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From gateway to custodian city: Understanding urban residents’ sense of connectedness to Antarctica

Abstract

Antarctic ‘gateway’ cities have been characterised primarily as portals through which goods and services from around the world can be transported to the frozen continent. Recent research, however, suggests that this concept should be expanded to address other forms of connectivity, including those felt by people living in (rather than simply passing through) these cities. In this article, we explore the meaning of urban relations to Antarctica in the twenty-first century, focussing on the Australian city of Hobart. We outline evolving understandings of gateway cities, and Antarctic gateways particularly; examine Hobart’s diverse connections to the far south; and analyse current public policy related to the city’s ‘gateway’ status. We then report the results of a survey (n=300) conducted in 2018 to investigate how citizens understand their city’s relationship with Antarctica. Survey results show that residents prioritised ecological concerns over economic or political issues and felt strongly that the city should play a custodianship role in the future of Antarctica. Hobartians’ strong sense of environmental and cultural connectedness with Antarctica suggests a need to rethink the concept of Antarctic gateways if policy is to adequately reflect the meaning of this identity to residents of the cities that circle the southern continent.

Keywords

Antarctic policy; connectedness to place; custodian cities; gateway cities; Hobart, Tasmania; urban relations

Key insights

Hobart's associations with Antarctica go beyond and unsettle traditional economic understandings of 'gateways' that connote flows of people and resources. We argue that the term 'custodian city' may be a better descriptor of Hobart as seen by its own citizens and speculate that such may be the case for all such 'Southern Rim' cities. Indeed, incorporating citizens' perspectives into policy may strengthen governments' resolve to more effectively foster ways to transform such gateway cities from Antarctic transport hubs into custodian cities that support the continent's future.

1 INTRODUCTION

In 2009, representatives of five cities came together to sign a document known as the *Statement of Intent between the Southern Rim Gateway Cities to the Antarctic*. The first of its kind, the agreement invokes the spirit of the Antarctic Treaty and, by outlining in-principle support for initiatives such as knowledge exchanges, seeks to 'promote the enhancement of peaceful and cooperative relations between signatory nations' (Sciurano et al., 2009). The cities in question are a far-flung group—Cape Town, South Africa; Christchurch, New Zealand; Hobart, Australia; Punta Arenas, Chile; and Ushuaia, Argentina—united primarily by their strong relationships with the continent to their south. All are comparatively close to the continent, allowing the flow of people and resources to and from the Antarctic region (Figure 1). The conventional meaning of 'gateway cities' rests on their common identity as portals for goods and services (Hall, 2000), but each city is also connected to the south in historical, cultural, political, and affective ways that exceed these logistical and transport functions.

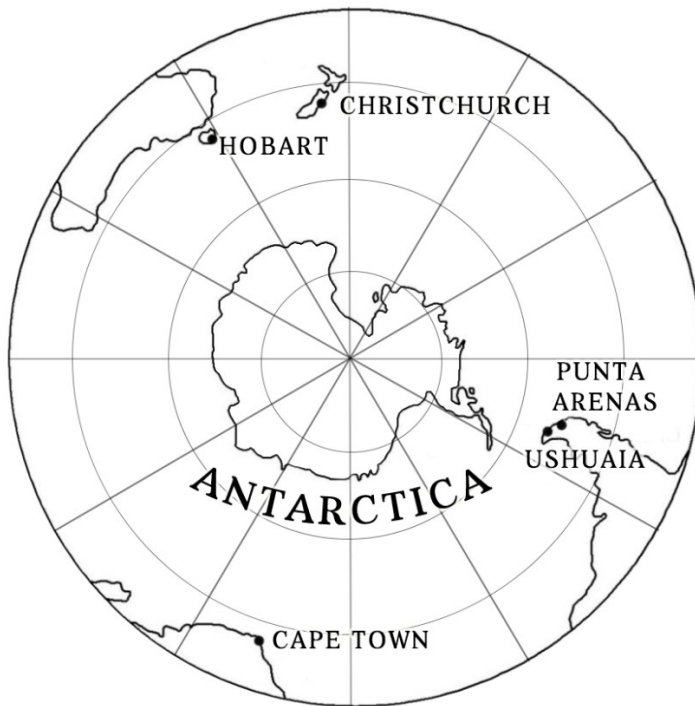


Figure 1: Antarctic gateway or Southern Rim cities. Source: Author

While the *Statement* expired 18 months after it was signed, in the period since then the ‘Antarctic gateway’ status of several of the cities has been reinforced at all levels of governments by policy papers that put forward visions for enhancing and capitalising on place-branding. Both individually and as a group, these ‘Southern Rim’ cities are positioned to play an important role in defining how Antarctica is imagined, discursively constructed, and vicariously experienced. With the ‘ice continent’ taking on a new centrality in global public consciousness in the Anthropocene, these cities’ relationships with the region to their south are likely to become an increasingly valuable part of their urban identities.

A growing body of literature has examined the cities’ historical, economic, touristic, cultural, and geopolitical relationships to Antarctica, but these analyses primarily focus on the perspectives and impacts of travellers (including explorers, scientists, artists, and tourists) moving through the cities—an approach that is encouraged by the label ‘gateway’, with its suggestion of a thoroughfare. Largely overlooked in discussions thus far, however, is the question of how Antarctic connections are perceived by, and how they impact upon, the Southern Rim cities’ residents.

In this article, we explore the meanings and significance of urban relations as they pertain to Antarctica in the twenty-first century—a period when Antarctica itself is under threat from anthropogenic warming. We focus on one of the five Southern Rim cities: Hobart, in Tasmania, Australia. Section 2 deals with evolving understandings of ‘gateways’ generally, Antarctic ‘gateways’ specifically, and Hobart in particular. We examine the city’s diverse connections to the far south, along with the opportunities and tensions these generate, and analyse the ways in which its ‘gateway’ identity is promoted by federal, state, and local government. In section 3, we report the results of a survey designed to elicit Hobart citizens’ opinions about their city’s forms of connectedness to the continent to its south. We sought to gauge the degree and kind of engagement Hobart residents have with Antarctic issues, as well as their level of concern about decisions made about the city’s relationship with Antarctica in a broad range of areas. The survey’s results suggest, among other things, that the city’s Antarctic connections go well beyond the economic and logistical benefits that characterise the traditional idea of a gateway city (Hall 2015). Most strikingly, Hobart citizens feel a strong sense of custodianship towards the Antarctic region—a quality ill-captured by the term ‘gateway.’ The work concludes, in section 4, by suggesting that, in developing policy for the ‘Southern Rim’ cities in relation to Antarctica, governments pay greater attention to the perspective of local citizens, and by arguing for a shift in the conceptualisation and promotion of these urban places from ‘gateway’ to ‘custodian city.’

2 EVOLVING UNDERSTANDINGS OF ‘GATEWAYS’

In urban geography, the term ‘gateway’ has a long history. Writing in 1971, A.F Burghardt pointed to its use in the scholarly literature as well as prolifically in urban promotional material. His definition emphasised economic and logistical factors and stated that gateway cities “develop between areas of differing intensities or types of production,” are “located towards one end of their tributary areas,” and “are heavily committed to transport and wholesaling” (Burghardt 1971, p. 269).

In the decades since, the label ‘gateway city’ has been applied in numerous contexts, including immigrant gateway cities, which serve as points of entrance for migrants to the surrounding country (Knapp & Vojnovic, 2016); trade gateway cities, which provide entrance points for domestic and international commerce to an economic region (Huff, 2012); and nature gateway cities, which offer tourist point-of-entry to nature-based attractions such as national parks and remote areas (Line & Costen, 2016). There are gateway cities all around

the world, from Jackson, Wyoming, to Rajin-Seonbong, North Korea (Jo & Ducruet, 2007; Line & Costen, 2016), but a substantial subset of the literature focuses specifically on polar, and particularly Antarctic, gateways (Dodds, 2017; Dodds and Salazar, 2021; Elzinga, 2013; Hall, 2000; 2015; Leane 2016; Leane et al., 2016; Montsion, 2015; Muir, et al., 2007; Nielsen et al., 2019; Salazar, 2013).

Research into gateways initially tended to emphasise mobilities, but more recently has shifted in focus to examine how gateway cities are co-constructed, reflecting the interdependence that exists between urban places and the ‘elsewheres’ (Graham, 2002: 1) to which they connect. Keitumetse and Pampiri (2016, p.101) have observed that the scholarly literature “illustrates a gradual transition” from an understanding of the term as a “concrete geographical space” to that of a “contact community that defines experiences of a particular geographical area.” Correspondingly, although most gateway research foregrounds the interests and experiences of those directly involved in the flow of goods, services, or people, growing numbers of studies have investigated *resident* perceptions in relation to gateways. Keitumetse and Pampiri (2016), for example, have examined cultural identities and values among residents of Maun village, Botswana, which have been overlooked in the development of ‘gateway’ branding. Frauman and Banks (2011) have argued that listening to residents’ voices is vital to avoid conflicts arising from changing and divergent understandings of the costs and benefits that stem from the gateway within these communities. Through these kinds of developments, the term ‘gateway city’ has evolved considerably, expanding from its economic base to encompass less tangible aspects of this identity.

While approaches to Antarctic gateways have diversified along with understandings of gateway cities in general, the shift has not been towards a focus on citizens, but rather towards geopolitical factors. This politicisation is largely due to the Southern Rim cities being national gateways to a region that is internationally governed and yet also contested. Four of the five Antarctic gateway cities are located in countries that claim sovereignty over Antarctic territory (Cape Town is the exception), with two gateways—Punta Arenas and Ushuaia—located in nations whose claims overlap with each other and with a third claim (the United Kingdom’s). All these gateway cities are located in states that are signatories to the *Antarctic Treaty* (1959); the *Convention on the Conservation of Antarctic Marine Living Resources* (1982), which (among other things) legislates for fisheries management in the region; and the *Protocol on Environmental Protection to the Antarctic Treaty* (1991), which

introduced strong measures to protect the icescape and its wildlife. While Article IV of the Antarctic Treaty effectively suspends sovereignty for the duration of the Treaty, a duality characterises the behaviours of claimant states: they both support international governance as Treaty signatories and retain their national claims, which can be reinforced symbolically, performatively, and discursively, although not legally (Dodds, 2011). In this respect, Klaus Dodds (2017, p. 12) has written that, for claimant states, gateways—or ‘hubs,’ as he calls them—have “become one way of reconciling [a] certain squeamishness about sovereignty and stewardship in Antarctica.”

These Southern Rim cities can be understood not only as gateways but also as *gatekeepers* (Dodds, 2017; Dodds and Salazar, 2021), in the sense that, as global urban assemblages, they provide their own nationals and those from afar with access to the internationally governed spaces of the southernmost continent, controlling the flows of both goods and people to and from a region that is among the most inaccessible in the world. Occasionally the politics of this gatekeeper function become explicit. In 2012, for example, in the wake of the thirtieth anniversary of the Falklands/Malvinas war, Argentina put a sudden embargo on British-chartered cruise ships wishing to access its port of Ushuaia, interpreting tourism as a form of natural resource use (Herbert, 2014, pp. 221–236). In 2018, against the background of increased Chinese activity in that sector of Antarctica claimed by Australia, Tasmanian media reported alarm about the Chinese Antarctic program using Hobart’s port, which was interpreted as a facilitation of China’s perceived exploitative activities in Antarctica (see the following section for further detail).¹ More often, gateway geopolitics take a ‘softer’ form, manifested in the heritage of the city, statues erected to particular explorer-heroes and nationalist framings in museum exhibits (Leane et al., 2016). In this sense, Antarctic gateways are spaces in which a nation’s extraterritorial claims can be propagated and justified to their own citizens and to visitors (Dodds and Salazar, 2021; Elzinga, 2013;).

The multiple contexts in which the term ‘polar gateway’ can be conceptualised has led C. Michael Hall to criticise the way the term is deployed, considering it a ‘fuzzy concept’ and calling for ‘a more empirically based approach’ (Hall, 2015, p.257). Hall has emphasised the origins of the term gateway within economic geography and proposed returning to this conceptualisation of gateways based on their ability to support large numbers of individuals such as tourists or scientists entering or leaving a surrounding region, enabled by the presence of a large transport base (Hall, 2015).

Countering this call for greater clarity, other researchers have argued instead for the advantages of an expanded concept of an Antarctic gateway that considers factors beyond the economic and logistic. These factors include political and scientific interests, exchange of information and ideas, impacts on the local community, and the creation of a “parallel reputation” in which the city is seen to share some of the qualities that Antarctica itself is known for (Roldan, 2015, p. 68; see also Leane, 2016). In this last view, the gateway does not sit in opposition to its hinterland (a civilised home versus a wild Other), but rather in unity with it—a perspective in which geological and ecological connections between Antarctica and its gateways also come to the fore. The *Statement of Intent* mentioned above assumes a similar kind of unity when it exhorts the cities’ governments and people to work in the same spirit of cooperation evident in the governance of Antarctica itself.

A subset of the Antarctic gateway literature has focused on specific cities, with Hobart receiving a significant amount of this scholarly attention. Analyses of Hobart’s gateway identify focus on a wide range of factors, including the city’s economic, historical, discursive, touristic, geopolitical, and regional connections to the south (Dodds 2017; Dodds and Salazar, 2021; Hall, 2000; Leane, 2016; Leane and Nielsen, 2019; Muir et al., 2007; Nielsen et al., 2019). Absent among the published literature on this and other Antarctic gateways, however, is any examination of how the city’s *residents* (rather than acknowledged Antarctic stakeholders) understand the connection of their city to the ice continent.² In the following sections we outline key features of Hobart’s gateway identity, before surveying the recent grey literature relating to this identity. The latter reveals that policy makers, like academics, have been reluctant to consider the perspectives held by ordinary citizens.

2.1 Hobart as an Antarctic gateway

The relationship of people living in what is now known as Hobart with the vast region to its south stretches back many millennia before European occupation. The palawa people knew the far south through its wind, current and weather patterns, as well as spectacular auroral displays (the new Australian icebreaker is named RSV *Nuyina*, after the palawa kani term for the southern lights). After European settlement, this relationship evolved through a series of overlapping phases: first a commercial one, in which sealing and whaling ships used the city as a convenient port for forays into the Southern Ocean; then exploratory, as various national Antarctic expeditions resupplied and/or overwintered in the city, a period now celebrated in

waterfront heritage buildings and objects (Figure 2); and later logistical, as various nations established bases in East Antarctica to which Hobart provided ready access. Antarctic science programs from France, Italy, China, the Republic of Korea, Russia, and Japan have all used Hobart's port as a logistical base, and France and China have both signed MOUs with the Tasmania government on "gateway cooperation" (State of Tasmania, 2017, p. 8). The Australian Antarctic Division (AAD) is also located within the Greater Hobart area and uses the city's port to access the ice continent. The Antarctic sector provides significant employment and economic benefits to the city (as of 2017, over 750 people employed directly, and around 430 indirectly [ibid., p.3]). The Tasmanian Polar Network, a coordinated group of business, scientific, educational, and government representatives, was established in 1999 to foster commercial and scientific activity in relation to the Antarctic sector. Hobart's southern connections are also political (the city hosts two secretariats that support and administer legal instruments within the Antarctic Treaty System);³ cultural (Hobart holds a biennial Antarctic festival, as well as permanent museum exhibits and archival holdings); and research-based (with numerous Antarctic researchers located in the Institute of Marine and Antarctic Studies [IMAS] and other parts of the University of Tasmania, as well as the Commonwealth Scientific and Industrial Research Organization [CSIRO] and the AAD).



Figure 2: A memorial by sculptor Stephen Walker to early Tasmanian Antarctic explorer Louis Bernacchi and his canine companions, at the Hobart waterfront. Source: Author

Hobart’s facilitation of access to Antarctica for other national programs has until recently been largely politically uncontroversial. France, which claims a slim sector of Antarctica that bisects Australia’s large territorial claim (comprising 42% of the continent), has used Hobart as a base since 1948. In 2019, the Tasmanian Government signed a 5-year MOU with the French Polar Research Institute to continue this relationship, an event reported positively in the media (Killick, 2019). However, Antarctic activities by China—a non-claimant state—have recently drawn negative attention to the city’s polar gateway function. In 2018, when then Tasmanian Premier Will Hodgman was on a trade mission in China, an article in the Hobart *Mercury* newspaper reported Hodgman’s dismissal of “widespread concerns about the communist nation’s presence in the [Antarctic] region.” The article noted criticisms of Hodgman’s eagerness to foster China’s interest in using Hobart as a supply base, particularly highlighting Tasmanian Greens leader Cassy O’Connor’s view that China has been “conduct[ing] undeclared military activities in Antarctica’ as well as ‘mineral exploitation,”

and “hasn’t ruled out its right to make territorial claim” on the continent (in Baker, 2018). About six months later, a visit by Chinese ambassador Cheng Jengye was the catalyst for an article in the national *Australian* newspaper in which O’Connor again expressed concerns about “Chinese ‘militarisation’ of Antarctica,” and stated that “they [the Chinese] reserve their right to stake a sovereign claim when the Antarctic Treaty expires in 2048 [sic]” (Denholm, 2019).⁴ China participates in Southern Ocean fisheries and has recently increased its scientific and logistical activities within Antarctica, while building a stronger role for itself within the Antarctic Treaty System (Liu, 2019). These debates about the respective importance of environmental protection, economic opportunity, and global security raise questions about values, and reflect wider anxieties in Australia about the growing influence of China across many spheres, demonstrating the deep-seated connections between what happens in the polar regions and broader geopolitical developments.

Hobart is the stage for international discussions about the management of the Southern Ocean thanks to the annual meeting of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), which is held in the city (in 2020, virtually) each October. CCAMLR meetings have also become a focal point for political attention from environmental activist groups. From 2012, a series of proposals for Marine Protected Areas in the ocean surrounding Antarctica received considerable opposition from several nations, most prominently China and Russia. During that period, CCAMLR meetings drew increasing media interest, while street banners and protests by environmental NGOs—including some in which protestors dressed in penguin suits—brought attention to the issue of protection (see for example Dawtrey, 2013; Mounster, 2014). While the degree to which Hobart residents have taken part in these protests is unclear, with the CCAMLR headquarters located on one of the city’s main thoroughfares they have certainly been visible both to passers-by and in media reports.

Tourism is an important part of the identities of several Antarctic gateway cities. Antarctic tourist numbers have increased rapidly in recent years to over 74,000 people in the summer of 2019–2020, a rate of growth that has caused concern over the impact on the Antarctic environment and its wildlife (International Association of Antarctica Tour Operators [IAATO], 2020; Marshall, 2016). The vast majority of tourists travel through the South American gateways, particularly Ushuaia in Argentina. Hobart is over twice as far from Antarctica as Ushuaia; the Southern Ocean is extremely rough and the East Antarctic coast

directly to Tasmania's south is less suitable for landings and predictable wildlife sightings than the Antarctic Peninsula region directly south of Ushuaia. While cruise ships do occasionally leave from Hobart, travelling to the Ross Sea Region or Commonwealth Bay—both sites of 'heroic huts' remaining from early twentieth-century exploration—their duration and expense renders them a relatively niche market, and they make up a very small fraction of Antarctic tourism overall. The sub-Antarctic Macquarie Island, technically part of Tasmania, is closer and sometimes forms part of longer cruises to Antarctica or the New Zealand sub-Antarctic islands. The Australian Antarctic program flies expeditioners to and from the continent in summer, and a tourist overflight out of Hobart is planned for the first time in 2022—only the second time this direct flight has occurred since 1994 (McCann, 2020). As Hobart sees few Antarctic tourists and tour vessels departing from the city, its residents are not especially likely to be aware of this commercial use of the continent, unless this is through articles in the (largely) international media (Marshall, 2016) or through personal connections (Australians are the third largest national group of tourists to Antarctica in absolute numbers [IAATO, 2019]). Hobart itself, however, offers a form of “vicarious tourism” to Antarctic enthusiasts (Muir et al., 2007, p.147) through its museum exhibits, Antarctic festival, 'Polar Pathways' walking and driving tour, and historic artefacts.

In recent decades, Hobart's gateway identity has been actively supported by government policy and funding. Dodds and Salazar (2021) show that Hobart and the other Southern Rim cities are subject to government efforts to develop and implement 'gateway strategies,' seeking to brand these cities as 'natural gateways' and to capitalise on national and foreign government strategies for Antarctic and Southern Ocean. In parallel to their analysis, in the following section, we consider how policy and investment contribute to the broader discursive and political construction of Antarctic gateways, with specific focus on Hobart.

2.2 Discursive and political construction of Antarctic gateway cities

In the decade since the signing of the *Statement of Intent between the Southern Rim Gateway Cities to the Antarctic*, the goodwill expressed in that document has yet to translate into any concrete examples of collaboration between the gateways. The individual signatories have not been idle, however, and various levels of government in each city have been active in developing policies and initiatives to enhance their reputations as Antarctic gateways of choice. In New Zealand, the *Christchurch Antarctic Gateway Strategy* (Christchurch City Council, 2018) serves as an example of a local government-led policy that puts forward a

vision premised on delivering excellence, facilitating cultural connection, advancing knowledge, and championing sustainability. The Christchurch Antarctic Office, a service originally developed by Christchurch City Council and, from 2018, operating within the city's economic development agency, is funded to deliver on this strategy and "to co-ordinate, facilitate, motivate, develop and explore greater community, cultural, economic, educational, environmental and scientific value from Christchurch's longstanding connections to Antarctica" (ChristchurchNZ, 2020, para 5). The city's annual opening of the Antarctic season event serves to enhance Christchurch's gateway identity for residents, tourists, and the wider Antarctic sector. Across the Pacific, Chile's national Antarctic policy (*Política Antártica Nacional*) includes the goal to "develop and promote the Region of Magallanes and Chilean Antarctica [the region in which Punta Arenas sits] as a centre of national and international Antarctic activity" (LIII Consejo de Política Antártica, 2017, p.4).⁵ The 2017 announcement of a Chilean government-funded International Antarctic Centre, to be constructed on the Punta Arenas waterfront at a cost of upwards of 30 billion Chilean pesos, or more than 50 million AUD, signals the government's plan to further develop in the city's gateway profile ("Chile to build International Antarctic Center in Punta Arenas," 2017).

These efforts show a significant international intent to invest in the development of gateway cities and Australia is no exception to this trend. In addition to the state-government-funded Tasmanian Polar Network, the planned Macquarie Point Antarctic and Science Precinct is an example of such investment in Hobart. Set to be constructed on Hobart's waterfront, much like its Chilean counterpart, the precinct will act as a hub for Tasmania's scientific and logistical expertise and offer new platforms for education and tourism. The anticipated role that the precinct will play in elevating Hobart's Antarctic gateway status is clear in communications on the subject, with the Australian Government stating that it "has the potential to create a prominent gateway that celebrates Hobart's history and current status as an Antarctic and Southern Ocean research powerhouse," and will "solidify Hobart's world class standing as a gateway to the Antarctic and Southern Ocean" (Commonwealth of Australia, 2019, p. 9).

These investments have been accompanied by policies from all three levels of government in Hobart that seek to further develop the city's Antarctic profile. Most prominent is the federal government's *Australian Antarctic Strategy and 20 Year Action Plan* (Commonwealth of

Australia, 2016). The strategy, released in 2016, pledges to “build Tasmania’s status as the premier East Antarctic Gateway for science and operations” (ibid, p. 3) by investing in the twin focal areas of infrastructure and science. While federal Antarctic policy draws upon Australia’s legacy of polar exploration, its territorial claim, and its commitment to the Antarctic Treaty System as motivations for its Antarctic endeavours, the Tasmanian Government’s *Tasmanian Antarctic Gateway Strategy* (State of Tasmania, 2017) casts Antarctica’s value in a decidedly economic light, expounding a “vision ... for Tasmania to be the world’s Antarctic gateway of choice that delivers economic growth and increasing opportunity for our community” (ibid, p.6). With recent reports from the Tasmanian Polar Network placing the sector’s local worth at AU\$180 million annually (Tasmanian Polar Network, 2017) and the Tasmanian Government’s Antarctic operations sitting within the state’s economic development agency, this economic framing is perhaps unsurprising. Although a broad sweep of stakeholders from international research partners to the Australian Department of Defence are invoked in both of these policies, the voices of Hobart residents are notably absent. This absence is understandable to the extent that neither of the agencies behind these policies have a specific function relating to community development. However, it does raise the question: *where is the place in Hobart’s gateway life for citizens themselves, and for spheres of activity beyond the scientific, economic or political?*

The omission of citizens’ attitudes and priorities in gateway policy is not due to a lack of community interest. The City of Hobart’s 2018 publication *Hobart: A Community Vision for our Island Capital*—the product of extensive community consultation (City of Hobart, 2018 pp. 16–17)—gives relative prominence to the role that Antarctica plays in the hearts and minds of local residents.⁶ With statements such as “We are an island capital on the fringe of the Southern Hemisphere, a city defined by wild weather and its place as a gateway to Antarctica,” and “We are deeply connected to nature and wilderness, in, around, above and below our city” (ibid, p. 26) , this publication introduces a new kind of gateway identity that hints at a type of connection both deeper and broader than the political, economic, and scientific aspirations underpinning state and federal policies.

3 HOBART’S ANTARCTIC CONNECTIONS: A SURVEY OF CITIZEN VIEWS

At a policy level at least, these differing visions signal a potential disconnect between the gateway ambitions held by state and federal government, and those held by Hobart’s

residents. While there is evidently a high level of political and economic investment in growing Hobart's Antarctic profile, the voices of Hobart residents themselves remain largely absent from this dialogue at both a state and federal level. To address this gap, we undertook a survey of Hobart residents' concerns, attitudes, and priorities in relation to Antarctica, designed to draw out their level of engagement, and the ways in which they feel a sense of connectedness to the southern continent. The survey produced several interesting findings that suggest a need to rethink what Hobart's 'gateway' identity means, if this meaning is to include the perspectives of those who live there.

3.1 Methods

The survey of 300 adult residents of Greater Hobart was carried out between April and July 2018 by a professional Computer Assisted Telephone Interview (CATI) provider based in Hobart. A randomised sample of residential landline and mobile phone numbers sourced from the sampling firm Sample Pages was used to recruit participants. We used a quota sampling model in order to recruit a representative sample of the Greater Hobart population. To meet quota requirements, the CATI interface applies controls so that once a maximum quota for age, gender, or location has been filled, the interviewer is not able to take any more surveys with that cohort. The quotas specified a minimum of 10 male and 10 female participants from each of six age ranges specified in the survey (18–19, 20–29, 30–39, 40–49, 50–59, and 60+). These were evenly distributed across the postcodes of the Greater Hobart region. Additional participants were spread as evenly as possible across age, gender, and postcode categories. Surveys were completed anonymously and identifying information—including telephone numbers—was not recorded in accordance with our ethics approval from the Human Research Ethics Committee (Tasmania) Network (H0016640).

The questionnaire comprised two parts. The first part consisted of a series of standard questions from the Circles of Social Life approach developed by Paul James and others (2015) used as a qualitative assessment of the sustainability of cities across the domains of economics, ecology, politics, and culture. This instrument collects responses based on the subjective attitudes of community members towards the sustainability and liveability of their communities and has been used in many cities across the world.⁷ The other part of the survey was a suite of questions specifically focusing on the city's relationship with Antarctica. These questions were developed in order to measure and compare people's levels of engagement with Antarctic issues, and their concern about ecological, political, cultural, and economic

decisions made in relation to Antarctica in their city. This instrument was also used in surveys undertaken in Punta Arenas and Christchurch as part of an Australian Research Council Linkage Project focussed on the Antarctic gateways.⁸ Questions on engagement and concern used five-point Likert-scale measurements of agreement/disagreement and concern/unconcern. As these generated ordinal rather than continuous data, Spearman Rank Order Correlation (ρ) was used to analyse the relationship between these variables, and Mann-Whitney U tests were used to compare between groups difference (Pallant, 2013).

Statistical analysis was carried out using IBM SPSS. In order to reduce any residual sampling bias, rim-weighting (Peck, 2011) was performed in SPSS as recommended by Hahs-Vaughn (2005) to adjust the sample to conform to Greater Hobart gender and age demographics as found in the Australian Bureau of Statistics 2016 Census. However, it is worth noting that while the sample contained a good representation of the gender, age, and geographical spread of Greater Hobart residents, it contains a high proportion of more affluent people, with 72% describing themselves as ‘comfortable’, 18% as ‘well-off’, only 11% as ‘struggling’ and less than 1% as ‘poverty-stricken.’ The sample is also skewed toward more educated people, 61% having a university degree, compared with 21% in the 2016 Census. Under-representation of less advantaged and educated social groups is a common challenge for optional surveys (Richiardi et al., 2013). While using alternative methods to reach hard-to-sample groups was not feasible for this project, future research should be designed to include the perspectives of these citizens.

This survey was quantitative only, so was not able to investigate the full range of economic, political, social, affective, and material connections that characterise individuals’ relationships with Antarctica. It is designed as the first step in an ongoing program of research by members of the authorship team that will later include in-depth interviews designed to draw out nuances in citizens’ relationship with Antarctica.

It is also important to remember that this survey was conducted prior to the COVID-19 pandemic. Although Antarctica was free of the virus for much of 2020, and cases have been diagnosed in station personnel of only one Antarctic program (Chile’s), most national programs have been strongly impacted in various ways (see e.g. Australian Antarctic Division, 2020). As with its international counterparts, Hobart’s ability to meet the traditional gateway functions of facilitating mobility of people and resources to and from the continent will be

limited as long as global movement continues to be restricted. It is impossible to predict how, and how much, the pandemic will affect the Southern Rim cities' relationship with Antarctica. Whether (as we suspect) the flow of people and resources to and from Antarctica continues to grow and diversify once global restrictions are lifted, or changes substantively due to the impact of the pandemic, our results will form an important baseline against which future research can be compared.

3.2 Results and discussion

The survey showed that Hobart residents report varying but generally strong levels of personal connection to Antarctica. In the last year, one in eight participants had been directly involved in economic activities relating to Antarctica; almost a fifth had participated in Antarctic tourism activities (this could include gateway tourism such as visiting the Mawson's Huts Replica Museum in Hobart); and more than a third had visited an exhibition, festival or cultural activity focussed on Antarctica.

Asked about their concerns in relation to Antarctica, Hobart residents were primarily worried about environmental impacts from global warming (Figure 3). A large majority (85%) expressed more than a little concern about melting ice; this is higher than the average national level of concern about melting ice caps in 2018, which was 72% (Bennett, 2018). Concern about ice melt may be reinforced by the visible presence of Antarctic and climate research in Hobart (Lucas, 2018). Our survey found that a large majority (86%) of Hobart residents are concerned, very concerned, or passionately concerned about climate change. There are no published data on how concern about climate change in Tasmania compares with that in other Australian states. While caution must be exercised in comparing studies, as the questions and scales used to measure concern differ from study to study, the level of concern reported in our survey is higher compared with nationally representative surveys. Reser et al. (2012) have reported 66% of Australians report being concerned about climate change, while in the same year as the Hobart survey, Bennett (2018) has found that 75% of Australians were concerned about the impacts of climate change. That Hobartians may have a higher level of concern about climate change than the Australian average is borne out by the city's political representation. The federal seat of Clark has been safely held since 2010 by Andrew Wilkie, an ex-Greens party independent with a strong record on climate change, and at a local

government level, four of 12 elected members of the City of Hobart (including the Lord Mayor) campaigned predominantly on environmental issues including climate change.

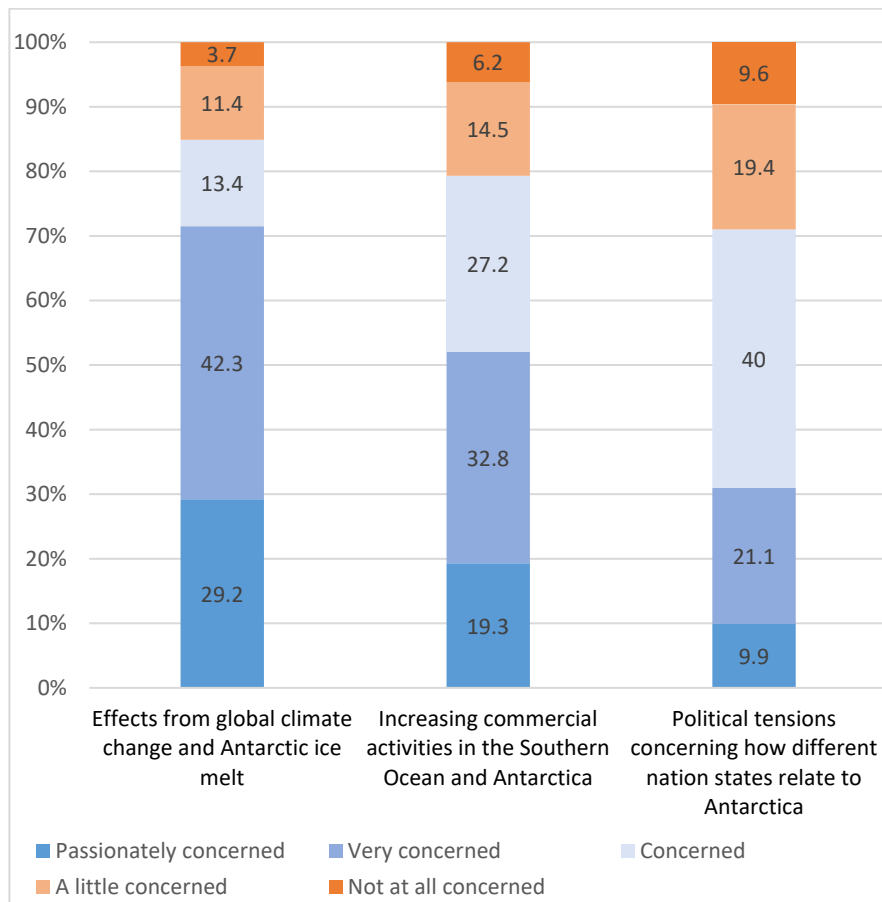


Figure 3: Hobartians' levels of concern about climate change, commercial activities, and political tensions relating to Antarctica

Seventy-nine per cent of participants were more than a little concerned about increasing commercial activities in the Southern Ocean and Antarctica. This finding could reflect concerns about fisheries that Hobartians have absorbed from media reporting of CCAMLR meetings; about the impact of the rapidly increasing numbers of tourists (although very few of these pass through Hobart itself); or about the spectre of mineral exploration sometime in the future.⁹ A smaller but still significant majority (71%) said they were more than a little concerned about the political tensions over Antarctica between different nation states, although levels of concern were typically lower for this question. The survey took place while CCAMLR debates about Marine Protected Areas in Antarctica were very current and may reflect local media coverage of the event. As there is no existing research on whether coverage of Antarctic issues in the Tasmanian mainstream media exceeds or differs from

national coverage, this remains speculative, but the survey results show that 91% of participants reported that they had read or heard something in the news pertaining to Antarctica in the last year. Taken together, these findings suggest strong engagement with Antarctic issues in Hobart, and a focus on environmental impact rather than economic and political issues.

Perhaps the most striking result of our research is that 91% of those surveyed felt that Hobart should play a significant role in the custodianship of Antarctica's future (Figure 4). This represents the strongest level of agreement of all of the questions posed, suggesting that the idea of custodianship in relation to Antarctica resonated with those surveyed.

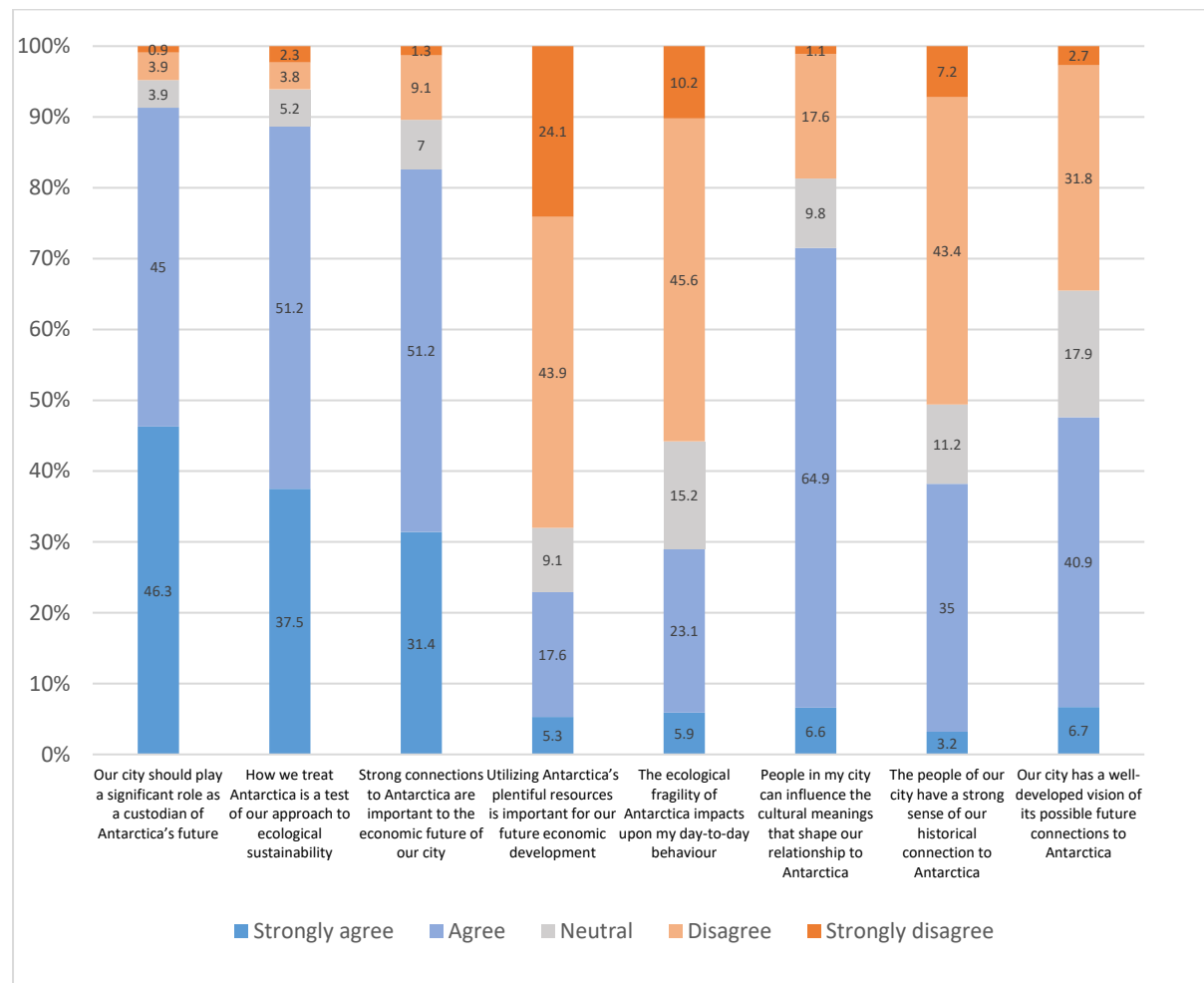


Figure 4: Attitudes to Hobart as an Antarctic city

In our work we have mobilised the term custodianship for its connotations of protection, care, and responsibility, while avoiding a suggestion of ownership—an important factor in post-

Treaty Antarctica. In particular, our argument that Hobart and the other recognised Antarctic gateway cities are moving from gateway cities to a more custodial, advocacy role is a key finding in thinking about the social transformations of places relating to environmental degradation and environmental protection. The survey results suggest that participants felt that Hobart's relationship to Antarctica should go beyond the neutrality of an exit/entry function to include an ethics of care towards the continent's future. While the question referred to the city in the abstract rather than its inhabitants, the very high positive result on this question indicates that the idea of custodianship could be a way of galvanising citizens to take a more active part in promoting, discussing, and debating Antarctic issues.

While custodianship concept was embraced by survey participants, the term also raises issues in the settler colonial context that characterises all of the Antarctic gateways. The five cities have comparable histories of colonial violence, episodes of genocide, and land grabbing, as well as expedient hinterlands for environmental exploitation by extractive industries from forestry to oil and gas. Given these histories, together with Antarctica's own historical and cultural associations with settler colonialism (Howkins, 2010), it is highly problematic that non-Indigenous Tasmanians assume custodianship over a continent without an Indigenous population, at a time when the past treatment of Indigenous people in Tasmania itself is only beginning to be addressed. The New Zealand context is instructive here. Christchurch's city government has embraced the idea of custodianship in its Antarctic strategy, stating that "Christchurch has an important responsibility to the Antarctic region—to uphold the values of the Antarctic Treaty to retain the Antarctic region for peace and science" (Christchurch City Council, 2018, p. 11). However, in the strategy, the idea of custodianship is explicitly linked to the Maori concept of *kaitiakitanga*, meaning "guardianship and protection of the environment" (Christchurch City Council, 2018, p. 13). Since the strategy appeared, a research project "Māori and Antarctica: Ka mua, ka muri" has been launched "to engage Māori hapū and iwi in a *kōrero* about their history of connection to Antarctica and the Southern Ocean and their aspirations for voice and representation in New Zealand's Antarctic science, governance and policy in the future" (Māori and Antarctica, n.d.). These initiatives point to a way forward for Hobart and the other gateways to embrace the idea of a custodian city that is inclusive of Indigenous understandings of this term and cognisant of longstanding Indigenous relationships with the Antarctic and Southern Ocean region.

Large majorities of survey participants also agreed both that our treatment of Antarctica is a test of our approach to ecological sustainability (89%), and that strong Antarctic connections are important for Hobart's economic future (83%). Ecological custodianship and economic connections are not contradictory, according to our participants. There was a significant positive correlation between the importance placed on Antarctica for Hobart's economic future, and the importance of its ecological sustainability (Spearman's $\rho=.33$, $n=300$, $p<.001$). This result suggests that Hobart residents feel that significant economic benefits from non-extractive and low-impact Antarctic activities (such as scientific research and possibly tourism), rather than primary resources, should be the basis for the city's current and future economic relationship with Antarctica. This finding is supported by 68% of participants disagreeing that using Antarctic resources should be the basis for future economic development.

Neither gender, age, education, nor participation in Antarctic economic or tourist activity appeared to have significant effects on participants' attitudes to Hobart as an Antarctic gateway. However, participants who reported having attended an exhibition, festival or cultural activity focussed on Antarctica in the last year were significantly more concerned and engaged with Antarctic issues on 12 out of 13 questions (Table 1). While this finding does not imply causality—it might be expected that people who are engaged in Antarctic issues are more likely to attend such events—it is evidence of a strong and committed interest in Antarctic issues in a large sector of Hobart's population.

Question (1= 'not at all concerned/strongly disagree, 5=passionately concerned/strongly agree) N=299	Mean rank (MR) and median (Md) response of those who attended an Antarctic event/ exhibition in last year	Mean rank (MR) and median (Md) response of those who did not attend an Antarctic event/ exhibition in last year	Mann- Whitney U	Significance (Bonferroni adjusted significant $p \leq .004^{10}$)	Effect size (r) small=.1 medium=.3 large=.5 (Cohen, 1992)
Effects from global climate change and Antarctic ice-melt.	MR 196.38 Md 4	MR 153.93 Md 4	9935	.0001	Small (.23)
Increasing commercial activities in the Southern Ocean and Antarctica.	MR 195.81 Md 4	MR 154.26 Md 3	10006	.0001	Small (.23)
Political tensions concerning how different nation-states relate to Antarctica.	MR 183.70 Md 3	MR 146.46 Md 3	9024	.0001	Small (.21)
Disagreement over what Antarctica means as a symbol of our planet's common future.	MR 167.02 Md 3	MR 137.33 Md 3	9693	.003	Small (.17)
How we treat Antarctica is a test of our approach to ecological sustainability.	MR 196.65 Md 5	MR 151.38 Md 4	7963	.0001	Small-medium (.26)

Strong connections to Antarctica are important to the economic future of our city.	MR 197.05 Md 4	MR 153.08 Md 4	10929	.0001	Small-medium (.25)
Local government makes decisions that are informed by the city's existing connections with the Antarctic region.	MR 159.40 Md 4	MR 133.26 Md 4	9650	.005 (NS)	
People in my city can influence the cultural meanings that shape our relationship to Antarctica.	MR 170.16 Md 4	MR 155.60 Md 4	10737	.111 (NS)	
The ecological fragility of Antarctica impacts upon my day-to-day behaviour.	MR 194.6 Md 3	MR 152.45 Md 2	9858	.0001	Small (.24)
Utilizing Antarctica's plentiful resources is important for our future economic development.	MR 142.49 Md 2	MR 179.72 Md 2	9880	.0001	Small (.21)
Our city should play a significant role in asserting its place as a custodian of Antarctica's future.	MR 189.10 Md 5	MR 157.15 Md 4	10737	.001	Small (.19)
The people of our city do have not a strong sense of our historical connection to Antarctica.	MR 142.31 Md 2	MR 182.00 Md 4	9858	.0001	Small (.22)
Our city has a well-developed vision of its possible future connections to Antarctica.	MR 177.14 Md 4	MR 149.09 Md 3	9718	.005 (NS)	

Table 1: Results of Mann-Whitney U tests comparing the responses of participants who had attended an Antarctic cultural event in the last year with those who had not

Questions on Hobart's historical and future connections with Antarctica divided the participants more than any other topic. Thirty-eight per cent of participants felt that residents had a strong sense of the city's historical connection to Antarctica, but 51% disagreed, and 11% were neutral on this question. Those who felt that the city had a strong sense of its historical connection were also more likely to feel that it had a well-developed vision of its future relationship with Antarctica. Between groups difference was tested using a Mann-Whitney U test ($U=6328$, $z=15.27$ $p<.001$, $r=.94$), a large significant effect: see Figure 5). Overall, 48% believed that the city has a well-developed vision for the future of Hobart's Antarctic relationship, but 35% disagreed, and 18% were neutral on this question. Among those who believed Hobart has a strong sense of its Antarctic history, 40% agreed that the ecological fragility of Antarctica influenced their everyday behaviour, compared with 22% of those who feel that the city has a weak sense of its Antarctic history ($U=5049$, $z=2.27$ $p<.05$, $r=.14$), a small significant effect (Figure 5). These findings reinforce the importance of cultural and historical artefacts, interpretation, and events in engaging citizens with Hobart's past, present, and future relationships with Antarctica.

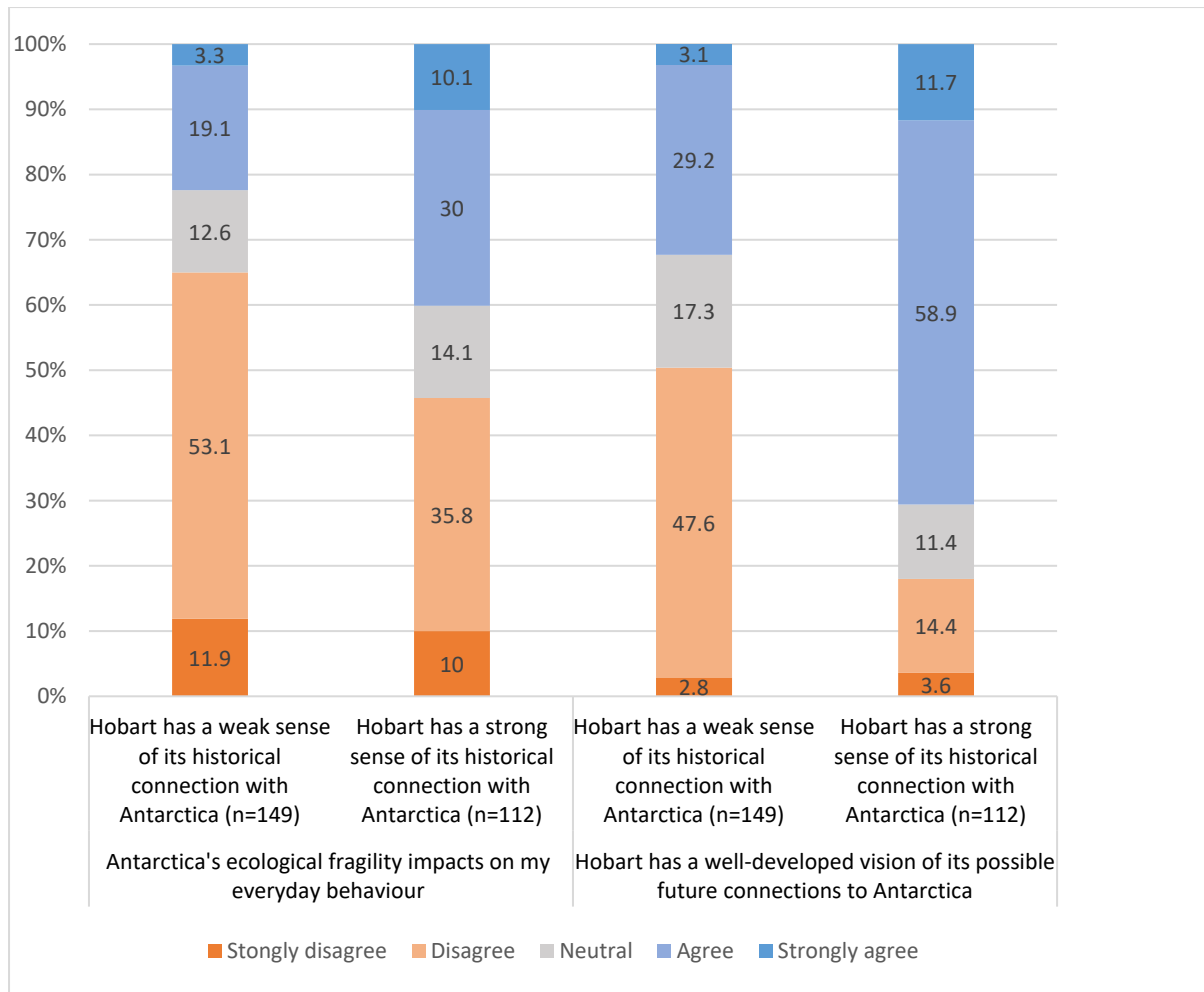


Figure 5: Comparison of responses of participants who feel Hobart has a strong sense of historical connection to Antarctica, with those who do not

4 CONCLUSION

The results of this study show that residents of Australia's polar gateway—Hobart—are highly engaged with Antarctic issues and are particularly concerned about the protection of Antarctic environments and ecology. Prioritising environmental sustainability is seen to be consistent with retaining the economic benefits of the city's connection with the southern continent. Hobartians' sense of connectedness with Antarctica is underpinned by a historic relationship that is reinforced through cultural infrastructure and events. These results suggest that the city's associations with Antarctica go beyond the traditional economic understanding of a 'gateway' and put that metaphor, with its connotations of flow of people and resources through the city, into question. As the strongest positive response in the Antarctic section of the survey was to the proposition that "Hobart should play a significant role in the

custodianship of Antarctica’s future,” the term custodian city may be a better descriptor of Hobart as seen by its own citizens.

Hobart is only one of the five ‘Southern Rim’ cities that in 2009 entered into a cooperative agreement focused on their relationships with Antarctica. While Hobart shares with several other of the cities many features—including its regionality, violent settler colonial history, and comparatively small size—there are also substantive differences across the group. These differences mean that collection, analysis, and comparison of survey data between and across the five cities are necessary to fully understand their relationship with Antarctica.¹¹ Nonetheless, the findings of this article raise useful questions for all of the Southern Rim cities.

We have shown that incorporating the perspectives of citizens provides a more complete picture of what it means to be a Southern Rim city. Greater attention to the concerns and priorities of their own residents may lead the governments of southern cities to reconsider their role in policy setting, with the potential of transforming these cities from Antarctic transport hubs into custodians of Antarctica’s future.

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¹ Under the Antarctic Treaty, to which both Australia and China are signatories, a signatory nation can build a scientific research station in any part of Antarctica, subject to environmental regulations.

² An exception to this trend is Herbert (2014), whose PhD thesis is an ethnography of place-making in Ushuaia.

³ These are the secretariats of the Commission for the Conservation of Antarctic Marine Living Resources and the Agreement on the Conservation of Albatrosses and Petrels.

⁴ The Antarctic Treaty has no expiry date and continues indefinitely. While there is frequent debate in the Western media and in scholarship about China's intentions in Antarctica, China is a signatory to the Antarctic Treaty and to its Environmental Protocol prohibiting mineral exploitations.

⁵ Authors' translation. Original text: 'Desarrollar y promover a la Región de Magallanes y Antártica Chilena como un centro de actividad antártica nacional e internacional...'

⁶ According to the City of Hobart's publication, the Community Vision's consultation process included 214 interviews, a two-day forum attended by 116 people, over 530 surveys, a workshop with 50 primary school students, and ongoing deliberation from a panel of 46 community members (City of Hobart, 2018, p.16-17).

⁷ The Circles Project is convened by the Institute for Culture and Society at Western Sydney University, Sydney, and the Senate Department for the Environment, Transport and Climate Protection, Berlin. See <https://www.circlesofsustainability.org/about/about-us/>.

⁸ For a report on the project which summarises and compares survey results of the Hobart survey with similar ones conducted in Christchurch and Punta Arenas, see Salazar, James, Leane, Magee and Martin-Valdez, 2021.

⁹ The view, expressed in the media by Cassy O'Connor (see above), that the Antarctic Treaty or the Protocol on the Environmental to the Antarctic Treaty expire or will be inevitably reviewed in 2048, is widespread, although erroneous, as neither the Treaty nor the Protocol expire (Gilbert and Hemmings, 2015). This view might exacerbate people's fears about mineral exploitation, which the Protocol prohibits.

¹⁰ When conducting multiple analyses on the same dependent variable, the chance of committing a Type I error is greater, so a significant result may emerge by pure chance. To avoid this, a Bonferroni adjustment is a conservative measure that requires a more stringent p value for significance, by dividing it by the number of tests conducted.

¹¹ Salazar, James, Leane, Magee and Martin-Valdez provides a preliminary summary of a 2020 survey conducted across the five cities.