather events, such as landslips and infrastructure damage, as the primary consequence of climate change experienced in the Te Tai Poutini /West Coast region. It was widely agreed among research participants that the impacts of climate change are apparent in Westland Tai Poutini and the wider West Coast/Te Tai Poutini region. Discussions and observations regarding the impacts of extreme weather events on infrastructure were prevalent themes in interviews with key informants. Key informants cited recent and past road closures caused by landslips and bridge washouts, leading to severe ramifications for tourism businesses in the region. Perceptions of the vulnerability of coastal access were highlighted, leading to a sense of caution among both locals and visitors/manuhiri regarding the reliability of transportation infrastructure. Some individuals expressed apprehension, possibly stemming from past experiences of witnessing the closure of walking tracks and roads that were previously accessible for viewing landmarks like Fox Glacier/Te Moeka o Tuawe and Franz Josef Glacier/Kā Roimata o Hine Hukatere. These observations align with DOC’s CCAAP statement, which outlines the susceptibility of infrastructure associated with glaciers, such as access roads, car parks, toilets, walking tracks and bridges, to storm damage (Department of Conservation Te Papa Atawhai, 2020, p. 66). Specifically, the

decision to discontinue maintenance of the Fox Glacier/Te Moeka o Tuawe access road in August 2019 due to frequent washouts exemplifies this vulnerability. With climate change expected to bring higher rainfall to the West Coast/Te Tai Poutini region, increased infrastructure damage and repair costs is anticipated to rise accordingly. Many key informants emphasised the economic benefits generated by tourism for the region, highlighting tourism as one of the primary drivers of economic activity in South Westland/Te Tai Poutini. There is a widespread perception that much of the region's infrastructure likely would not exist if not for the tourism industry.

There is recognition among key informants of warming temperatures and drier conditions in the region, along with mentions of more intense rainfall events attributed to climate change. However, some informants noted a discrepancy between their experiences and the expected impacts of climate change, with observations of reduced heavy rainfall compared to historical norms. It should be noted that this research took place during an El Niño weather system. Some informants noted that during El Niño events, the expectation is for increased precipitation in the region, yet they observed that the area is not experiencing the usual heavy rainfall. Despite this, others have remarked on a perceived trend towards drier conditions, which contradicts the general scientific understanding that the West Coast/Te Tai Poutini region of New Zealand/Aotearoa is typically wetter during El Niño weather patterns (Glantz, 2022; Lawrence et al., 2022; University of Auckland, 2023). Despite this, most key informants were cognisant of climate change predictions and acknowledged that what they have witnessed aligns with anticipated trends, although they may not always rely on credible sources of information. These findings stress the importance of obtaining credible information about the impacts of climate change to better prepare for and mitigate its effects on the region.

Ngāi Tahu tribe/iwi maintains strong ties to the region, which hold cultural significance for Ngāti (Kāti) Māhaki and Ngāti Mamoe of the South Island/Te Wai Pounamu, due to their resources and ancestral connections (Department of Conservation Te Papa Atawhai, 2023b & 2023c; Te Rūnanga o Makaawhio, 2023). By the time Europeans arrived in the 19th century, Ngāti Waewae, a subgroup/hapu of Ngāi Tahu, had established authority over a substantial portion of the West Coast/Te Tai Poutini and were recognised as Poutini Ngāi Tahu (Nathen, 2016). Tourism plays a significant role in the economy of Westland Tai Poutini National Park and the nearby townships (Purdie 2013; Stewart et al., 2016) but is a sector especially vulnerable to the impacts of climate change (Rahmawati, Jiang, & DeLacy, 2019).

There is awareness of the pressing environmental challenges posed by climate change, especially within tourism-reliant communities already witnessing environmental shifts, such as those in the Westland Tai Poutini National Park vicinity and neighbouring townships (Knight, 2018; Strong et al., 2023). The recent report on 'Climate Change Scenarios' underscores the significant 'physical risks' and 'transition risks' confronting the tourism industry due to climate change (The Aotearoa Circle, 2023, p. 19). 'Physical risks' arise from both gradual climate shifts, like warming and sea-level rise, and sudden

extreme weather events, such as heavy rainfall and drought. These risks include the challenges of maintaining New Zealand/Aotearoa's appeal as a destination, loss of biodiversity, restricted access to attractions and reduced operational opportunities. 'Transition risks' emerge during the adaptation process to climate change and the transition to a low-carbon economy. These risks for the New Zealand/Aotearoa tourism sector encompass declining customer sentiment toward the country/motu, increased cost burdens on visitors/manuhiri due to climate regulations, difficulties in keeping pace with change and challenges for operators in sustaining financially viable businesses.

Māori-led tourism ventures offering cultural experiences are operating in Westland Tai Poutini National Park and neighbouring townships (Ngāi Tahu Tourism, 2023;2024). While glacier tourism remains a draw, there is a noted shift towards a broader focus on the surrounding natural environment/Te Taiao. Activities for visitors/manuhiri primarily revolve around nature-based and outdoor pursuits, with the natural landscape serving as the core attraction. This reliance on the climate-sensitive natural environment underscores the significance of environmental conditions for visitor experiences.

It appears that fostering and nurturing relationships/whanaungatanga between MLTBs, scientists, research institutions, tribe/iwi and local government representatives could lead to a better understanding of climate change information and adaptation strategies. Key informants expressed a perception of insufficient credible knowledge sources, which may be attributed to a lack of accessible Māori worldview perspectives on climate change effects and adaptation, particularly in the West Coast/Te Tai Poutini region (Jones, 2022; Mannakkara, 2023; Macinnis-Ng, 2024). Establishing and maintaining relationships/whanaungatanga are crucial for MLTBs in the region. While some businesses are actively collaborating with various agencies, including government departments, to enhance their understanding of climate change, the findings indicate that other MLTBs prioritise their inherent genealogical/whakapapa value system when seeking credible information about environmental changes.

The findings highlight that climate change effects and impacts are already being felt in Westland Tai Poutini National Park and awareness of future predicted effects and impacts of climate change is prevalent within the Māori-led tourism sector and the broader tourism industry in the region. Strengthening partnerships and integrating diverse perspectives could facilitate more effective responses to climate change challenges in the area. Furthermore, building strong working relationships/whanaungatanga within the region is crucial for fostering employment opportunities and economic benefits through tourism (Matunga et al., 2020; Lawrence et al., 2023). MLTBs play a significant role in enhancing community and economic resilience within the West Coast/Te Tai Poutini region, particularly in the context of climate change effects and impacts. The next section highlights the challenges and opportunities for MLTBs as they adapt to climate change effects.

6.4 Challenges and opportunities for Māori-led tourism businesses in the face of climate change

This research delved into the risks and opportunities for MLTBs in Westland Tai Poutini National Park and its proximate destination townships within the framework of climate change effects and adaptation. There is a clear emphasis on the importance of gaining a critical understanding of the risks, challenges and opportunities arising from the effects of climate change on the tourism industry (The Aotearoa Circle, 2023, p. 10; McGowan, 2023). This understanding is essential for developing effective strategies to mitigate negative impacts and support potential benefits in the face of climate change. This research aimed to provide a cultural perspective, which is often overlooked. Māori have a long history of managing environmental risks and adapting to changing conditions over hundreds of years (Kenney et al., 2023). As shown in the revised TAC Framework (Figure 22), by drawing upon traditional knowledge, practices and cultural values, Māori have developed effective strategies for living in harmony with their environment and mitigating the impacts of environmental changes and have the potential to develop effective climate change adaptation strategies. This rich heritage of resilience and adaptation can offer valuable insights and guidance in addressing contemporary challenges such as climate change. The IPCC advocates for the significant involvement of local tribe/iwi in clarifying climate change risks and policy responses. According to the report, the impacts of climate change, adaptation and mitigation actions pose risks for New Zealand/Aotearoa Māori/tangata whenua (Parsons et al., 2019; Lawrence et al., 2022). Literature highlights apprehensions regarding contemporary violations of the Treaty of Waitangi/Te Tiriti o Waitangi, stemming from perceptions of governmental inadequacy in safeguarding Māori interests, values and traditions (Lawrence et al., 2022a).

A recent central government report argued that “Climate risks in the natural environment affect Māori cultural, economic and spiritual wellbeing ... as well as economic opportunities through cascading impacts on tourism” (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.100). This study aimed to investigate the extent to which Māori values inform the potential risks and opportunities stemming from climate change and adaptation for MLTBs the case study region. By examining how Māori values shape perceptions and responses to climate change impacts, the research sought to provide insights into how MLTBs can navigate the challenges and provide security for future generations via opportunities in a changing climate. Despite Māori knowledge being central to climate change dialogue, its documentation and engagement with Māori communities are inadequately documented. Additionally, much of the available information on climate change is laden with technical language, which hinders effective engagement and relationship building/whanaungatanga with communities. As indicated in the literature, some regions in New Zealand/Aotearoa may exhibit a lack

of community involvement regarding climate change predictions and impacts (Archie et al., 2018; Schneider et al., 2020; Lawrence et al., 2023). Key informants noted that discussions about climate change effects are not common during meetings between the community, tribe/iwi and local government representatives. This suggests a lack of engagement in the case study region in relation to climate change adaptation.

Key informants frequently highlighted the concept of resilience when discussing the risks associated with climate change and adaptation. One potential risk for MLTBs in the region is the challenge of building resilience to climate change adaptation due to inconsistencies in the clean-up and reopening of essential transportation links that are crucial for the continued operation of MLTBs. Notable examples of this challenge occurred when the Waiho Bridge washed out in 2019, and more recently, with road closures stemming from major landslips and infrastructure damage (Waka Kotahi NZ Transport Agency, 2023). These disruptions can significantly impede the ability of MLTBs to operate effectively, highlighting the importance of proactive measures to enhance resilience in the face of climate change impacts. If MLTBs were governed by Māori values more directly, some of these issues may not be so challenging. The opportunity to develop further tourism infrastructure, such as with a gondola up Franz Josef Glacier/Kā Roimata o Hine Hukatere Valley, was raised by some informants, revealing a divergence of opinions. While it may appear to be a viable solution to reduce the use of helicopters, concerns have been raised about the significant engineering challenges associated with building a gondola (Wilson et al., 2014; Bradley, 2016; Ryan, 2019; Somerfield, 2020). These conflicting views highlight the complexities and considerations involved in proposing infrastructure developments within environmentally sensitive areas such as national parks.

Discussions during interviews centred on enhancing resilience, particularly concerning vulnerable infrastructure. This aligns with existing literature highlighting critical network vulnerabilities within the region (Rouse et al., 2017; Fountain & Cradock-Henry, 2021; 2020; Aghababaei et al, 2020; Strong et al., 2023). The challenge lies in the difficulty of strengthening resilience in the area, primarily due to the limited nature of key transport networks, despite their pivotal role in facilitating access to the region. The potential devastation faced by tourism operators in the event of infrastructure destruction highlights the urgency of addressing this issue. The importance of involving people and communities in the preparation, as shown in the revised TAC (Figure 22), organisation and implementation of projects aimed at reducing risk and enhancing resilience, both before and after disasters, has been previously highlighted. This principle is equally applicable to addressing the impacts of climate change (Lake-Hammond & Orchiston, 2024, p. 141). Espiner and Becken's research (2014, p. 646) in the case study area highlights that high levels of vulnerability do not necessarily equate to low levels of resilience, and vice versa. Rather than being mutually exclusive, vulnerability and resilience are distinct yet complementary concepts that offer valuable insights into the analysis of protected area tourism

facing global change. This indicates that ongoing and up-to-date research in this area will be invaluable for understanding and effectively responding to the challenges posed by climate change.

The revised TAC Framework (Figure 22) could assist with up-to-date research as a cultural response in this area. Most informants expressed concerns about the risk of declining tourism if future visitors/manuhiri are unable to experience the glaciers in the way they have in the past. However, the results of the study suggest that there is a diverse range of tourism offerings in the region, which mitigates the risk associated with a sole focus on glacier-related activities and MLTBs see risk as an opportunity to diversify (Munshi et al., 2020). Further research is necessary to understand whether visitors/manuhiri would still choose to visit the region if the glaciers were no longer as accessible as they have been historically. This research would provide valuable insights into visitor/manuhiri preferences of cultural experiences, helping tourism operators and stakeholders better adapt to changing environmental conditions. Growing evidence suggests that investing in initiatives to mitigate the impacts of disasters and climate change, as well as promoting regenerative tourism development during recovery and reconstruction phases, is crucial. Concepts such as "building back better", disaster risk reduction, resilience and preparedness have become widely accepted principles in this regard (Faivre et al., 2018; Fountain et al., 2021; Becken & Coghlan, 2024). These principles align with Ngāi Tahu values, which drive some MLTBs in the region, and can inform effective strategies for climate change adaptation within the community. Ngāi Tahu's Climate Change Strategy involves contributing to the development of community climate change adaptation measures (Te Rūnanga o Ngāi Tahu, 2018). Ngāi Tahu's values, as explained in Chapter 2.4, can play a significant role in addressing the risks and opportunities associated with climate change adaptation. It has long been said that the management of areas designated to preserve natural values must be informed by an understanding of their history and potential future (McGlone, 1989, p. 115). The revised TAC Framework (Figure 22) may also assist in pointing out how a genealogy/whakapapa intergenerational lens guides the understanding of history as well as the future in face of change.

The diversification of tourism offerings in the region has been identified as an opportunity arising from the effects of climate change. As the tourism industry adjusts to a world affected by climate change, there is a growing recognition of the need to incorporate indigenous worldview thinking. Recent studies emphasise the importance of education to foster a deeper understanding of why indigenous values are essential for enhancing resilience to environmental changes (Jones, 2022; Mannakkara et al., 2023). Findings showed that Māori intergenerational knowledge of the environment on the West Coast/Te Tai Poutini is an invaluable tool to share and results indicate this is also reflected through MLTBs' system dimensions (as stated in the TAC Framework, Figure 22). The perspectives shared by informants in this study indicate that the West Coast/Te Tai Poutini is considered exceptionally

beautiful, and tourism businesses worldwide are interested in learning about climate change adaptation in such environments. This could be learnt by visitors/manuhiri to the regions through the establishment and support of small MLTBs with an eco-tour conservation focus, which may include hunting tours aimed at sharing pest management strategies and bush survival skills. This approach aligns with the trend identified in the literature, that visitors/manuhiri tend to gravitate towards small ventures, particularly if they are staying longer in the region (Gössling et al., 2018). By offering unique and authentic experiences centred around conservation and traditional knowledge, these small MLTBs have the potential to attract visitors/manuhiri seeking immersive and sustainable tourism experiences while supporting local communities and promoting environmental stewardship/kaitiakitanga.

Informants in this study talked about opportunities to collaborate with other MLTBs to encourage visitors/manuhiri to extend their stay in the West Coast/Te Tai Poutini, highlighting the importance of building relationships/whanaungatanga among tourism providers in the region. By fostering these relationships/whanaungatanga, collective action can be facilitated, enabling stakeholders to capitalise on the opportunity of creating enough cultural attractions for visitors/manuhiri to spend one or two nights in the region. This collaborative approach can also involve working together to navigate the transition to a future without glaciers, ensuring the long-term sustainability of tourism in the area. This highlights the potential for leveraging indigenous knowledge and values to develop innovative approaches to tourism that not only adapt to climate change, but also contribute to sustainability and resilience, as the revised TAC Framework indicates (Figure 22). The literature suggests that increasing the length of stay for visitors/manuhiri is a crucial criterion for addressing climate change and responsible travel issues in the tourism industry. Extending the duration of visitors/manuhiri stays has been recommended as a means for the tourism industry to demonstrate its commitment to the UNSDGs (UNSDGs; Gössling et al., 2018, p. 2087-2088; United Nations, 2023b). By encouraging longer stays, tourism destinations can promote more sustainable practices, minimise carbon footprints associated with travel and foster deeper engagement with local communities and environments.

6.5 Māori-led tourism businesses' adaptation to climate change effects in the case study region

The possibility of continued infrastructure challenges such as rock falls and road slips caused by extreme weather events poses a significant concern for the West Coast/Te Tai Poutini region. While substantial investments may be made in the roading network, there is a realisation among informants that these efforts may not be sustainable in the long term. There is a growing perception that there could come a point where the frequency and severity of road slips is so high that it becomes impractical or financially unsustainable to keep repairing them, especially if sections of the road are at risk of falling

into the ocean. To address these challenges, it is essential for the region's infrastructure climate change adaptation planning to involve extensive community engagement. This engagement should include stakeholders such as tribe/iwi, local and central government agencies, transport authorities and tourism operators. By collaborating and sharing knowledge and insights, these stakeholders can better understand the effects and impacts of climate change on infrastructure and develop more effective adaptation strategies. The Te Tai o Poutini Plan, a combined district plan for the West Coast, provides a framework for such collaborative efforts and underscores the importance of community engagement in planning for the region's future resilience and sustainability (TTPP - 2024 Te Tai o Poutini Plan West Coast, 2024).

Some informants speculated that a reactive approach to climate change adaptation, particularly regarding close-up glacier viewpoints, may not be sustainable in the long term. This perspective aligns with findings in the literature (Stewart et al., 2016; Strong et al., 2023), which suggest that relying solely on reactive measures may not adequately address the challenges posed by climate change. The tourism landscape in the case study region has evolved significantly over the past 20 years, with a greater diversity of offerings now available to visitors/manuhiri. However, there are challenges facing certain businesses, particularly glacier guiding companies, as they grapple with the impacts of climate change. While these companies have adapted to some extent and continue to operate, there is a recognition among informants that the long-term viability of such businesses is uncertain, given their dependence on weather conditions and helicopters.

There appears to be a tension between short-term economic gains and long-term climate change adaptation planning within the glacier guiding industry. Despite the risks posed by climate change, the immediate economic benefits of operating these MLTBs may overshadow the need for more sustainable and resilient practices. This raises concerns about the intergenerational viability of some MLTBs and the potential for maladaptation, where actions taken to address climate change may inadvertently exacerbate the problem. Literature highlighted the importance of distinguishing between adaptation and maladaptation in the context of climate change. Adapting to altered conditions via increasing use of high-carbon tourism activities may be considered maladaptive, particularly if it compromises the long-term sustainability of businesses and exacerbates climate-related risks (Espiner & Becken, 2014; Kurian et al., 2021; Lv et al., 2023). Therefore, there is a need for MLTBs and other tourism stakeholders to carefully consider the implications of their actions and prioritise strategies that promote both short-term economic viability and long-term environmental sustainability.

The use of helicopters for glacier access was a topic of concern among the majority of informants, with many expressing views on the maladaptive nature of this practice. There was a perception among informants that an increasing number of visitors/manuhiri are opting for heli-hiking activities on the glacier. However, this trend raises concerns about equity and accessibility, as only a certain segment of visitors/manuhiri can afford the cost of helicopter flights. Moreover, there is recognition that the affordability of helicopter access may become even more challenging in the future. Factors such as the rising cost of aviation fuel and initiatives aimed at carbon neutrality could further increase the expense of helicopter tourism. As a result, there is a growing realisation that reliance on helicopter access may not be sustainable in the long term, from both an economic and environmental perspective. These findings highlight the need for alternative and more sustainable approaches to glacier tourism that prioritise accessibility, affordability and environmental stewardship/kaitiakitanga. Developing innovative solutions that reduce reliance on helicopters, such as enhancing ground-based access or promoting alternative forms of tourism, could help address these challenges and ensure the long-term viability of glacier tourism while minimising its environmental impact.

It is notable that some MLTBs are affiliated with the Ngāi Tahu tribe/iwi of the South Island/Te Wai Pounamu and align their business practices with Te Rūnanga o Ngāi Tahu's Climate Change Strategy, He Rautaki Mō Te Huringa O Te Āhuarangi (2018). This illustrates a proactive approach to addressing climate change impacts and reiterates the importance of incorporating indigenous perspectives and values into climate change adaptation and mitigation efforts. By aligning with their tribe/iwi strategy, these MLTBs not only contribute to the resilience of their businesses but also support broader community and environmental goals, as the revised TAC Framework (Figure 22) shows. Māori-led tourism businesses operating within tribe/iwi climate change adaptation processes are striving to align their actions with its principles and values. By actively engaging with tribe/iwi-led initiatives and strategies aimed at addressing climate change impacts, some MLTBs demonstrate a commitment to practising what they preach.

It is also notable that though not all MLTBs were affiliated with Ngāi Tahu tribe/iwi, they still played a role in promoting climate change adaptation practices through their inherent genealogy/whakapapa links to the environment. While these businesses may not have had specific climate change adaptation plans in place, they provided opportunities for visitors/manuhiri and employees/kaimahi to engage in activities that contribute to environmental conservation and resilience. Some MLTBs offered visitors/manuhiri and employees/kaimahi the chance to participate in tree planting, pest management or conservation donations, demonstrating a commitment to sustainability and environmental stewardship/kaitiakitanga. By enabling tourists to contribute to carbon offsetting efforts, these MLTBs

are aligning with the growing trend of 'greener vacation' tourism, which prioritises environmental conservation (Wright, 2023). As the revised TAC Framework (Figure 22) shows, "Tourists exhibit acceptance and a willingness to engage in, and pay for, substitute experiences, as well as display ambassadorial behaviour, supporting tourist intergenerational kaitiakitanga". Moreover, MLTBs have the potential to enhance their offerings by incorporating cultural storytelling that highlights the past, present and future connections to the land/whenua. By sharing stories of indigenous knowledge, traditions and resilience, these businesses can add depth and value to the visitor/manuhiri experience while fostering a greater appreciation for the interconnectedness of culture and environment. Overall, these initiatives reflect a broader shift towards more sustainable and responsible tourism practices within the Māori-led tourism sector. By integrating environmental conservation, cultural heritage and community engagement, MLTBs are not only providing memorable experiences for tourists but also contributing to the preservation and protection of the land/whenua for future generations.

The diversification of MLTBs' offerings in the region emerged as a key focal point of discussions during interviews, driven by the need for climate change adaptation. There is a concerted effort to shift the region's focus away from solely promoting glacier tourism to highlighting the diverse mountains-to-ocean landscapes. This shift is supported by the development of cultural assets in the region, such as the Pounamu Pathways in Greymouth/Māwhera (Figure 11) and the Te Kopikopiko o Te Waka installation at the Tohu Whenua cultural heritage site in Fox Glacier/Wheka (Figure 12). These cultural installations are expected to attract visitors/manuhiri and encourage longer stays in the region (Department of Conservation, 2022; Pounamu Pathway Untamed Natural Wilderness, 2023; Glacier Country Tourism Group, 2024). Furthermore, some key MLTBs recognise the value of operating conservation groups involving employees/kaimahi, the community, other businesses and tourists to offset carbon emissions through tree planting and conservation efforts in the region (refer to Figure 9).

The literature suggests that MLTBs are guided by Māori values, which underpin their efforts to protect and enhance their tourism offerings (McIntosh, Zygadlo & Matunga, 2004; Ringham, Simmonds & Johnston, 2016; Ransfield, 2019; Puriri & McIntosh, 2019). Values, such as those shown in the revised TAC Framework (Figure 22) through MLTBs' system dimensions, could play a central role in shaping MLTBs' operations and interactions with visitors/manuhiri, communities and the environment. By incorporating Māori values into their tourism practices, MLTBs not only potentially provide unique and authentic cultural experiences but also potentially prioritise sustainability, environmental conservation and community well-being. It is important to note that not all MLTBs are the same in terms of their knowledge of, and engagement with Māori values, however as mentioned above, there

is potential for environmental conservation practises to be a priority within MLTBs. This approach not only enriches the tourism offerings but also reflects the deep cultural heritage and connection to the land/whenua that underpins Māori identity and worldview. MLTBs can emphasise their deep connection to the land/whenua and their responsibility to care for it by considering their environmental footprint and taking measures to reduce it. In essence, some MLTBs operating in Westland Tai Poutini National Park and nearby townships are adapting to climate change through their inherent connection to the land/whenua and drawing upon generations of resilience. This aligns with research highlighting the importance of indigenous knowledge and practices in navigating environmental changes (Kenney & Phibbs, 2015; Mason et al., 2021; Kenney et al., 2023). MLTBs have a unique opportunity to showcase indigenous culture, traditions and connections to the land/whenua, providing visitors/manuhiri with authentic and immersive experiences. By expanding and enhancing MLTBs, the region can attract a broader range of tourists interested in cultural tourism, eco-tourism and sustainable travel experiences. However, it is important to note that while there may be evidence of diversification in certain areas of tourism, such as glacier tourism or eco-tourism, there may be opportunities for further development along the coastline that have not yet been fully explored. Therefore, additional research is needed to identify and assess the potential for new tourism offerings along the coastline, as well as the role that MLTBs can play in driving this diversification. Overall, by leveraging the strengths and cultural heritage of MLTBs and exploring new opportunities for tourism development, the region can enhance its appeal to a wider range of visitors/manuhiri and create a more resilient and sustainable tourism industry. MLTBs have emerged as potential leaders in driving understanding and adaptation to climate change.

The importance of striking a balance in climate change adaptation efforts for MLTBs in the region cannot be overstated. It is crucial to prioritise actions that promote sustainable tourism practices and enhance the environment rather than cause harm (Carr, 2021). The findings suggest that efforts to achieve this balance may already be underway, as evidenced by initiatives such as tree planting and the reduced use of helicopter flights to glaciers. These practices align with the principles of MLTBs' system dimensions as shown in the revised TAC Framework (Figure 22), as Māori values prioritise the well-being of the land/whenua and its resources. Additionally, some informants expressed reservations about the potential negative impacts of increasing tourism numbers, emphasising the need to prioritise environmental conservation over maximising visitor/manuhiri numbers. This sentiment aligns with research, highlighting the importance of managing nature-based settings carefully to avoid overcrowding and degradation of the site experience, particularly for repeat visitors/manuhiri (Lawson et al., 2021). In essence, achieving a balance between tourism development and environmental protection is essential for the long-term sustainability of MLTBs and the region as a whole (Lawson et al, 2021). By adopting practices that prioritise sustainability, cultural integrity and

environmental stewardship/kaitiakitanga, MLTBs can contribute to the preservation and enhancement of the region's natural and cultural heritage while offering meaningful and authentic experiences to visitors/manuhiri. In the context of climate change adaptation, Māori values can guide MLTBs in implementing practices that minimise environmental impact, promote community engagement and collaboration and foster long-term resilience to changing environmental conditions. By aligning business operations with these values, MLTBs can contribute to both the preservation of cultural heritage and the protection of natural ecosystems. The integration of Māori values into MLTB planning, as the revised TAC Framework shows (Figure 22), not only reflects a commitment to cultural authenticity and integrity but also positions these businesses as leaders in sustainable tourism practices and climate change adaptation (McIntosh, Zygadlo & Matunga, 2004).

6.6 Implications for policy and planning

The barriers to implementing the Māori worldview within government-led strategies are indeed significant and highlight the challenges of integrating indigenous perspectives into mainstream policy frameworks (Johnson et al., 2022a). One major obstacle mentioned by key informants is the short-term focus inherent in the typical three-year parliamentary cycle, which can hinder efforts to address issues like climate change on the scale necessary for meaningful intergenerational change. From the perspective of tribes/iwi, there may be more flexibility and autonomy in driving their own climate change strategies or policy responses (Boston et al., 2019), which would support leadership/rangatiratanga at place, in each region, as each tribe/iwi may have different pressing climate change adaptation needs. When it comes to embedding these perspectives into central government-led initiatives, barriers such as a lack of Te Tiriti literacy (understanding of the Treaty of Waitangi/Te Tiriti o Waitangi) can pose challenges. This lack of understanding may lead to difficulties in effectively incorporating Māori worldviews and mātauranga tribes/iwi into broader policy frameworks. To overcome these barriers, there is a need to advocate for more inclusive approaches that recognise the diversity of Māori perspectives and worldviews, rather than applying a one-size-fits-all approach; as Cradock-Henry et al. (2021, p. 1-5) suggested, “industry-specific, locally based options and pathways to support adaptation are needed”. This means prioritising the voices and leadership of specific tribes/iwi, such as Ngāi Tahu, and respecting their unique insights and priorities, particularly in regions like Westland Tai Poutini. By empowering tribes/iwi and fostering genuine partnerships between indigenous communities and government agencies, it becomes possible to create more culturally responsive and effective climate change strategies that reflect the values and aspirations of all stakeholders involved. By acknowledging Māori leadership in climate change action, the Crown not only validates the contributions of indigenous peoples but also signals a commitment to meaningful partnership and collaboration. This recognition can pave the way for more inclusive and effective

climate change policies and initiatives that draw upon the strengths and insights of Māori communities (Ministry for the Environment Manatū Mō Te Taiao, 2022b).

In the future, it will be crucial for the Crown to continue fostering strong relationships/whanaungatanga with tribes/iwi and MLTB organisations, ensuring that their voices are heard, and their expertise is valued in the development and implementation of climate change adaptation strategies. By working together in partnership, the Crown and Māori can lead the way toward a more sustainable and resilient future through regenerative tourism practises for New Zealand/Aotearoa (Walker & Moscardo, 2016; Becken et al, 2021; The Aotearoa Circle, 2023). The revised TAC Framework (Figure 22) shows via a MLTB system dimension using Māori cultural values, where partnership between tourism planning and tribe/iwi-led co-governance involves maintaining and building relationships/whanaungatanga. The rise of regenerative tourism presents an opportunity for Māori communities to actively participate in the tourism sector, which may also in turn grow MLTBs (Fusté-Forné & Hussain, 2022; Pung et al., 2024). Regenerative tourism emphasises the preservation and enhancement of the landscapes and communities that host visitors/manuhiri, with the aim of leaving the environment in a better state than before (TIA, 2024). Most key informants observed the lack of cultural tourism experiences in the region in days gone by, though many mentioned that today this is slowly changing, with the likes of the new Pounamu Pathway (Figure 11) and Te Kopikopiko o Te Waka at Fox Glacier/Te Moeka o Tuawe viewpoint near Fox Glacier/Weheka township (Figure 12) (Pounamu Pathway Untamed Natural Wilderness, 2023; Strong et al., 2023). However, the need for further development of MLTBs in the case study area, especially south of Hokitika, was highlighted by key informants.

The recognition of Māori values within government legislation and decision-making processes remains a complex and evolving issue. While there are signs of progress, such as greater acknowledgment of Māori values in environmental decision-making, as pointed out by key informants, there are also ongoing challenges and areas where improvements are needed, such as climate change adaptation. A key issue highlighted in the findings is the tension between Māori values and existing legislature, such as the National Parks Act 1980 (New Zealand Government, 2023). Informants noted that it is understandable why the concepts of national parks might be seen as incompatible with Māori perspectives. The values enshrined in legislation like the National Parks Act may not necessarily align with traditional Māori values, and altering such entrenched systems presents a formidable task. This tension underscores the need for a more inclusive approach that respects and integrates Māori perspectives into policy development and implementation (Strang et al, 2019; Łaszewska-Hellriegel, 2023).

There are efforts to incorporate Māori values into national regulation, legislation, standards and policies, as shown in changes to the Civil Defence Emergency Management Act (New Zealand Government, 2002). These are steps in the right direction, although there seems there is still work to be done to ensure meaningful engagement and partnership with tribes/iwi (National Emergency Management Agency Te Rāukau Whakamarumarū, 2024). Despite some progress, there are concerns about tokenistic gestures and a lack of genuine recognition of Māori values within the government sector, particularly at the local government level. This highlights the importance of ongoing advocacy and dialogue to ensure that Māori voices are not only heard, but also respected and actioned in decision-making processes, especially when it comes to climate change adaptation. The example given by an informant of the Resource Management Act (RMA) and the potential fast-tracking of applications without due consideration for environmental or cultural impacts underscores the need for greater accountability and transparency in decision-making processes. It is essential for governments, as this research has shown, to prioritise the long-term well-being of both the environment and indigenous communities over short-term economic interests.

Overall, while there are signs of progress in recognising and incorporating Māori values into government policies and decisions, there is still much work to be done to ensure that these values are truly respected, valued and integrated into all levels of governance. This requires ongoing commitment, collaboration and dialogue between government agencies, tribes/iwi and other stakeholders. The Deep South National Science Challenge report highlights the potential benefits of incorporating culture into public engagement on climate change adaptation, particularly within sectors like tourism (Munshi, 2020, p.3). This suggests that by recognising and valuing cultural perspectives, we not only enhance the effectiveness of adaptation strategies but also foster greater community engagement and resilience.

The recently released NAP acknowledges the inevitable impact of climate change on the tourism industry, particularly due to the ongoing changes in the natural environment and the repercussions of extreme weather events on infrastructure (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.21-22 & p.171). Embedded within the NAP are actions outlined in the CCAAP (Department of Conservation Te Papa Atawhai, 2020), focusing on safeguarding heritage, recreation and infrastructure on public conservation land/whenua and water. These actions aim to mitigate risks posed to tourism by weather events and protect sites of significance to the industry. Moreover, the NAP recognises that amidst the challenges posed by climate change, there are also opportunities for innovation and the emergence of new tourism offerings. The document emphasises a shift towards regenerative tourism, as elucidated by The Aotearoa Circle (2023, p.8). During the consultation process leading to the release of the NAP, and as an informant explained also with Ngāi Tahu's submission, Māori emphasised the importance of their increased involvement in climate adaptation development initiatives (Caine,

2022). As a response, mechanisms are being developed to enable Māori to contribute to climate-friendly and resilient actions tailored to their communities. The overarching guiding principle of the NAP is the commitment to upholding the principles of the Treaty of Waitangi/Te Tiriti o Waitangi, which underscores the importance of partnership and collaboration with Māori (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p.8-13). The NAP explicitly states its dedication to partnership with Māori, highlighting the elevation of te ao Māori (the Māori worldview) and mātauranga Māori (Māori knowledge) in the adaptation process. It emphasises the empowerment of Māori in adaptation planning, ensuring that initiatives are developed for Māori, by Māori (Te Kāwanatanga o Aotearoa New Zealand Government, 2022, p. 49). Recognising the particular infrastructure challenges faced by Māori communities in rural and remote areas, such as vulnerability to road closures and power cuts, the NAP aims to address these vulnerabilities and empower Māori to adapt to climate impacts. Mātauranga Māori at the subtribe/hapū and tribes/iwi level is identified as crucial for informing both local and central government climate adaptation responses. This initiative aims to facilitate Māori engagement and leadership in climate adaptation efforts, ensuring that their perspectives, knowledge and priorities are central to the adaptation process.

The findings of this research reveal a concerning lack of awareness and engagement with the NAP among key informants, particularly within MLTBs in the region. This points to a significant gap in community engagement regarding climate change adaptation initiatives, indicating a need for improved outreach and communication strategies. The resistance observed among some key informants towards learning about the NAP suggests underlying scepticism or concerns regarding its relevance and effectiveness. Some key informants expressed a perception that they are already inherently committed to environmental stewardship/kaitiakitanga, questioning the need for additional adaptation measures. Additionally, there were doubts raised about the suitability of the NAP for specific regions, such as the West Coast/Te Tai Poutini, indicating a potential disconnect between national-level policies and local realities.

The delay in the implementation of the Climate Adaptation Act, part of the resource management reforms, adds another layer of uncertainty and frustration among local government representatives and MLTBs. The postponement of this legislation, coupled with uncertainty surrounding the political landscape, contributes to a sense of inertia and ambiguity regarding the future direction of climate adaptation efforts. Local government representatives are acknowledged for their advocacy efforts, although they may face challenges in influencing broader structural changes within the constrained political environment. This highlights the complex interplay between political dynamics, policy implementation and community and tribes/iwi engagement in the context of climate change adaptation.

Overall, this research indicates the increasing importance of addressing gaps in awareness, engaging with indigenous peoples and ensuring that climate change adaptation strategies are tailored to local contexts and effectively communicated to all relevant parties. It also highlights the need for ongoing dialogue and collaboration to overcome barriers and drive meaningful action in response to climate change challenges. MLTBs operating in the West Coast/Te Tai Poutini region could be a relevant leading party contributing to the engagement of necessary ongoing dialogue for climate change adaptation planning.

6.7 Future research opportunities

The findings of this study are poised to contribute valuable insights that can inform strategy discussions among tourism operators, managers and the broader tourism sector regarding climate change adaptation planning. By considering the unique cultural context of MLTBs, this research sought to enhance the effectiveness and inclusivity of adaptation strategies in the West Coast/Te Tai Poutini region. Changing climate conditions have the potential to significantly impact tourism distribution patterns and introduce new risks for visitors/manuhiri in many locations, including the West Coast/Te Tai Poutini region. This can lead to a range of visitor/manuhiri management issues that need to be addressed (Department of Conservation Te Papa Atawhai, 2020). There is a call for more integrated research to understand how Māori worldviews can inform the assessment of climate change impacts, risks and opportunities and consequently aid climate change adaptation planning (Munshi et al., 2020; Johnson et al., 2022a). Further research is necessary to understand whether visitors/manuhiri would still choose to visit the region if the glaciers were no longer as accessible as they have been historically; this would help tourism operators and stakeholders better adapt to changing environmental conditions.

This research was conducted using a qualitative approach, chosen for inherent flexibility in capturing the depths and nuances of key informants' experiences and perspectives (Lofland, 2006). Such a process allowed for the emergence of themes organically from the data, enriching the study with diverse insights. It is recommended that further studies conducted in relation to indigenous worldviews use this method or allied approaches. It is also suggested that time restraints be considered when undertaking indigenous research and that they be factored into a research study's timeline appropriately. Time is required to form meaningful relationships/whanaungatanga and to gain a deeper understanding of how an indigenous worldview underpins climate change adaptation.

As a result of this research, a revised TAC Framework (Figure 22), adapted from Strong et al. (2023) has been proposed. The revised framework uses a Māori cultural lens, replacing "tourism system dimensions" with "MLTB system dimensions", which in turn changes the focus of how Strong et al.,

(2023) explained resilience and the notion that it gets stronger through each phase of climate change adaptation. Instead, the revised framework explains how resilience is inherently strong throughout each stage of adaptation. Future researchers might consider evaluating the applicability of the revised TAC Framework. Using the revised framework as a guide, there would be merit in conducting up-to-date research into how climate change effects are impacting the case study region; this would assist locally-specific climate change adaptation planning for now and for the future (Brondízio et al, 2021), as little is known about how visitors/manuhiri are experiencing the effects of climate change when visiting the West Coast/Te Tai Poutini region. Further investigation would help us better understand what visitors/manuhiri experience and learn when visiting a MLTB in the region. Furthermore, further research is needed on how MLTBs are adapting in the face of climate change. Scientists and academics/researchers need to build positive relationships/whanaungatanga with Māori communities to reshape working in partnership research practises. Future research needs to be in collaboration with local tribes/iwi and MLTBs to gain an understanding of how better to build resilience and mitigate the risk of infrastructure damage after extreme weather events in the region. Further research needs to take place to gain a deeper understanding of how Māori values guide MLTBs.

The researcher encountered time limitations, which hindered the ability to fully engage in relationship building/whanaungatanga, an integral aspect of the indigenous research process (Dunlop et al., 2023; Amoamo et al, 2018; Wilkinson, 2020; Te Whata, 2021; Jenkins, 2022). While prior studies have delved into MLTBs and environmental changes, there remains a paucity of research within the West Coast/Te Tai Poutini region (Johnson et al., 2022; Ransfield & Reichenberger, 2021; Cradock-Henry et al., 2021; Munshi et al., 2020; Puriri & McIntosh, 2019; Hopkins et al., 2015).

The findings will inform strategy discussions among tourism operators, local authority managers and planners and the wider tourism sector in relation to climate change resilience and adaptation planning. There is a growing demand for comprehensive research that explores how Māori perspectives can enrich the evaluation of climate change effects, vulnerabilities and potential benefits to consequently enhance the planning of climate change adaptation strategies (Munshi et al., 2020; Johnson et al., 2022a).

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Appendix 1: Recruitment Dialogue

Tēnā koe.

My name is Abby Hamilton. I am a Ngāi Tahu Iwi member who is on a journey with my whakapapa. I currently live in Greymouth/Māwhera Greymouth while studying (remotely) for my Master of Applied Science degree at Lincoln University.

My research is about how climate change is impacting or could impact MLTBs on the West Coast in Te Wai Pounamu. Part of my research involves talking to organisations that are involved in the context within which Māori tourism businesses are operating. Given your role as XXXX at XXXX I would like to invite you take part in this project as an interviewee.

As an interviewee, you would be asked to participate in a guided conversation with me lasting approximately 1 hour, more or less. The focus of the discussion would be on your perspectives of the impact of climate change on the West Coast and the role your organisation in this context, particularly as it relates to climate change mitigation or adaptation and how, in your view MLTBs are experiencing and responding to any effects of climate change, as well as any ways in which Māori cultural values inform practices and planning in relation to climate change.

If you are willing to be involved as a participant in this project, please respond to this email or contact me on 021838085. I will then send you further information regarding my research information and a consent form for you to sign. We will organise an online meeting time that suits you.

Thank you for considering this request. I look forward to your response.

Ngā mihi.

Abby Hamilton

Appendix 2: Research Information Sheet

Tēnā koe.

You are invited to take part as a participant in Abby Hamilton's research project, for the purposes of her Masters in Applied Science at Lincoln University.

Title of the project: The implications of climate change for Māori-led tourism businesses in Aotearoa New Zealand: A case study of Westland Tai Poutini National Park, and proximate destination townships.

The aim of this project is to contribute to the understandings of the effects of climate change on the tourism industry in Aotearoa New Zealand. This research will explore the effects of climate change and climate change adaptation planning for Māori-led tourism businesses operating within Westland Tai Poutini's National Park, and townships on the boundary of the National Park. The research will contribute to climate change adaptation planning for Māori-led tourism businesses, non-Māori tourism businesses and the wider tourism industry. Climate change adaptation solutions arising from this research may inform government, local government, and tourism key informants management solutions for future climate change adaptation planning.

Participation in this project involves approximately 1 hour of your time taking part in an interview. The researcher will interview you about how your organisation is experiencing and/ or adjusting to the effects of climate change, and how these are influenced by Māori cultural values.

If you would like to take part as a participant in this research, you need to sign the consent form attached and return it to the researcher. If consent is given by the participant, interviews will be recorded or notes taken only for detailed use only by the researcher. These are kept on a password protected device, and later electronically deleted. If you are not comfortable with being recorded, handwritten notes will be taken instead during the interview.

There are no expected risks for the participant or researcher during the interview application of the procedures for this research project. There is a possibility that the results of this project could be published. Assurance is given that all participants in this research will have anonymity. All participants identities are not made public, nor made known to other participants other than the researcher and their supervisors, and Lincoln University's Human Ethics Committee, without the participants consent.

To guarantee confidentiality and anonymity, the following steps will be taken:

Names and contact details will not be used when documents with the gathered data on them are circulated

Pseudonyms, codes and symbols will be used in any written or oral presentations

Information identifying discrete information will not be presented in public

Your participation in this project is voluntary. If you want to withdraw your participation and information you have provided, please do this no later than 1 month (Insert date of interview here: / /) after the interview is completed. You can do this by emailing the principal researcher (Abby Hamilton).

This research project is being carried out by the stated contacts below, they will be pleased to discuss any concerns you may have about participation in this project:

Principal researcher:

Abby Hamilton – Master of Applied Science (Thesis), Lincoln University Student

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Appendix 3: Tourism-Sector Key Informants Interview Guide

Script for tourism sector key informants' interviews

Title: The implications of climate change for Māori-led tourism businesses in Aotearoa New Zealand: A case study of Westland Tai Poutini National Park, and proximate destination townships.

Abby Hamilton, Lincoln University, Masters (thesis) Applied Science, 2023

Opening:

This research's aim is to explore the effects of climate change and climate change adaptation planning for Māori-led tourism businesses operating within Westland Tai Poutini's National Park, and townships on the boundary of the National Park. I'm interested in how climate change is impacting tourism in Westland Tai Poutini, or might soon impact tourism, especially among Māori-led tourism businesses. I'm keen to hear your perspective and any experiences you have to share about climate change/weather related issues, how you've dealt with these, or plan to do so, and what influence Māori cultural values have on all of these for your business. Participation in this project involves approximately 1 to 2 hours, possibly less or more of your time taking part in this qualitative semi structured interview. The researcher (me) will interview you, asking your detailed personal and professional opinions about how you are experiencing the effects of climate change. How you are adapting to climate change and planning to adapt to climate change. In what ways do or will, Māori cultural values define your climate change adaptation planning? In the context of climate change adaptation, what are the risks and opportunities for Māori-led tourism businesses in Westland Tai Poutini National Park, and destination townships on the boundary of the park? This research is being undertaken to achieve my (Abby Hamilton) Master of Applied Science (Thesis) from Lincoln University 2023-2024.

'Ice Breaker' conversation:

Kia ora (*Hello*) / Mōrena (*Good Morning*) / Ahiahi pai (*Good Afternoon*).

Kei te pēhea koe? (*How are you?*) - Kei te pai (*Good*) / Tino pai (*Really good*).

Kei te pēhea te āhua o te rangi? (*How's the weather?*)

What is your connection to the West Coast and this area?

What do you value about this area?

Why do you think tourism is important for this area?

Background

1. To begin with, could you please describe what your perception is of what tourism businesses offer visitors to the Westland Tai Poutini region
2. Tell me, how are Māori values (if at all) informing your climate change adaptation decisions?

Exploring climate change impacts

3. What effects of climate change have you witnessed, where? What about Westland?
4. Are you aware of the predicted climate change effects in this region?
 - If so, what do you know and where do you get your information from?
 - If not, where would expect to get your information from about it?
5. How do you share your information about climate change adaptation to communities and local businesses?
6. Do you get much feedback about the information you share?

Tourism businesses and implications of climate change

7. Do you know of any tourism businesses that are already experiencing the effects of climate change in the area?
 - **If so**, what are the major effects right now?
 - **If not** - do you expect any changes to tourism businesses because of climate change?
8. What do you think will be the worst effect on tourism businesses
9. To what extent is the response to preparing or not preparing for climate change impacts informed by Māori values?
10. Are you working with community groups in Westland Tai Poutini region?
 - If so, how often do you meet? (Online and/or onsite)
11. Do you have discussions with Māori-led tourism businesses in Westland Tai Poutini?
12. What are the impacts of climate change that are discussed (if any)?
13. What are the priorities for climate change adaptation (if any)?
14. Within these priorities (if any), what is the response for climate change adaptation
 - What actions are happening right now (reactive)
 - What actions are planned for the near future (transitional)
 - What are the long-term actions planned (transformative)?
15. Can you explain the risks (negative) for tourism businesses, specifically for Māori-led businesses in the Westland Tai Poutini area adapting to climate change impacts

16. Can you explain the opportunities (positive) for tourism businesses, specifically for Māori-led businesses in the Westland Tai Poutini area adapting to climate change impacts
17. With what has been discussed so far, how do you think Māori cultural values drive the decisions made with climate change adaptation planning within the tourism industry?
18. Could you please give your opinion on how resilient you think this area is to climate change?
Probe: What does the West Coast Tourism sector need to do in order to face the anticipated changes in climate? Do you see this happening?
19. Is there anything else you would like to add to this discussion that may be of value?

To sum up

- Overall, what are your perceptions of the risks that may arise from climate change impacts and adaptation on tourism businesses in the area?
- Overall, what are your perceptions of the opportunities on that may arise from climate change impacts and adaptation on these tourism businesses in the area?
- To what extent do Māori values inform the possible risks and opportunities arising from climate change and adaptation for tourism businesses in Westland?

Thank you for your time.

Main themes of the interview guide

Exploring climate change impacts	Implications of climate change	Adaptive responses to the changing environment	Values underpinning adaptation	Identifying priorities	Prospects for the future
Climate change impacts experienced in the Westland Tai Poutini region	Positive Negative Risks Opportunities	Reactive Transitional Transformative	Te Rūnanga o Ngāi Tahu values Te Rūnanga o Makaawhi Māori-led tourism businesses	Priorities for adaptation planning	Short-term; Medium term; Long-term

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Ngāi Tahu Values

<p>Ngāi Tahu’s Climate Change Strategy was released in 2018 (Te Rūnanga o Ngāi Tahu, 2018). Te Rūnanga o Ngāi Tahu values, stated below, are the founding principles guiding their Climate Change Strategy (Te Rūnanga o Ngāi Tahu, 1997)</p>		
<p>Whanaungatanga - (family)</p>	<p><i>We will respect, foster and maintain important relationships within the organisation, within the iwi and within the community</i></p>	
<p>Manaakitanga - (Looking after our people)</p>	<p><i>We will pay respect to each other, to iwi members and to all others in accordance with our tikanga (customs)</i></p>	
<p>Tohungatanga - (expertise)</p>	<p><i>We will pursue knowledge and ideas that will strengthen and grow Ngāi Tahu and our community</i></p>	
<p>Kaitiakitanga - (stewardship)</p>	<p><i>We will work actively to protect the people, environment, knowledge, culture, language, and resources important to Ngāi Tahu for future generations</i></p>	
<p>Tikanga - (Appropriate action)</p>	<p><i>We will strive to ensure that the tikanga of Ngāi Tahu is actioned and acknowledged in all of our outcomes</i></p>	
<p>Rangatiratanga - (leadership)</p>	<p><i>We will strive to maintain a high degree of personal integrity and ethical behaviour in all actions and decisions we undertake</i></p>	

Appendix 4: Māori-led Tourism Key Informants Interview Guide

Script for Māori-led tourism businesses key informants' interviews

Title: The implications of climate change for Māori-led tourism businesses in Aotearoa New Zealand: A case study of Westland Tai Poutini National Park, and proximate destination townships.

Abby Hamilton, Lincoln University, Masters (thesis) Applied Science, 2023

Opening:

This research's aim is to explore the effects of climate change and climate change adaptation planning for Māori-led tourism businesses operating within Westland Tai Poutini's National Park, and townships on the boundary of the National Park. I'm interested in how climate change is impacting tourism in Westland Tai Poutini, or might soon impact tourism, especially among Māori-led tourism businesses. I'm keen to hear your perspective and any experiences you have to share about climate change/weather related issues, how you've dealt with these, or plan to do so, and what influence Māori cultural values have on all of these for your business. Participation in this project involves approximately 1 to 2 hours, possibly less or more of your time taking part in this qualitative semi structured interview. The researcher (me) will interview you, asking your detailed personal and professional opinions about how you are experiencing the effects of climate change. How you are adapting to climate change and planning to adapt to climate change. In what ways do or will, Māori cultural values define your climate change adaptation planning? In the context of climate change adaptation, what are the risks and opportunities for Māori-led tourism businesses in Westland Tai Poutini National Park, and destination townships on the boundary of the park? This research is being undertaken to achieve my (Abby Hamilton) Master of Applied Science (Thesis) from Lincoln University 2023-2024.

'Ice Breaker' conversation:

Kia ora (*Hello*) / Mōrena (*Good Morning*) / Ahiahi pai (*Good Afternoon*).

Kei te pēhea koe? (*How are you?*) - Kei te pai (*Good*) / Tino pai (*Really good*).

Kei te pēhea te āhua o te rangi? (*How's the weather?*).

The following questions will guide this research:

1. How are selected Māori-led tourism businesses experiencing the effects of climate change in Westland Tai Poutini National Park, and proximate destination townships?
2. What evidence are there that Māori-led tourism businesses are adapting to climate change in Westland Tai Poutini National Park, and proximate destination townships? If so, in what ways do these adaptations align with Māori values?
3. In the context of climate change adaptation, what are the risks and opportunities for Māori-led tourism businesses in Westland Tai Poutini National Park, and proximate destination townships?

START:

1. How long have you lived here? What is your connection to the West Coast and this area?
2. What do you value about this area?
3. Why do you think tourism is important for this area?

(1) Background

1. To begin with, could you please describe what your tourism business offers visitors to the Westland Tai Poutini region
2. Can you sum up what the general focus is of this tourism business?
3. How many employees does this tourism business have?
4. When are your busy times? (Seasonally? / During the week? / During the day?)
5. Tell me, how are Māori values (if at all) informing your day-to-day business, and your overall business decisions?

(2) **Exploring climate change impacts**

1. Is there much discussion about climate change in your business 'circles'. Do people talk much about the future, for example, is there much awareness of the possible predicted climate change effects in your region?
 - If so, what do you know and where do you get your information from?
 - If not, where would expect to get your information from about it?
2. Are there any current effects of climate change that you or any other people you talk with, have witnessed and/or are dealing with in the region. If so, what?

3. Are there any local community groups that your business is involved with about the effects of climate change?
 - If so, are there any government representatives (e.g., someone from DOC or local council etc) involved in the korero with you?

(3) Tourism business and implications of climate change

1. Is this business already experiencing any effects from climate change?
 - **If so** -
 - Who is affected? (If anybody)
 - What are the major effects right now?
 - **If not** - do you expect any changes to this business soon because of climate change?
2. What parts of the business do you think will be affected? (What are the risks?)
3. What do you think will be the worst effect on this business?
4. It can feel rather doom and gloomy sometimes discussing climate change. Tell me, what opportunities/positive outcomes do you think could arise from climate change impacts?

(4) How is your tourism business responding (or planning to respond) to the effects of climate change?

1. Tell me, as a tourism business, what will be (or is) your response to climate change?
 - Is there much planning going into your business's response to climate change currently?
 - Do you get advice from anywhere/anyone about climate change impacts and adaptation?
 - Will/do you collaborate with the community and local community groups about climate change adaptation planning?
2. How will/do Māori values drive your climate change response planning?
3. What would your business regard as a priority response to climate change impacts?
4. What are the businesses short-term prospects/goals at this stage of climate change impact response (if any)? (*Reactive*)
5. What are the businesses medium-term prospects/goals during climate change impact adaptation (if any)? (*Transitional*)
6. What are this businesses long-term prospects adapting to climate change impacts (if any)? (*Transformative*)
7. How do Māori values drive this businesses response to preparing or not preparing for climate change impacts?
8. Could you please give your opinion on how resilient you think this area is to climate change?

To sum up

- Overall, what are your perceptions of the risks that may arise from climate change impacts and adaptation on this business?
- Overall, what are your perceptions of the opportunities that may arise from climate change impacts and adaptation on this business?
- To what extent do Māori values inform the possible risks and opportunities arising from climate change and adaptation for this business?

Do you have anything you would like to add? Any other questions or ideas you may have that I could have missed?

Ngā mihi.

Table 6

Main themes of the interview guide for tourism sector

Exploring climate change impacts	Implications of climate change	Adaptive responses to the changing environment	Values underpinning adaptation	Identifying priorities	Prospects for the future
Climate change impacts experienced in the Westland Tai Poutini region	Positive Negative Risks Opportunities	Reactive Transitional Transformative	Te Rūnanga o Ngāi Tahu values Te Rūnanga o Makaawhi Māori-led tourism businesses	Priorities for adaptation planning	Short-term; Medium term; Long-term

Table 7

Insert Table title here

Ngāi Tahu’s Climate Change Strategy was released in 2018 (Te Rūnanga o Ngāi Tahu, 2018). Te Rūnanga o Ngāi Tahu values, stated below, are the founding principles guiding their Climate Change Strategy (Te Rūnanga o Ngāi Tahu, 1997)		
Whanaungatanga - <i>(family)</i>	<i>We will respect, foster and maintain important relationships within the organisation, within the iwi and within the community</i>	
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Tohungatanga - <i>(expertise)</i>	<i>We will pursue knowledge and ideas that will strengthen and grow Ngāi Tahu and our community</i>	
Kaitiakitanga - <i>(stewardship)</i>	<i>We will work actively to protect the people, environment, knowledge, culture, language, and resources important to</i>	

	<i>Ngāi Tahu for future generations</i>	
Tikanga - (Appropriate action)	<i>We will strive to ensure that the tikanga of Ngāi Tahu is actioned and acknowledged in all of our outcomes</i>	
Rangatiratanga - (leadership)	<i>We will strive to maintain a high degree of personal integrity and ethical behaviour in all actions and decisions we undertake</i>	