ENVIRONMENTAL RESEARCH
LETTERS

LETTER

Three ways social identity shapes climate change adaptation

Jon Barnett[1], Sonia Graham[2,3,*], Tara Quinn[4], W Neil Adger[4] and Catherine Butler[4]

[1] School of Geography, University of Melbourne, Melbourne, Australia
[2] School of Geography and Sustainable Communities, University of Wollongong, Wollongong, Australia
[3] Institut de Ciència i Technologia Ambientals, Universitat Autonoma de Barcelona, Bellaterra, Spain
[4] Department of Geography, University of Exeter, Exeter, United Kingdom
[*] Author to whom any correspondence should be addressed.

E-mail: sgraham@uow.edu.au

Keywords: continuity, flood, sea-level rise, self-efficacy, self-esteem

OPEN ACCESS

RECEIVED
21 January 2021

REVISED
31 October 2021

ACCEPTED FOR PUBLICATION
5 November 2021

PUBLISHED
24 November 2021

Original content from this work may be used under the terms of the Creative Commons Attribution 4.0 licence.

Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

Abstract

Adaptation to climate change is inescapably influenced by processes of social identity—how people perceive themselves, others, and their place in the world around them. Yet there is sparse evidence into the specific ways in which identity processes shape adaptation planning and responses. This paper proposes three key ways to understand the relationship between identity formation and adaptation processes: (a) how social identities change in response to perceived climate change risks and threats; (b) how identity change may be an objective of adaptation; and (c) how identity issues can constrain or enable adaptive action. It examines these three areas of focus through a synthesis of evidence on community responses to flooding and subsequent policy responses in Somerset county, UK and the Gippsland East region in Australia, based on indepth longitudinal data collected among those experiencing and enacting adaptation. The results show that adaptation policies are more likely to be effective when they give individuals confidence in the continuity of their in-groups, enhance the self-esteem of these groups, and develop their sense of self-efficacy. These processes of identity formation and evolution are therefore central to individual and collective responses to climate risks.

1. Introduction

Identity is the emotionally significant self-image of an individual which is derived from their membership of social groups, often referred to as in-groups (Tajfel 1974). A positive identity is the product of confidence in the continuity of in-groups, and a sense of self-efficacy (belief in capacity to exert control), distinctiveness, and self-esteem (sense of worth) (Breakwell 2015). It is a key factor in individual behaviour as people seek to act in ways that are consistent with the norms of their in-groups.

People are aware of and sensitive to threats to their identity, which can arise from changes in social or environmental circumstances, or through labelling by others. Faced with such threats, individuals can respond in several ways, including by changing their behaviour, adapting their identity, denying the existence of the threat, or accepting the existence of a threat but not otherwise changing their identity or behaviour (Breakwell 2010, Jaspal *et al* 2014).

Identity has been highlighted as an important factor in many environmental domains, including on ethical consumption, pro-environmental behaviours, climate change activism, leadership of environmental change initiatives, and sharing of information about sustainability (Whitmarsh and O'Neill 2010, Jaspal *et al* 2014, Unsworth and Fielding 2014, Sapiains *et al* 2016). Emerging research suggests that social identity, and its sub-dimensions of distinctiveness, continuity, self-esteem, and self-efficacy, can also affect climate change adaptation (Frank *et al* 2011, Fresque-Baxter and Armitage 2012, Quinn *et al* 2015, Wernersson 2018, Ruoso 2019). We therefore posit three key mechanisms through which identity formation and climate adaptation interact. Specifically, social identities can be an objective of adaptation, they can change in response to climate change information, and they can constrain or enable adaptive action. The dimensions of relationships between identity and adaptation are outlined in table 1.

© 2021 The Author(s). Published by IOP Publishing Ltd

Table 1. Critical issues on the relationships between identity and adaptation and relevant theoretical approaches.

Identity is the emotionally significant self-image of an individual that is derived from their membership of in-groups.	
Research question	Theoretical proposition
How does climate change threaten identities?	Identities may be threatened by: potential or direct experiences of climate impacts, or climate change policies, which put at risk the continuity or distinctiveness of in-groups, and senses of self-esteem and self-efficacy.
How do identities respond to climate threats?	Identities may respond by: denying the existence of climate change threats; accepting the need for behavioural and policy change; transformation through changes to in-group and/or self-images.

Maintaining and defending identity can be an objective of adaptation, for example among Indigenous groups who are struggling to hold tight to place-based and long-lived cultures that distinguish them from Western and settler cultures (Frank *et al* 2011, Rotarangi and Stephenson 2014, Eakin *et al* 2019). In cases where communities are tied to specific localities, social constructions of place, or place identity, include the identity of people that belong to them and so place identity has a strong influence on identity (Adger *et al* 2011). Nevertheless, social identities are not necessarily based on place, identities are intersectional in that they arise in response to multiple social constructions of difference (such as class, gender, nationality, and race), and this transpires at the collective (in-group) level as well as the individual level.

Maintaining identity is also critical to responses to climate impacts among groups whose occupational identity is tied to natural resources and management practices (Warner *et al* 2015, Hyland *et al* 2016), such as fishers (Coulthard 2009), farmers (Ruoso 2019), ranchers (Murphy *et al* 2017) and pastoralists (Wernersson 2018). The observation that experience of environmental change is a good predictor of adaptive behaviours may be explained by understanding those experiences as threats to identity that stimulate adaptive responses (Demski *et al* 2017).

There is some evidence that identities are responding to exogenous framings of in-groups as being more or less vulnerable to climate change (table 1). For example, people from low-lying islands framed as future climate migrants have shifted towards understandings of self that are more fixed in place or towards identities that are oriented towards transnational mobility (Farbotko *et al* 2016). The identity of places and the people tied to them may also be changing in response to climate impacts (Brown *et al* 2011). Nightingale (2017) shows how adaptation policy intersects with identity politics in Nepal, with political framings of diverse groups as being similarly vulnerable mapping onto the positions of political parties impeding recognition of the particular needs of local actors. Thus, because identity is intersectional, the response of identities to climate change is shaped by more than climate change's materiality, but also in response to the discourses of vulnerability and adaptation that redefine the positions of subjects and shape their entitlements to resources (Eriksen *et al* 2015, Nightingale 2017).

Identities are further implicated in enabling and constraining adaptation. Adaptation policies and practices receive greater support when climate change is portrayed as a threat to issues that are important for identity and when information about climate risk and responses is exchanged between groups with similar identities (Frank *et al* 2011, Sapiains *et al* 2016, Eakin *et al* 2019). By contrast, adaptation policies and practices that threaten the continuity of Indigenous and local identities are often strongly resisted (Mortreux and Barnett 2009, Neilsen and Reenberg 2010, Eriksen *et al* 2015). Similarly, dramatic messages of climate induced catastrophe threaten people's desire for continuity, control, and self-efficacy, and so are often denied or minimised, especially when no information about ameliorating behavioural change is available (O'Neill and Nicholson-Cole 2009, McCright and Dunlap 2011, Jaspal *et al* 2014).

There is mixed evidence about the effects of identifying with proximate and distant groups on support for adaptation policies and practices. Some studies have shown how a strong place identity can inhibit recognition of local environmental changes, and erode the legitimacy of adaptation at local scales (Bonaiuto *et al* 2002, Quinn *et al* 2019). Other studies have highlighted that sharing a sense of common cause with distant others who are risk from climate change can stimulate changes in individual behaviours and a sense of solidarity (Fresque-Baxter and Armitage 2012, Devine-Wright *et al* 2015, Adger *et al* 2017).

Understanding how climate change affects identity, and identity in turn affects climate change responses is, we suggest, a critical knowledge frontier, and there is a strong call for more empirical research to further understanding of these connections (Fresque-Baxter and Armitage 2012, Adger *et al* 2013, Eakin *et al* 2019). Table 1 therefore outlines the key research questions and associated theoretical propositions that help guide this contribution as well as further research.

2. Identity and adaptation in two vulnerable communities

We provide answers to the research questions in table 1 by synthesising findings from two detailed datasets about the responses of individuals to immediate risks from flooding and subsequent policy action in Somerset county (UK), and to long-term changes in sea-level and associated policy responses in Gippsland East (Australia). As explained below, these studies were conducted independently, but the studies have common characteristics that make synthesis across them meaningful. Both studies were conducted by social scientists who have a shared understanding of the social dimensions of climate change adaptation (e.g. Adger *et al* 2013, 2017, Quinn *et al* 2015, Graham *et al* 2018), and both used a similar methodology (see below). Further, in both places, flooding is the principal hazard, both are rural communities, and climate change is the overarching discursive and governance frame through which flooding has been understood. We do not claim that these results can be generalised across climate risks in all locations, not least because both studies were of communities in high-income countries. Nevertheless, our comparative synthesis of in-depth interview and focus group data from these two studies enables identification of the common and distinct elements of identity that are threatened across these different cases, and the responses of varied identities to different climate threats.

In Somerset, flood-affected residents were interviewed in September–October 2014 (6 to 8 months after the floods) and in April–May 2015. In the 1st round, 35 residents were interviewed (P1), and a subset of 25 residents took part in the 2nd round (P2). Interviews were conducted with residents who had been flooded in their homes directly, and those living in affected villages but who had not been inundated in their homes. Interview questions focused on residents' relationships with the place where they live, and how social and place relationships were affected by flooding. Stakeholders with a professional interest in flood risk management were also interviewed ($n = 52$) (for more details see Butler *et al* 2018).

In Gippsland East, two sets of face-to-face semi-structured interviews were conducted. Between November 2010 and March 2011, interviews were conducted with 30 key stakeholders with an interest in adaptation to sea-level rise, including policy makers, members of key community groups, and local government representatives. The key stakeholder interviews included questions about climate change risks of concern, with a focus on understanding people and places vulnerable to sea-level rise. In April–May 2012, interviews (I) were conducted with 42 coastal residents who had been flooded in their homes directly, and those living in affected villages but who had not been inundated in their homes. Interview questions focused on residents' relationships to the places they live and visit, the social groups they engage with, and how social and place relationships are affected by flooding. Alongside the interviews, eight focus groups (FG) were held with residents ($n = 49$) in at-risk communities in March and April 2013. Questions in the FGs explored residents' relationships to the places they live, their experiences with flooding and how sea-level rise may affect their relationships to these places and the people who live in them (for more details about the methods see Graham *et al* 2018).

For the analysis here, interview transcripts were analysed thematically using NVivo qualitative data analysis software. Two authors coded both English and Australian datasets. The data were analysed under a pre-determined coding framework based on the orienting concepts (Layder 2013) that constitute identity, as defined above, i.e. self-efficacy, self-esteem, distinctiveness and continuity. Data were coded according to whether it reflected in-group or out-group identity (groups that the respondent does not identify with), and whether it captured how identities changed with flooding and adaptation processes. The direct quotes reported are primarily selected to be as diverse as possible to show the range of ways identities were expressed by residents and stakeholders.

2.1. Floods and identity in Somerset

Somerset has a long history of living with water. The name derives from Old English meaning land of summer lakes; low lying parts of Somerset have been drained and reclaimed from seasonal wetlands and lakes over centuries. Even with this drainage, the long association with flooding in the area is documented following draining from 1400 and references to flooding from the 1700s (McEwen *et al* 2014). This history and the landscape associated with wetland areas has led to residents developing a sense of place that reflects living with water (McEwen *et al* 2014). The present population in Somerset is older than the UK national average, and many respondents in the analysis here referred to retirement plans in the area, or relocation from urban areas. The perceived rural escape alongside the topography forms part of a distinct identity of place.

Living with localised flooding is part of the landscape, culture and history of lowland Somerset, with parts of agricultural land commonly being inundated in winter. However, the nature (flooding of homes), duration and spatial extent of the floods in winter 2013/14 marked these floods as a new experience for locals. Unlike previous flooding in the area, these extensive and catastrophic floods were the subject of nation-wide media reporting, which has entangled residents in local, national and global discussions of

climate change risks and responses (Demski *et al* 2017).

Interviews in Somerset suggest that the floods had two principal effects on identities. First, many respondents suggested that the floods undermined their confidence in the continuity of their local communities. One respondent explained that flooding is 'like this big black cloud that hangs over the whole village, the whole time. I just do not see a way out of that really' (I5 P2, Somerset). Second, the response of emergency management agencies during and after the floods was a threat to the sense of self-efficacy necessary for a positive identity: 'one of the things that engenders fear if you like, in people and stress and all the other things, is not having any information or being condescended to by the authorities' (I12 P1, Somerset). Fears over the loss of continuity in and control over their local communities and places of dwelling resulted in receptiveness to adaptation processes that were subsequently proposed and enacted, including residents becoming actively involved in developing adaptative actions at different scales.

The evolution of identities in Somerset in response to flooding was two-fold. First, while the floods did not transform identities, they contributed to new bases for identity formation, i.e. people began identifying with others in their communities according to whether or not they had been flooded: 'even people a couple of doors down who were not flooded, they did not have much of a clue, really…[so] it was nice to be able to go and talk flooding with people' (I22 P1, Somerset). Second, respondents expressed new bases of identification with others outside of their communities in similar circumstances: 'we felt like refugees, you could empathise what refugees were like and what the situation's like for them' (I2 P1, Somerset).

Residents accepted the need for adaptation, which was enabled in part by these processes of identification with distant others at risk of flooding, including with those that were taking adaptive action: 'why are not we engaging more with the Dutch who historically helped drain the land here [and are now] looking at more radical solutions?' (I4 P1, Somerset).

2.2. Floods and identity in Gippsland East

The research here reveals core characteristics of community identity in the study areas in Gippsland East. Notwithstanding quite distinct social positions and associated identities within each community (see Graham *et al* 2018), across the five towns involved in the research there was shared sense of people and their ancestors having made these communities during the settler period through hard work, and that that work had produced peaceful and amenable social and natural environments (Fincher *et al* 2014, 2015). Thus there was very much a sense of shared colonial history, self-efficacy, and pride in the communities involved in the study.

Part of this identity involves controlling and living with environmental perturbations, particularly flooding (but also fire). Indeed, many towns around the Gippsland Lakes are prone to coastal and riverine flooding and these can be most disruptive. The most recent disruptive flooding occurred in 2007, with some minor flooding in 2012. Other minor coastal flooding from king tides is a semi-regular occurrence. Disruptive flooding is expected to become more frequent with climate change as sea levels continue to rise (DCC 2009). Almost all local communities are socially disadvantaged, and the region is stigmatised for being both flood prone and in decline, which conflicts with local people's sense of pride and efficacy.

Between 2010 and 2012 the town of Lakes Entrance became a test case for planning for climate change after a state planning tribunal found that the local government had failed to take account of sea-level rise in its decisions, and restrictions on development were then imposed (Hurlimann *et al* 2014). Amid local concerns about economic and population decline, these adaptation decisions can be seen as having undermined people's self-efficacy, and their confidence in the continuity of their local ingroups. Policy makers 'came in with a baseball bat… They just destroyed everyone's confidence' (I1, Lakes Entrance). The planning decisions also undermined self-esteem of the local community: '[they] put a really negative spin on the town' (I1, Lakes Entrance) and 'the doubts about rising water levels, which are affecting planning decisions, have stopped any prospect of anybody spending any money upgrading the place' (I2, Lakes Entrance). Similar effects on ingroup identities were observed in the other communities, where planning decisions were described as 'destroying us' (FG1, Seaspray), 'unsettling for everyone in the community' (I2, Port Albert), where residents feel they have been 'blacklisted' (I2, McLoughlins Beach) and cannot move on in their life 'because of everything that's been publically said' (I1, Manns Beach).

Yet the decisions did not undermine self-efficacy. A principal response to the threat to local continuity in all five towns was the construction of narratives of resilience to flooding. For example, respondents said 'it was happening when our grandfathers were here… it is not a new phenomenon' (I3, Lakes Entrance) and 'if I get flooded out, so be it… you let it flood… I am not stressed about the floods'. (I1, McLoughlins Beach). Others stressed the importance of flooding to the local environment, and normalized it, saying 'I find floods very interesting, quietly entertaining events' (I5, Lakes Entrance), and 'I love the floods… it just brings all this beautiful fresh water down into the lakes' (FG3, Lakes Entrance).

Table 2. Summary of identity responses to climate change in Somerset and Gippsland East.

Identity is the emotionally significant self-image of an individual which is derived from their membership of in-groups.	
Research question	Evidence from cases
How does climate change threaten identities?	In Somerset the magnitude of flooding threatened the community's confidence in its ongoing continuity, and the disaster response and recovery processes threated the community's self-esteem and self-efficacy. The distinction between those who were flooded and those were not also created new bases of distinctiveness and solidarity with local and distant others. In Gippsland East the imposition of planning restrictions to manage flood risk threatened the community's confidence in its continuity and its sense of self-esteem.
How do identities respond to climate threats?	In Somerset identities evolved to include flood risk as both part of the local identity within the community and increasingly with distant others, and to accept that adaptation is necessary. There was little evidence of significant change in identities. In Gippsland East local identities related to resilience were challenged and this resulted in the rejection of warnings of climate change risks, with locals asserting their capacity (self-efficacy) to adapt, and identifying with distant others who share flood risks but not planning responses to those risks. There is little evidence of identities evolving to accept the need for change.

Another response of people was to identify with other groups in Victoria similarly at risk but not subject to planning restrictions. For example, respondents referred to a wealthy Melbourne suburb saying that 'the risks that face towns like Lakes Entrance, are no different to the risks that face St Kilda esplanade' (KS1, Lakes Entrance). Through these logics most respondents effectively denied the threat of flooding to the continuity of communities, and in so doing rejected the need for adaptation: 'we do not need all this crap that they sit there and put on us. They do not live here. They do not see what is going on here. It does not flood. It does not do all these things. It is just a normal place' (FG1, Port Albert).

Table 2 summarises how climate change impacts and adaptation processes can both threaten identities and cause them to evolve and adapt across these different locations. As we explain below, these findings have important implications for adapting to climate change.

3. Discussion

The research here provides evidence for three key mechanisms through which identity formation and climate adaptation interact, namely that: social identities can be an objective of adaptation, they can change in response to climate change information, and they can constrain or enable adaptive action. These mechanisms are evident in the specific cases of flood risk and externally-imposed government responses to future risks.

First, in both Somerset and Gippsland East cases identities are explicitly an object of adaptation. In both cases the continuity of in-groups, in-place, are threatened, by flooding (in Somerset), and by government responses to anticpated amplified flood risk due to climate change (in both Somerset and Gippsland East). The desire to maintain in-group continuity thus appears to be key to understanding community responses to adaptation imperatives, which were somewhat accommodating in Somerset in response to the experience of flooding, and somewhat resistant in Gippsland East in response to government directives.

Second, identities change in response to climate change information. In Somerset there is a long association with flooding but the 2013/14 experience exceeded and surpassed previous experiences and expectations. The increased discussion of climate change, and exchanges with agencies on future adaptation plans framed by climate change projections re-situated the perception of living with water in Somerset. In particular, respondents frequently mentioned other populations experiencing the impact of climate change, including displaced people elsewhere, and the work of Dutch engineers was mentioned in discussion of responses. This identification with distant others was used to frame the respondent's own experience, and positioned the residents themselves withing a wider geopolitical landscape. In Gippsland East, government attempts to facilitate adaptation led to a reinforcement of the existing colonial identity in as much as historical associations and self-efficacy and self-esteem were strongly reasserted as reasons to deny that flooding was a problem and so, in turn, to resist the idea that adaptation interventions were necessary. This strong reassertion of communities being in control, and good places to live, was also stimulated by the stigmatisation of these communities as being in decline.

Third, the research here shows how identities can enable or constrain adaptation. The experience in Somerset suggests that elements of identity tied to belonging to and confidence in the local community can enable adaptation. When people observe climate

threats to their in-group they appear more likely to accept the need for adaptation to sustain the continuity of their communities. This implies that interventions for adaptation can be enabled after extreme events, and through engagement processes that work with the self-efficacy and self-esteem of communities. They may also be enhanced by building a network that enhances solidarity among similarly adapting communities, through which knowledge and empathy can be shared.

The experience in Gippsland East suggests that identity can also present challenges for adaptation. When adaptation policies are not calibrated with local acceptance of climate change, communities may perceive such policies as threats to their continuity. Desire for continuity and damage to self-esteem leads to denial of the existence of climate risks, in part by stressing their resilience and by downplaying the distinctiveness of their circumstances. Adaptation processes must recognise local identities and experiences and tolerances of risk, and work with communities to find solutions that provide confidence in continuity and which build on senses of self-efficacy.

Our study has demonstrated the value of understanding climate change adaptation though a social identity lens. Such a lens includes analysis of shared place identies—which ours and other studies show are important for climate change adaptation (Cunsolo Willox *et al* 2012, Geoghegan and Leyson 2012)—but also draws attention to the way multiple constructions of social difference combine to create forms of identity that enable or impede adaptation practices (e.g. Osborne 2015). Knowledge of how social identities are at risk from climate change and from climate change responses is key to the broader endeavour of understanding the way climate change affects the human experience, because they are central to many psychosocial phenomena, including well being (Walker-Springett *et al* 2017), and mental health (Cunsolo and Elllis 2018). They are also a key motivator for of adaptive behaviours and support for or opposition to adaptation policies and programmes, and so a social identity lens can help advance knowledge of barriers and enablers to adaptation, particularly at the community level (Ensor and Berger 2009). Finally, mapping social identities can help explain degrees of cooperation within and between communities who may be expected to act collectively because they share common climate risks, but who struggle to do so for reasons of socially constructed differences based on religion, race, or class; and conversely who may be amenable to cooperation and collective action on climate change despite such social differences because they share a concern over climate change (Ide and Fröhlich 2015, Slevin *et al* 2022). Attention to differences in social identities between governance actors, such as those from government agencies or international NGOs, may also help explain enablers and barriers of adaptation policies and plans.

4. Conclusion

Identity can be harnessed to support the social acceptability of adaptation policies and plans. Conversely, efforts to initiate adaptation are likely to face challenges of legitimacy, to lack popular support, and to be resisted if they threaten social identities. Yet the same interventions could be highly effective in cases where maintaining social identity is recognised as a goal, and where policies enhance self-esteem and develop their sense of self-efficacy.

Data availability statement

All data that support the findings of this study are included within the article (and any supplementary files).

Acknowledgments

This research was conducted with the support of an Australian Research Council Linkage Grant LP100100586 and later analysis with the support of ARC FL180100040; the National Institute for Health Research Health Protection Research Unit in Environmental Change and Health; the UK Economic and Social Research Council (Grant ES/M006867/1); the Wellcome Trust under the Our Planet Our Health programme (Grant 216014/Z/19/Z), and a British Academy Visiting Fellowship to the University of Exeter VF1\103386. We acknowledge the financial support from the Spanish Ministry of Science, Innovation and Universities, through the "María de Maeztu" program for Units of Excellence (MDM-2015-0552). We also appreciate the time that the respondents took to participate in the interviews and focus groups.

ORCID iDs

Jon Barnett https://orcid.org/0000-0002-0862-0808
Sonia Graham https://orcid.org/0000-0003-4195-4559
Tara Quinn https://orcid.org/0000-0002-5375-6085
W Neil Adger https://orcid.org/0000-0003-4244-2854
Catherine Butler https://orcid.org/0000-0001-7589-9565

References

Adger W N J, Barnett F S, Chapin I I I and Ellemor H 2011 This must be the place: underrepresentation of identity and

meaning in climate change decision-making *Glob. Environ. Polit.* **11** 1–25
Adger W N, Barnett J, Brown K, Marshall N and O'Brien K 2013 Cultural dimensions of climate change impacts and adaptation *Nat. Clim. Change* **3** 112–7
Adger W N, Butler C and Walker-Springett K 2017 Moral reasoning in adaptation to climate change *Environ. Polit.* **26** 371–90
Bonaiuto M, Carrus G, Martorella H and Bonnes M 2002 Local identity processes and environmental attitudes in land use changes: the case of natural protected areas *J. Econ. Psychol.* **23** 631–53
Breakwell G M 2010 Models of risk construction: some applications to climate change *Wiley Interdiscip. Rev. Clim. Change* **1** 857–70
Breakwell G M 2015 *Coping with Threatened Identities* (Hove: Psychology Press)
Brown T, Budd L, Bell M and Rendell H 2011 The local impact of global climate change: reporting on landscape transformation and threatened identity in the English regional newspaper press *Public Understand. Sci.* **20** 658–73
Butler C, Walker-Springett K and Adger W N 2018 Narratives of recovery after floods: mental health, institutions, and intervention *Soc. Sci. Med.* **216** 67–73
Coulthard S 2009 Adaptation and conflict within fisheries: insights for living with climate change *Adapting to Climate Change: Thresholds, Values, Governance* ed W N Adger, I Lorenzoni and K L O'Brien (Cambridge: Cambridge University Press) pp 255–67
Cunsolo A and Ellis N R 2018 Ecological grief as a mental health response to climate change-related loss *Nat. Clim. Change* **8** 275–81
Cunsolo Willox A, Harper S L, Ford J D, Landman K, Houle K and Edge V L (Rigolet Inuit Community) 2012 From this place and of this place: climate change, sense of place, and health in Nunatsiavut, Canada *Soc. Sci. Med.* **75** 538–47
DCC (Department of Climate Change) 2009 *Climate Change Risks to Australia's Coast* (Canberra: Australian Government Department of Climate Change)
Demski C, Capstick S, Pidgeon N, Sposato R G and Spence A 2017 Experience of extreme weather affects climate change mitigation and adaptation responses *Clim. Change* **140** 149–64
Devine-Wright P, Price J and Leviston Z 2015 My country or my planet? Exploring the influence of multiple place attachments and ideological beliefs upon climate change attitudes and opinions *Glob. Environ. Change* **30** 68–79
Eakin H, Shelton R, Siqueiros-Garcia J, Charli-Joseph L and Manuel-Navarrete D 2019 Loss and social-ecological transformation: pathways of change in Xochimilco, Mexico *Ecol. Soc.* **24** 15
Ensor J and Berger R 2009 Community-based adaptation and culture in theory and practice *Adapting to Climate Change: Thresholds, Values, Governance* ed W N Adger, I Lorenzoni and K O'Brien (Cambridge: Cambridge University Press) pp 227–39
Eriksen S H, Nightingale A J and Eakin H 2015 Reframing adaptation: the political nature of climate change adaptation *Glob. Environ. Change* **35** 523–33
Farbotko C, Stratford E and Lazrus H 2016 Climate migrants and new identities? The geopolitics of embracing or rejecting mobility *Soc. Cult. Geogr.* **17** 533–52
Fincher R, Barnett J and Graham S 2015 Temporalities in adaptation to sea-level rise *Ann. Assoc. Am. Geogr.* **105** 263–73
Fincher R, Barnett J, Graham S and Hurlimann A 2014 Time stories: making sense of futures in anticipation of sea-level rise *Geoforum* **56** 201–10
Frank E, Eakin H and López-Carr D 2011 Social identity, perception and motivation in adaptation to climate risk in the coffee sector of Chiapas, Mexico *Glob. Environ. Change* **21** 66–76
Fresque-Baxter J A and Armitage D 2012 Place identity and climate change adaptation: a synthesis and framework for understanding *Wiley Interdiscip. Rev. Clim. Change* **3** 251–66
Geoghegan H and Leyson C 2012 On climate change and cultural geography: farming on the Lizard Peninsula, Cornwall, UK *Clim. Change* **113** 55–66
Graham S, Barnett J, Fincher R, Hurlimann A and Mortreux C 2018 Local values for fairer adaptation to sea-level rise: a typology of residents and their lived values in Lakes Entrance, Australia *Glob. Environ. Change* **29** 41–52
Hurlimann A, Barnett J, Fincher R, Osbaldiston N, Mortreux C and Graham S 2014 Urban planning and sustainable adaptation to sea-level rise *Landscape Urban Plann.* **126** 84–93
Hyland J J, Jones D L, Parkhill K A, Barnes A P and Williams A P 2016 Farmers' perceptions of climate change: identifying types *Agric. Human Values* **33** 323–39
Ide T and Fröhlich C 2015 Socio-environmental cooperation and conflict? A discursive understanding and its application to the case of Israel and Palestine *Earth Syst. Dyn.* **6** 659–71
Jaspal R, Nerlich B and Cinnirella M 2014 Human responses to climate change: social representation, identity and socio-psychological action *Environ. Commun.* **8** 110–30
Layder D 2013 *Doing Excellent Small-Scale Research* (London: Sage Publications Ltd) (https://doi.org/10.4135/9781473913936)
McCright A M and Dunlap R E 2011 Cool dudes: the denial of climate change among conservative white males in the United States *Glob. Environ. Change* **21** 1163–72
McEwen L, Jones O and Robertson I 2014 'A glorious time?' Some reflections on flooding in the Somerset Levels *Geogr. J.* **180** 326–37
Mortreux C and Barnett J 2009 Climate change, migration and adaptation in Funafuti, Tuvalu *Glob. Environ. Change* **19** 105–12
Murphy D J, Yung L, Wyborn C and Williams D R 2017 Rethinking climate change adaptation and place through a situated pathways framework: a case study from the Big Hole Valley, USA *Landscape Urban Plann.* **167** 441–50
Nielsen J Ø and Reenberg A 2010 Cultural barriers to climate change adaptation: a case study from Northern Burkina Faso *Glob. Environ. Change* **20** 142–52
Nightingale A J 2017 Power and politics in climate change adaptation efforts: struggles over authority and recognition in the context of political instability *Geoforum* **84** 11–20
O'Neill S and Nicholson-Cole S 2009 'Fear won't do it' promoting positive engagement with climate change through visual and iconic representations *Sci. Commun.* **30** 355–79
Osborne N 2015 Intersectionality and kyriarchy: a framework for approaching power and social justice in planning and climate change adaptation *Plan. Theor.* **14** 130–51
Quinn T, Bousquet F and Guerbois C 2019 Changing places: the role of sense of place in perceptions of social, environmental and overdevelopment risks *Glob. Environ. Change* **57** 101930
Quinn T, Lorenzoni I and Adger W N 2015 Place attachment, identity, and adaptation *The Adaptive Challenge of Climate Change* ed K L O'Brien and E Selboe (Cambridge: Cambridge University Press) pp 160–70
Rotarangi S J and Stephenson J 2014 Resilience pivots: stability and identity in a social-ecological-cultural system *Ecol. Soc.* **19** 28
Ruoso L-E 2019 Can land-based and practice-based place identities explain farmers' adaptation strategies in peri-urban areas? A case study of Metropolitan Sydney, Australia *Agric. Human Values* **37** 743–59
Sapiains R, Beeton R J and Walker I A 2016 Individual responses to climate change: framing effects on pro-environmental behaviors *J. Appl. Soc. Psychol.* **46** 483–93
Slevin A, Barry J, Hill T, Orr J, O'Flynn P, Sullivan L and McLernon R 2022 Local climate Praxis in practice: community climate action in Belfast *Addressing the Climate Crisis* eds C Howarth, M Lane and A Slevin (Cham: Palgrave Macmillan) pp 3–13

Tajfel H 1974 Social identity and intergroup behaviour *Soc. Sci. Inf.* **13** 65–93

Unsworth K L and Fielding K S 2014 It's political: how the salience of one's political identity changes climate change beliefs and policy support *Glob. Environ. Change* **27** 131–7

Walker-Springett K, Butler C and Adger W N 2017 Wellbeing in the aftermath of floods *Health Place* **43** 66–74

Warner B P, Kuzdas C, Yglesias M G and Childers D L 2015 Limits to adaptation to interacting global change risks among smallholder rice farmers in Northwest Costa Rica *Glob. Environ. Change* **30** 101–12

Wernersson J 2018 Rethinking identity in adaptation research: performativity and livestock keeping practices in the Kenyan drylands *World Dev.* **108** 283–95

Whitmarsh L and O'Neill S 2010 Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours *J. Environ. Psychol.* **30** 305–14