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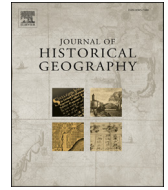
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Historical Geography at Large

Learning histories, participatory methods and creative engagement for climate resilience

Briony McDonagh^{*}, Edward Brookes, Kate Smith, Hannah Worthen, Tom J. Coulthard, Gill Hughes, Stewart Mottram, Amy Skinner, Jack Chamberlain

University of Hull, UK

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ABSTRACT

The potential of place-based, historically-informed approaches to drive climate action has not yet been adequately interrogated. Recent scholarly work has focussed on climate communication and the role of arts and humanities-led storytelling in engaging people in climate narratives. Far less has been said about mobilising arts and creativity to build anticipatory climate action. Nor have archival material and pre-twentieth century histories of living with water and flood been widely utilised in this endeavour. This paper reflects on our experiences delivering the UKRI-funded Risky Cities programme and specifically, of developing and utilising a learning histories approach that folds together past, present and future in productive ways so as to learn from the past and the present and rethink the future. Risky Cities uses this approach to develop engagement tools at different scales, evaluating their impact throughout using participant interviews, reflective focus groups, and surveys. Analysing this data, we consistently find that using learning histories as the foundation of arts-led and creative community engagement makes big narratives about global climate change locally meaningful. Crucially, this drives cognitive shifts, behavioural change and anticipatory action for both participants and audiences. Thus, our learning histories approach is an important participatory tool for building climate action, empowerment and resilience.

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Introduction

The Risky Cities programme utilises 'learning histories' as the foundation of place-based, historically-informed, creative community engagement that offers opportunities to make big global narratives about climate change tangible and relatable at the local level – and so drive anticipatory climate action.¹ In doing so, our work holds in dialogue the pre-modern past and as yet uncertain futures, thinking forward through the past to build flood resilience and climate action, with the ambition of shaping new, more inclusive 'water cultures' today and for the future. Here we

understand resilience to refer to (individual or collective) capacity to successfully cope with and adapt to flood and/or climate hazards and shocks.² Our work to date has taken place in Kingston-Upon-Hull (UK) a city which has experienced major flooding in recent years – most notably, in June 2007 – and is increasingly vulnerable to flood hazards in the face of future climate change. Yet international recognition of Hull's flood risk has not translated into strong

² Flood and climate resilience are now much-used concepts in both research and policy circles, even whilst basic definitions of the term 'resilience' remain much contested. For a useful overview of definitions of flood resilience, see Naim Laeni, 'Planning for Inclusive Flood Resilience in Southeast Asia: A critical perspective on policy translation, institutional capacity building and transformation', (Unpublished PhD thesis, University of Groningen, 2021); on critiques of flood resilience, see Simin Davoudi, Keith Shaw, L. Jamila Haider, Allyson E. Quinlan, Garry D. Peterson, Cathy Wilkinson, Hartmut Fünfgeld, Darryn McEvoy, Libby Porter, 'Resilience: A bridging concept or a dead end?' *Planning Theory & Practice* 13 (2012) 299–307; Maria Kaika, 'Don't call me resilient again!: The New Urban Agenda as immunology ... or ... what happens when communities refuse to be vaccinated with 'smart cities' and indicators', *Environment and Urbanisation* 29 (2017) 89–102.

^{*} Corresponding author.

E-mail address: b.mcdonagh@hull.ac.uk (B. McDonagh).

¹ Edward Brookes, Briony McDonagh, Corinna Wagner, Jenna Ashton, Alice Harvey-Fishenden, Neil Macdonald, Alan Kennedy-Asser and Kate Smith, 'Learning from arts and heritage-based approaches for building climate resilience in the UK', in *Quantifying Climate Risk and Building Resilience in the UK*, ed. by Rachel Harcourt and Kate Lonsdale (London: Palgrave Macmillan, 2023).

community engagement on water and flood issues.³ Only 6.6% of Hull's population have signed up to receive Environment Agency Flood Alerts, for example, compared to more than 40% of the population in nearby Doncaster, Harrogate and Barnsley.⁴ There is an urgent need to work with and better engage community stakeholders in awareness-raising and resilience-building actions and behaviours.

Recent research shows that site-specific climate arts and locally-rooted stories of living with water and flood can help make global climate issues meaningful to audiences.⁵ Much of this work, including by geographers, has focused on climate communication and the role of arts and humanities-led storytelling in engaging people in climate narratives.⁶ Far less has been said about arts for anticipatory climate action, and there are few large-scale studies evaluating the effectiveness of these approaches in driving behavioural change or building climate or flood resilience.⁷ Moreover, the potential of place-based, historically-informed approaches to drive action for climate empowerment has not – as yet – been adequately interrogated, and this despite the fact that city planners and global policy makers interested in nature-based and 'slow water' solutions are increasingly drawing on past water management practices as models for contemporary schemes.⁸ Crucially, none of these projects have made explicit use of pre-twentieth century histories of living with water and flood in order to drive climate resilience actions today. Finally, while artistic works informed and inspired by the climate crisis are now common, arts and heritage approaches are not at present well integrated into

³ Hull City Council, Local Flood Risk Management Strategy 2022–2028, https://www.hull.gov.uk/sites/hull/files/media/Editor%20-%20Council%20and%20democracy/Hull%27s_Local_Flood_Risk_Management_Strategy_2022_-_2028.pdf last accessed 30 March 2023.

⁴ Hull City Council, Residents urged to register for flood warnings as only 6.6% signed up, <https://www.hullcouncil.co.uk/23/06/2022/residents-urged-to-register-for-flood-warnings-as-hull-lags-behind-other-yorkshire-cities/> last accessed 11 April 2023.

⁵ Gabriella Giannachi, 'Representing, Performing and Mitigating Climate Change in Contemporary Art Practice', *Leonardo* 45 (2012) 124–131; Carolina Aragon, Jane Buxton, and Elisabeth H. Infield, 'The role of landscape installations in climate change communication', *Landscape and Urban Planning* 189 (2019) 11–14; Zeynep Altınay, 'Visual Communication of Climate Change: Local Framing and Place Attachment', *Coastal Management* 45 (2017) 293–309; Lindsey McEwen, Luci Gorell Barnes, Katherine Phillips, and Iain Biggs, 'Reweaving urban water-community relations: Creative, participatory river 'daylighting' and local hydrocitizenship', *Transactions of the Institute of British Geographers* 45 (2020) 779–801; Sarah Schweizer, Shawn Davis, and Jessica Leigh Thompson, 'Changing the Conversation about Climate Change: A Theoretical Framework for Place-Based Climate Change Engagement', *Environmental Communication* 7 (2013) 42–62; on water and drought, see Lindsey McEwen, Liz Roberts, Andrew Holmes, James Blake, Antonia Liguoria, and Tim Taylor, 'Building local capacity for managing environmental risk: a transferable framework for participatory, place-based, narrative-science knowledge exchange', *Sustainability Science* 17 (2022) 2489–2511.

⁶ Mike Hulme, 'Meet the Humanities', *Nature Climate Change* 1 (2011) 177–179; Julie B. Corbett and Brett Clark, 'The arts and humanities in climate change engagement', in *Oxford Research Encyclopaedia of Climate Science*, ed. Hans Von Storch (Oxford: Oxford University Press, 2017) pp. 1–17; Ronald E. Rice, Stacy Rebich-Hespanha, and Huiyu Zhu, 'Communicating about Climate Change Through Art and Science', in *Climate Change, Media & Culture: Critical Issues in Global Environmental Communication*, eds. Juliet Pinto, Robert E. Gutsch Jr, and Paola Prado (Bingley: Emerald, 2019), pp.129–154; Stephen Daniels and Georgina Endfield, 'Narratives of climate change: introduction', *Journal of Historical Geography* 35 (2009) 215–222.

⁷ See Miriam Burke, David Ockwell, and Lorraine Whitmarsh, 'Participatory arts and affective engagement with climate change: The missing link in achieving climate compatible behaviour change?', *Global Environmental Change* 49 (2018) 95–105; Laura Sommer and Christian Klöckner, 'Does activist art have the capacity to raise awareness in audiences? — A study on climate change art at the ArtCOP21 event in Paris', *Psychology of Aesthetics, Creativity, and the Arts* 15 (2021) 60–75.

⁸ On slow water solutions, see Erica Gies, *Water Always Wins: Thriving in an age of drought and deluge* (Chicago: Chicago University Press, 2022).

policy toolkits for Action for Climate Empowerment (ACE). It is these research and policy gaps that Risky Cities addresses.

In this paper, we contend that place-based and historically-informed creative engagement provides a valuable mechanism for building climate awareness, action and resilience. Our approach in Risky Cities combines archival research into histories of living with water and flooding in Hull and the surrounding areas, with participatory and creative methods in order to co-create 'learning histories' that are used to engage people in climate and flood resilience actions. In doing so, it also builds on the work of historical geographers who have conducted archival research alongside community work, the gathering of oral histories and other participatory methodologies.⁹ Thus while inherently transdisciplinary, our approach nevertheless holds at its heart an historical geographical analysis of medieval and early modern Hull. In centring the pre-modern histories and geographies of our chosen case study region, we offer an important addition and corrective to the existing literature on arts and climate change.¹⁰

Pre-modern Hull was not unique in being located in the critical green-blue zone between land and sea, but excellent historical sources mean we know more about when the city flooded, how flood risk was managed, and who governed and managed water than for other English and Scottish towns and cities.¹¹ Risky Cities drew on a range of archival, published and community materials including: medieval letters patent, extensive civic and court records, antiquarian histories, maps, and nineteenth and twentieth-century newspapers; literary analysis of flood fictions in poetry, plays and folklore; and watery stories and flood experiences shared by community participants. Collectively, these allowed the team to reconstruct a flood timeline for Hull – revealing a history of repeated flood events affecting Hull and surrounding areas in the seven centuries after its foundation in c. 1260 – and a corpus of stories and experiences exploring people's relationships with their watery environment. The stories that emerge from the archive are primarily ones of surviving and thriving, of adaption and mitigation, of ongoing maintenance of water infrastructure and careful water governance, of living more or less successfully with water over many generations, rather than of flood-related disruption,

⁹ Dydia DeLyser, 'Towards a participatory historical geography: archival interventions, volunteer service, and public outreach in research on early women pilots', *Journal of Historical Geography* 46 (2014) 93–98; Caitlin DeSilvey, 'Salvage Memory: constellating material histories on a hardscrabble homestead', *Cultural Geographies* 14 (2007) 401–424.

¹⁰ On performance as a method to communicate flood risk, see Stephen Scott-Bottoms and Maggie Roe, 'Who is a hydrocitizen? The use of dialogic arts methods as a research tool with water professionals in West Yorkshire, UK', *Local Environment* 25 (2019) 273–289; Maggie Roe and Stephen Scott-Bottoms, 'Improvisation as method: Engaging hearts and minds in the landscape through creative practice', *Urban Forestry & Urban Greening* 47 (2020) 1–10; on applied theatre, participatory methods and climate justice, see Aaron Franks, 'Kinder cuts and passionate modesties: the complex ecology of the invitation in participatory research', *AREA* 47 (2014) 237–245; on visual arts, see Harriet Hawkins and Anja Kanngieser, 'Artful climate change communication: Overcoming abstractions, insensibilities, and distances', *WIREs Climate Change* 8, (2017) 1–12; Carolina Aragon, Jane Buxton, and Elisabeth H. Infield, 'The role of landscape installations in climate change communication', *Landscape and Urban Planning* 189 (2019) 11–14. None of these studies have utilised pre-modern historical geographies in their practice-led research.

¹¹ On York and Edinburgh, see Leona Skelton, *Sanitation in Urban Britain, 1560–1700* (London: Routledge, 2015); on Newcastle, Leona Skelton, *Tyne After Tyne: An Environmental History of a River's Battle for Protection 1529–2015* (Winwick: White Horse Press, 2017); on London, Mark Jenner, 'From conduit community to commercial Network? Water in London, 1500–1725', in *Londinopolis: Essays in the Cultural and Social History of Early Modern London*, eds. Paul Griffiths and Mark Jenner (Manchester: Manchester University Press, 2000), pp. 250–272; on Coventry, Norwich and York, Dolly Jørgensen, 'Local government responses to urban river pollution in late medieval England', *Water History* 2 (2010) 35–52.

disaster and cataclysm. To put it another way, living with water and flood was an integral part of working and dwelling in medieval, early modern and modern Hull – a collective experience that was generative of what we have called elsewhere a ‘living with water mentality’.¹² It is these histories, stories and experiences that we and our creative partners and commissioned artists drew on in the creative and participatory practices discussed in this paper.

Elsewhere, we have referred to these as ‘learning histories’, borrowing a term first developed at Massachusetts Institute of Technology in the mid-1990s as a way of reflecting on the past in order to drive organisation learning and transformation.¹³ For us, learning histories are multiple, jointly told stories, necessarily collaborative and creative. They fold together past, present and future in productive ways, so as to learn from the past and the present and rethink the future. This folding together happens in two main ways. Firstly, in the sense that place-based histories and stories are mobilised in the creative engagement activities, where they act as a hook for conversations about living with water and future climate change, as well as provide potential models for rethinking our future relationships with water and flood. They also help make big narratives about global climate change locally meaningful and relevant – and thus drive anticipatory action and behavioural change – and provide opportunities to build community-led climate solutions. And secondly, in the sense that the conversations that took place in and around the engagement activities were themselves generative of further watery stories and experiences which contributed to the corpus of knowledge, understanding and experience within the team, our participants and wider community about histories and futures of living with and alongside water and flood. In this sense, our learning histories approach can be usefully understood as a participatory research method and novel addition to the toolkit for building climate awareness, action and resilience.

In the remainder of this paper, we reflect briefly on three related but distinct practice-based approaches to using these learning histories in creative and/or arts-led engagement for climate action, each involving different relationships with creative partners and community participants, and offering different opportunities for assessing the effectiveness of our interventions amongst participants and audiences. Our community-led practice led us to a mixed methods approach that lets our participants explain the impact of their involvement in the project in their own terms. The data generated from our surveys, reflective focus groups, peer-to-peer interviews, and creative workshops allowed participants to narrate for themselves the (often profound) impacts of the project on their climate awareness, action and resilience. The first section explores large-scale public art as a tool for driving climate awareness and action, the second explores our community engagement programme, and the third section reflects on our experiences of co-creating a site-responsive performance for the United Nations climate conference with partners at the National Youth Theatre of Great Britain. Finally, we offer some brief conclusions.

Large-scale public art

FloodLights consisted of three site-responsive, multimedia light and sound installations shown over four nights in October 2021 in

¹² Briony McDonagh, Hannah Worthen, Stewart Mottram, and Storm Buxton-Hill, ‘Living with water and flood in medieval and early modern Hull’, *Environment and History* (in review). Our thanks too to Flavia Manieri for sharing material from her forthcoming thesis on experiences of flooding in twentieth-century Hull.

¹³ George Roth and Hilary Bradbury, ‘Learning History: An Action Research Practice in Support of Actionable Learning’, in *The Sage Handbook of Action Research*, eds. Peter Reason and Hilary Bradbury (London: Sage, 2007) 350–356.

Kingston-Upon-Hull and attended by an audience of c. 11000. The installations were created by artists and commissioned by arts and cultural development charity Absolutely Cultured in partnership with the University of Hull, the Living with Water Partnership and Yorkshire Water. The *FloodLights* project illuminated Hull’s experiences of living with water, past, present and future, utilising local histories, stories and landmarks to drive climate awareness and action. These included flood histories and climate futures, maritime identities, marine pollution, and watery myths and folklore. Specifically, the installations were: *Sinuuous City*, an immersive flood experience by multimedia creative studio Limbic Cinema, poet Vicky Foster and composer Joe Acheson (Hidden Orchestra) at 51 Whitefriagate (Fig. 1); *Sirens* by Davy and Kirsten McGuire, which used holographic projections onto the water at Princes Dock to display a variety of uncanny sea creatures including mermaids, turtles and exotic fish alongside an encounter with marine plastic pollution and climate change (Fig. 2); and *Overflow*, by Vent Media (Barret Hodgson) at the Hull Trinity House Academy, which utilised the unique architectural design of the building as the canvas on which to explore the school’s nautical connections and the city’s sea-faring past (Fig. 3). Each of the installations was free and open for the general public to explore. The installations were accompanied by a digital programme of free behind-the-scenes videos, alongside a live roundtable discussion and launch event.

Development work on the project started in winter 2019–2020 with creative workshops involving University of Hull students, artists, community members, and children and young people from Trinity House Academy. Team members facilitated discussions about experiences of living with water in the city from the medieval to the modern period, as well as on climate change, sirens, folklore, and maritime history. There were also creative elements built into



Fig. 1. Members of the public engage with the interactive light and sound installations at *Sinuuous City*. Image credit: Briony McDonagh, 2021.



Fig. 2. A still from the Sirens projections showing an endangered North Sea mermaid in Princes Dock, Hull. Image credit: Sirens, Davy and Kristen McGuire. FloodLights, Absolutely Cultured, 2021 © Davy and Kristen McGuire.

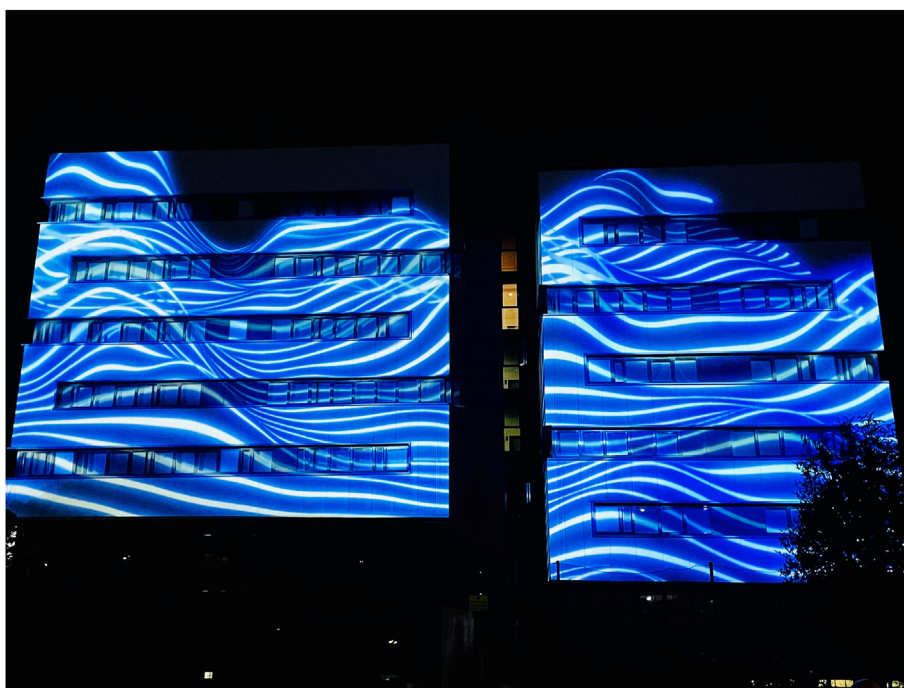


Fig. 3. The Overflow installation projected on to the facade of Hull Trinity House Academy, viewed from George Street, Hull. Image credit: Briony McDonagh, 2021.

the process to prompt discussion: for example, using copies of historic maps to make memory boxes in which to imaginatively store participants' experiences of living with water. These workshops were recorded and transcribed, and the materials shared with artists later commissioned by Absolutely Cultured to produce the final three artworks, much delayed by Covid and eventually shown in the city in autumn 2021. Despite these delays, the workshops were able to facilitate a co-creative process which brought together the local community, artists and project partners in a way which enabled the sharing of experiences, ideas and knowledge that shaped each of the final artworks.

As our audience survey (n = 470, recruited from people attending the event in person via post-event invitations and follow-up emails) demonstrated, *FloodLights* facilitated audiences to engage in climate and water action, impacting audience thinking

on climate change, flood risk and living with water and driving reported behavioural change amongst audience members. The survey was designed to both follow Arts Council England audience evaluation protocols and answer our research questions.¹⁴ It produced a combination of quantitative and qualitative data which was analysed using thematic, transformational and descriptive statistical methods.¹⁵ Sixty-four per cent of survey respondents reported

¹⁴ For more detail on Arts council protocols, see <https://www.artscouncil.org.uk/impact-and-insight-toolkit> last accessed 16 of August 2023.

¹⁵ For further details on our methodology, see Kate Smith, Briony McDonagh and Edward Brookes, 'Place-based arts engagement and learning histories: an effective tool for climate action?' Available at: <https://osf.io/preprints/socarxiv/dnkpj/> last accessed 16 of August 2023.

that the event made them think about climate futures, and nearly a third (29.1%) talked to others at the event about flooding, living with water and climate change. A third reported behavioural changes they planned to make in relation to this, including specific intentions to reduce personal carbon footprints and sign up for flood alerts. Responses to the questions also flagged interpersonal and intergenerational ‘ripple’ effects from the project – for example, spending more time ‘talking with others and particularly to my younger grandchildren’ – as well changes in critical water and climate consciousness linked by respondents to behavioural change at a variety of scales. As one respondent put it:

Having seen Floodlights I feel it has emphasised the importance of climate and the influence of water, together with the risk to Hull of flooding. It has increased my desire to contribute positively in whatever small way I can.

Each of the three installations responded to place and site in different ways. *Overflow* engaged with the city’s maritime legacy and built environment, while *Sinuuous City* utilised local voices, stories and landmarks in an immersive flood experience. *Sirens* located an imaginative encounter with ‘climate refugee’ mermaids – forced to relocate to Hull as sea temperature rise and fish populations diminish – within a well-known city centre space. Our survey demonstrates that each of these place-based approaches – especially the site-responsive installations which mobilised Hull’s watery histories and identities – were crucial in generating engagement and action towards climate resilience. As a form of place-based historically-informed arts-led engagement *FloodLights* provided opportunities to make global narratives tangible at the local scale – and hence prompt climate action and behavioural change.

Creative community engagement

Similar experiences were reported in our creative community engagement programme which took place in summer and autumn 2022. This revolved around a series of co-created community textile, poetry and zine workshops, attended by sixty-three residents from Cottingham, Preston Road and Boothferry, areas of the city affected by floods in the last two decades. Similar to *FloodLights*, the workshops utilised a two-way sharing process whereby the project team shared ‘learning histories’ through maps, images and archival materials and community members were invited to contribute their own lived experiences, photos and flood memories. Participants were then invited to respond and reflect upon these histories through creative practice, facilitated by practitioners who provided tools, materials and learning to support participants to embroider, weave, draw, paint or produce poems and creative writing. The resulting creative materials layered together elements of Hull’s watery history with participants’ memories, stories or reflections (see Figs. 4 and 5).

Creative outputs from the workshops were shared via a further series of arts-led events, which sought to continue the legacy of the workshops beyond the creative ‘doings’ and formed part of the ongoing dialogue and knowledge exchange between researchers, workshop participants and wider community audiences. The textile workshops, for example, culminated in the ‘Follow the Thread Exhibition’, which toured Hull between August and October 2022 attracting almost 1000 visitors, while the art workshops generated a flood resilience zine titled ‘Wet Feet, Warm Hearts, Strong Places’ which shares participants’ creative work alongside practical flood resilience advice. It was distributed to over 8500 households within and beyond the areas in which the project worked. The poetry from the creative writing workshops was used as part of a ‘writing pack’



Fig. 4. A participant and a Risky Cities team member discuss some of the historic maps during one of the workshops in the creative community engagement programme. Image credit: Anete Sooda, 2022.

which informed a series of five artistic commissions shared at live performances attended by 146 people and featuring music, poetry and spoken word, digital animations, visual arts, and a community story map.

Evaluations of the programme were undertaken via focus groups with workshop participants, interviews with artists, and feedback surveys. These evidence the significant impacts of the programme, including the value many participants placed on having space to discuss their experiences of and feelings about flooding, especially the 2007 floods. This was not a topic broached by the project team, but rather an opportunity embraced by participants who typically led the discussions, interweaving their own memories and experiences with pre-modern Hull’s watery history. In several cases, living memory became productively entangled with the archival materials, where twentieth-century newspaper headlines provided points of recollection for those who grew up in the city in the 1960s and 1970s. In addition, our evaluations demonstrate increased community awareness that the city had always been ‘watery’; that is, subject to repeated flood events, some of them problematic for local communities but on other occasions, treated in a fairly mundane manner in the historical record. This knowledge provided a prompt for participants to reflect on and share how future climate change and flooding might affect them. One audience member shared, for example, that attending the creative sharing led them to connect with the climate emergency ‘in a way that the TV/News/Social media has not done so previously. The repetition of water as a problem and the urgency was so powerful through music and spoken word’. Another reflected that it had made them ‘think more about how we can pull together as communities to help one another’. Many participants connected this awareness with action: for example, choosing to check their own flood risk, cascade conversations by talking to family members about historical and recent examples of flooding, and sign up for national flood alerts. Put simply, the project’s creative community programme encouraged multi-faceted engagement with Hull’s flood and climate history that offered participants opportunities to better understand, adapt and respond to future environmental change. This impact extended beyond community participants to include the project’s commissioned artists who told us that their working practices and creative foci would change as a result of their involvement in Risky Cities, and to the project’s researchers, whose commitment to engaging with community participants meant that research outcomes were immediately and profoundly tangible.



Fig. 5. One of the creative outputs made by participants for the Follow the Thread exhibition. Embroidery hoop, fabric, thread, paper and ink. Image credit: Anete Sooda, 2022.

Thus, we have found that place-based and historically-informed arts engagement is a powerful tool not only for engaging with community histories, but also for facilitating and empowering individuals and communities to understand, adapt and respond to climate change.¹⁶

Youth-led theatre and performance

On the Edge was a collaborative project between the National Youth Theatre (NYT) and the University of Hull. It was funded by a UK Climate Resilience Programme impact award and part of MELT, a multi-year creative response to the climate crisis led by the NYT in partnership with the University of Hull. The co-created and site-responsive theatrical performance platformed young people’s experiences of living with climate change in UK coastal and estuarine communities on a global policy stage – in the Green Zone at United Nations Climate Change Conference (COP26) in Glasgow, UK, in November 2021. The co-creative process was characterised by an intensive two-way dialogue between academic researchers and young creatives aged 18–26 facilitated via online development

workshops (featuring an initial cast of 200 young people from across the UK, and a final ensemble of twelve performers) and in-person rehearsals, a live preview performance and Q&A session at the NYT’s Production House the week before COP as part of the Islington Green Festival. The final 90-min performance premiered a new play, *I Don’t Care*, written and directed by Adeola Yemitan and devised by the NYT Company in collaboration with members of the Risky Cities team. The play explored young people’s agency to manage the competing challenges of flood risk, coastal change, high socio-economic deprivation, and unemployment, and to identify solutions, negotiate barriers to action and build resilience in a changing climate future. *I Don’t Care* was followed by a climate cabaret directed by Tatty Hennessey using spoken word, poetry, music and magic to explore an intergenerational conversation about climate change in coastal areas. The live performance elements were interspersed with a number of short films, and the event concluded with a round table discussion with participants reflecting on the process of working collaboratively on the project.

Evaluation of the project was undertaken in two principle ways. Reflective journals kept by participants – including the academic researchers – chart the cognitive, bodily, and emotional experiences of those involved which ultimately challenged our collective expectations about young people’s experiences of the climate crisis. Participants reported their anxiety about climate change, alongside anger and frustration around a lack of government action in addressing climate impacts. This was coupled with a concern for

¹⁶ See also: Shauna MacKinnon, *Practising Community-Based Participatory Research: Stories of Engagement, Empowerment, and Mobilization* (Vancouver: UBC Press, 2018); Lisa M. Vaughn and Farrah Jacquez, ‘Participatory Research Methods – Choice Points in the Research Process’, *Journal of Participatory Research Methods* 1 (2020) 1–13.

the intersectional challenges faced by young people who are dealing with not just a climate crisis, but also rising inequality, racism, and long-term economic adversity – all of which can and do act as barriers to climate action and inclusive resilience building. Hope was a repeated theme in the journals, as were reflections on the value of artistic and creative practice in addressing the climate crisis. Two excerpts from young creatives involved in the project exemplify this:

Art isn't problem solving.
 Art is sitting in our emotions
 holding space for complication
 bearing witness
 collective wrangling with
 complexity¹⁷

Activism through art is empowerment to me. And I hope, above all else, young people saw it or listened and felt seen and heard.¹⁸

A small (n = 27, roughly 50% of attendees at the in-person event) audience survey was also conducted. Ninety-seven per cent of respondents rated their experience of *On the Edge* good or very good, with audience members reporting a range of emotional responses to the performance from frustration at a sense of time running out, sadness, resignation and rage through to joy, amusement, hope and a feeling of being motivated to action. More than two-thirds of the audience identified specific ways that their thinking in relation to young people, flooding and climate change had been changed: for example, by underlining our collective vulnerability in the face of climate change, by highlighting the depth and complexity of young people's responses to the climate crisis, and by spotlighting issues of class, race and the difficulties of activism as a priority in everyday life. Several respondents referred to the local as a mechanism for underlining the urgency of the climate crises, noting that the play 'makes [flooding] more local – makes it more real' and 'brought it home even more'. Crucially, 88% of respondents also reported that as a result of watching *On the Edge*, they planned to change their own advocacy or actions in relation to young people, flooding and climate change. Example actions included:

I'm going to go to as many protests as I can. I can't make excuses anymore
 I will definitely be talking to more family/friends about how we all get involved and make changes in our lives
 Has definitely inspired me to use theatre/engage with theatre projects as a way to create awareness

More than 3,500 people also watched the livestream events including at the UK Climate Resilience showcase in Hull in October 2022, where some of the audience were visibly moved to tears. What we learn from this, and *FloodLights*, is that climate communication using arts and humanities approaches that harness the power of authentic place-based and lived experience resonates with audiences in ways that inspire positive action. Crucially, this approach

leverages critical cognitive shifts amongst participants and audiences which empower them to engage in new climate and water actions.

Conclusions

In conclusion, the practice-based elements of the Risky Cities programme underline the effectiveness of place-based, historically-informed creative community engagement in driving cognitive shifts and behavioural change amongst both participants and audiences in relation to climate issues. Our participatory and creative 'learning histories' approach offers crucial opportunities to make big global narratives about climate change relatable and meaningful at the local level – and so drive anticipatory climate action. Our quantitative and qualitative data strongly bears this out, and provides the first large-scale analyses of how pre-modern histories and geographies can be mobilised to drive climate action and behavioural change across a range of scales from co-created community engagement activities to large-scale public arts. Crucially, our approach provides scalable solutions to building awareness, action and resilience in other UK and global cities in the face of the climate emergency. We hope others will take up the challenge and provocation.

Data availability

Data will be made available on request.

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¹⁷ Activity Diary Self Reflection – Quote by National Youth Theatre Participant 2-X.

¹⁸ Activity Diary Self Reflection – Quote by National Youth Theatre Participant 4-YY.