OVERVIEW

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Using water walks as a research method to gather data in water-related social research

Kirsty Holstead[1] | **Kevin Grecksch**[2] | **James Bonner**[3,4] | **Laura Major**[5] | **Donald Robertson**[5]

[1]Public Administration and Policy Group, Wageningen University and Research, Wageningen, The Netherlands

[2]School of Geography and the Environment, University of Oxford, Oxford, UK

[3]Strathclyde Business School, University of Strathclyde, Glasgow, UK

[4]Humanities and Social Science, University of Strathclyde, Glasgow, UK

[5]Civil & Environmental Engineering, University of Strathclyde, Glasgow, UK

Correspondence
Kirsty Holstead, Public Administration and Policy Group, Wageningen University and Research, Wageningen, The Netherlands.
Email: kirsty.holstead@wur.nl

Abstract

Water walks are a research method to collect qualitative data conducted in motion with water or water-related infrastructure. The water walk has a range of benefits and is gaining popularity, yet few resources exist for those interested in the method. There is a need to consolidate existing understanding and insights across disciplines and areas of study. This way, the water walk, its applications, and specificities are accessible to and can be critically appraised by diverse researchers and research participants. We respond by offering an entry point for those interested in using water walks in data collection and providing an inclusionary and concise examination of the research method. First, we conceptualize and position our interpretation and use of water walks and the proposed benefits. Second, we discuss the practical and ethical aspects of the method. Third, we examine four water walks from our research according to three planes of variation, including (i) who leads the walk, (ii) the mode of walking, and (iii) the approach to engaging with water during the walk. These planes of variation allow others to embrace water walks as part of a research craft that can be molded to diverse research questions and designs, always with reflection vigor and commitment to their participants at the core. We argue that researchers must take a critical approach to water walks and contextualize the method in relation to the wider socio-political landscape within which our relationship with water, and how we (can) move around and engage with it, is shaped.

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method, qualitative research, water governance, water walks

1 | INTRODUCTION

In the past two decades, water-related social research has significantly increased, centering on issues including, but not limited to, climate change resilience, water scarcity, land management practices, flooding, and water demand across global contexts. Water walks are increasingly used in this field of research, with forms of water walks adopted in research examining environmental risk and vulnerability (Arnall, 2021; Galway, 2019; Irsyad & Hitoshi, 2022), inequality and justice and the uneven distribution of water and related costs and benefits (Adams et al., 2022; Collins et al., 2019), health and well-being in water environments (Finlay et al., 2015; Neal et al., 2015), water-related traditions, narratives and cultural practices (Briggs et al., 2023; Donald, 2019; Strang, 2004), everyday water collection, use and disposal practices (Alda-Vidal et al., 2020; Browne et al., 2014), and water management strategies (de Voogt et al., 2019; Thomas et al., 2020).

Despite this research engagement, it is curious that few resources exist to guide researchers who are new to the method and interested in using water walks in their work. There is established literature that may guide walking or "go-along" interviews, particularly within Geography, Sociology, and Social Anthropology (e.g., Ambrose, 2020; Evans & Jones, 2011; O'Neill & Roberts, 2019). These mobile interviews are linked to various turns in social theory and associated research—such as mobilities research (O'Neill & Roberts, 2019; Sheller & Urry, 2006), visual and sensory approaches to research (Briggs et al., 2023; Pink, 2015), landscape research embedded in "new materialism" (Springgay & Truman, 2018), and arts-based participatory research (Donald, 2019). While this literature offers an understanding of mobile methods to generate research data on the move, less is known about water walks, how they can be used to support qualitative data collection, the different options available to researchers, and the opportunities the method offers. This specificity is necessary because, as the research material cited in this paper demonstrates—water's demands as a subject and the multiple meanings associated with it, make water a potential disruptor of relationships in as much as it is generative of them. These features contribute to its unique placement in social life. The water walk can also be a fluid method that may engage with these differing understandings of water and its characteristics, many of which do not translate easily between contexts, including various disciplinary fields and their attendant theories and methodologies. There is a need to consolidate existing understanding and insights across these dispersed disciplines and areas of study so that the water walk, its applications, and the specificities the method offers are accessible to a diversity of researchers and research participants.

In response, this article does two things. It offers readers from various social science subdisciplines and, with varying experiences of qualitative research methods, a practical guide to the water walk. It also offers the reader what we consider a methodological water walk. We present a range of approaches to mobile social research with water, drawn from different disciplinary perspectives, emerging from varied engagement with social theory and experiences with distinct cultural contexts. We primarily focus on the water walk as a method that can move a seated interview about water to one in which an interview occurs in motion next to, on, in, or even "with" water. We also open up approaches and practices undertaken when walking with water that seeks to include water's "voice" in these encounters and, in doing so, apply alternative theoretical and methodological insights into ways we consider our relationality to water (and "nature" more widely).

Our methodological water walk aims not to take the reader from one place to another, as if one approach or method is the intended destination. Instead, it is a journey to a viewpoint which can be accompanied by a range of societal or cultural approaches to water and social research methods which we lay out for the reader's consideration. To make this more digestible, we conceptualise water walks with different characteristics along three planes of variation, including (i) who leads the walk, (ii) the mode of walking, and (iii) the approach to engaging with water during the walk. To illustrate how each theme might appear in practice, we offer four illustrative examples of water walks from our work. The walks from our work provide an understanding of the spectrum and diversity of the method's possibilities, ranging from the practical (such as a case where water is used to develop a stimulating environment for the interview process) to more conceptual and philosophical concerns (such as considering human–water relations, and the agency of water in these relationships, involving activities with water along the way). The breadth and depth of possibilities of water walks, the proposed benefits (and challenges), and how they can be embraced are discussed below.

2 | WHAT IS A WATER WALK, AND WHAT DOES IT ENTAIL?

We define a water walk as a research method in motion associated with water or water-related infrastructure that is used to collect qualitative research data. In our definition, infrastructure includes physical networks

and other material relations that allow exchanges across space (Larkin, 2013), taking seriously the assumption that various representations or forms of water exist and can be studied (Linton & Budds, 2014). Thus, water may not only be conceived as a river, a pond or features in public parks (a visible mark of water on the landscape) but in different, often less visible, hidden and difficult-to-articulate forms such as drains, subterranean waters or water technology in the home (Browne et al., 2014; Grecksch, 2021a, 2021b; Rosalind & Clarke, 2018; Thomas et al., 2019), water collection, use and disposal practices (Adams et al., 2022; Alda-Vidal et al., 2020; Browne et al., 2014) and histories and narratives about water-related places and activities (Briggs et al., 2023; Gibbs, 2009). In this deliberately broad definition, we seek to be attentive to a variety of world views and perspectives of water, what constitutes it, and how human and more-than-human agents relate to each other (e.g., see Country et al., 2015).

Practically, a water walk may take a range of forms, including, but not limited to, a tour of a town and water-related infrastructure, such as walks along city water supply pipelines (e.g., Castán Broto et al., 2021), flood protection infrastructure (Holstead & van Hulst, 2024), walks along canals, and/or rivers within a city including features such as the offices of water-regulating authorities (Grecksch, 2021a), in city parks with water features such as fountains, lakes, ponds, and old and new drinking water fountains (Grecksch, 2021a) and walks including activities such as fishing and routines related to fetching drinking water (e.g., Adams et al., 2022; Alda-Vidal et al., 2020; Browne et al., 2014; Country et al., 2015). Finally, water walks allow for opportunities to open up insights and alternative ways of seeing (and representing) through their capacity to incorporate creative activities and arts-based research methods, including experiential interactions involving sensory engagements, multimedia recordings, map making, augmented reality, and recording sounds (e.g., Briggs et al., 2023; Country et al., 2015).

What makes the water walk unique is the opportunity for the environment to become part of the interaction and resultant conversations in a more direct sense than if a body of water were the theme of a more traditional seated social science interview. The water walk allows further potential for an appreciation of the diverse ways in which water can be known and how these ways of knowing water are affected by place (e.g., Gibbs, 2009; see the case studies in this paper). This review focuses on a style of water walk associated with the interview method in some form, as this remains one of the most utilized social science research methods. However, in keeping with an increasing interest in the multiplicity of uses, meanings, and relationships with water, we also draw attention to techniques that adopt a wider suite of methods and forms of engagement, including ethnographic methods—which encompass interviews, observations, fieldnotes, audio–visual recordings, mapping and interventions with water involving the physical senses (e.g., hearing, touch). This wider suite of methods is in keeping with the direction taken by the more general walking research field, a field that is the subject of a broader literature in the social sciences, humanities, and philosophy (Solnit, 2014), and where the idea of an ethnographic walk is also adopted as a combined way of undertaking research, a practice of learning, and a means of being in place (Elliott & Culhane, 2017).

Water walks could assume a particular form of walking ability in terms of body mobilities and sociability and the perceived benefits to well-being, and we try to counter these. Embedded privileges associated with walking methodologies exist including the assumption that movement through a landscape is a form of amenity or that people enjoy the scenery (see Heddon & Turner, 2012). While the examples we expand on below do pay attention to a relatively familiar form of walking (at least in the United Kingdom, where the authors are mainly based) with or alongside water, we also explain the method in more inclusive terms to expand our understanding of water and walking. Herein, water includes its physical but also symbolic manifestations and extensions (including material and abstract water infrastructures), and walking includes movement in a way that can be figurative or metaphorical, or even virtual or distanced movement through a waterscape, grounded in the context in which the "walk" takes place. We bring to view the idea that water and movement next to it is historically and symbolically linked to different people, places, and practices in diverse ways, which must be recognized in the site where the water walk is conducted (Hahn et al., 2012). It can be argued, particularly from a cross-cultural perspective, that water is multiple and generated from interrelationships and that water can be thought of as having human and more-than-human elements (Ballestero, 2019; Country et al., 2015). Our broad definition allows for this potential multiplicity, aligning it with a spectrum of movement. Researchers may combine water walks with sitting interviews or focus groups, and they can also complement other non-traditional data-gathering techniques, such as visual methods (Rose, 2022; Spencer, 2022), making water walks a flexible approach that can be adapted to various research designs and research paradigms.

2.1 | Why do a water walk?

McFarlane (2021) discusses the multifaceted possibilities of walking as a research method, whereby walking can be purposive (to go to a place), conceptual (as a practice of knowing or coming to know), and reflective (to reflect on the experience of a journey and the information gathered along the way). Following this, we view water walks as a practice-based method embedded (in the landscape and routines) and embodied (using the body, mind, and senses) to discover, open up, and represent relationships to water. It can offer the potential for participants (both the person doing the research and those being researched) to reflect and share experiences along the way in forms that other methods do not allow.

Weiss (1995) argues that research is a collaboration and that the role of the interviewer is to activate research participants and create an environment conducive to the production of discussion of different meanings that are not overly limited by an agenda. As such, through building the interaction afforded by the water walk, researchers can better relate to and understand the voices of participants as they narrate their water stories by bringing participants and researchers into contact with what happens in the environment. In this vein, water walks can prompt participant interaction and reflection and offer a way to explore and connect to past, present, and future places and events (Moretti, 2017; O'Neill & Roberts, 2019). The experiences that researchers and participants access as they move through different landscapes or scenes moving from people, places, and activities overcome the concern that interviews can separate the research from the context, including participants' routines, practices, and physical environment (Kusenbach, 2003; O'Neill & Roberts, 2019). By triggering the participants to share their experiences during the water walk, they not only recount or describe their experiences from memory but also show them by returning to the places where they lived (Ambrose, 2020; Anderson, 2004). Being in situ provides visual cues to help people talk about things that are challenging to articulate or hidden and helps them develop narratives about issues and events (Thomas et al., 2019). Ambrose (2020) argues that this offers new dimensions to how participants use and interact with natural resources.

In all cases, water walks offer the opportunity to appreciate our interconnectedness with water, as with other aspects of our environment. We also acknowledge perspectives demanded by more-than-human or situated approaches (Neimanis, 2017). In this way, water walks may (but not always necessarily) provide the space to (re)consider our relationship with water. This involves viewing water not only as a subject of study but as an integral part of the conversation, positioning it as an equal, if not central, interlocutor. These perspectives aim to foster disciplinary approaches that align with alternative ways of thinking about the interconnectedness of life on our planet by opening up alternative ontological and epistemological understandings of water and its value. In a relatively straightforward sense, this can be enacted through the inevitable sensory engagement that a walk through a place calls for. Doing so has been highlighted as a significant means by those seeking to adopt mobile methods that align with the aforementioned approaches (e.g., Briggs et al., 2023; Nätynki, Maria, et al., 2023).

A further potential benefit of the water walk is that they can facilitate a relaxed and non-confrontational interaction afforded by walking alongside someone (a participant or researcher), potentially allowing for deeper and easier interaction and the development of rapport (Jones et al., 2008; Springgay & Truman, 2018). Creating the environment and space for collaboration, eased through the positioning of the body, can facilitate the collection of rich data where embodied knowledge, experience, and memories can be shared (O'Neill & Roberts, 2019) and opens opportunities for researchers to develop new research vistas (Robinson & McClelland, 2020). Power is central to data generation (Vähäsantanen & Saarinen, 2013). Walking may offer a temporary, partial, and tentative leveling of the playing field," primarily when the researcher is guided through the interviewee's world and routines. Showing the researcher can be empowering and allow participants to feel heard. People may be more inclined to give up their time if they feel the opportunity is of value or enjoyable to them (Grecksch, 2021a).

2.2 | Challenges and practical considerations

Walking methods have been celebrated for their capacity to develop rapport and facilitate shared experiences. For instance, Macpherson (2016) notes that walking can have mood-enhancing effects from being outside and stimulate endorphin release, making the researcher and participant feel good. However, it is also important to be cautious about water walks' value and inclusiveness as a research method. A water walk is never a neutral act, and using water walks introduces its own politics. Walking methodologies have benefits, but space and water are

embedded in power issues. Ethnicity, race, gender, religion, and class shape people's visibility in areas and how they do and can move (Beauchamp, 2022; Heddon & Turner, 2012; Martinez & Gois, 2022). Specific spaces are less available for some groups, meaning walking (while conducting the research and being researched) must be negotiated with care in certain contexts (e.g., Dunckel Graglia 2016). The landscape can also challenge those with mobility aids or physical disabilities. Accommodations should be made for physical requirements to aid walking, and the tempo and pace should be determined by physical ability. Water walks can be designed and represented using maps and then walked alone (see Section 3.1.4), reducing the necessity of mobility for participants. Researchers should adapt the research to honour inclusivity in the research design and method application when appropriate.

Concerning the point above, there is a need to acknowledge that water is a medium with specific social effects. For example, in as much as water may be an important site for social production and cohesion, it can also disrupt relationships, with variable and not always positive implications for those walking with it, as numerous ethnographic and anthropological studies have documented (Björkman, 2015; Gandy, 2008; Major & Webster, 2024; Von Schnitzler, 2014). Ability and/or permission to access water can be a powerful signifier of identity or lack of acceptance of an identifier, rendering water walks risky for those transgressing a social norm (an extension of our social mobility and inclusivity points above). Water can be the site of, or mobilizer of, interpersonal conflict or distress, particularly if scarcity, excess, or undesirable water quality is present (e.g., Estes, 2019; Hoover, 2017; Muehlebach, 2017). Furthermore, the methods adopted may intentionally or accidentally privilege particular forms of water or modes of interaction with it (McLean et al., 2018). For some scholars in this area, this concern demands an ethic in water-related research related to the methods used and the limitations they place on our understanding of water and its interrelationships (Sharp et al., 2022).

Water walks also have associated practical implications. Due to some specific practical risks, water walks take longer to organize than a seated interview. Walking close to or next to water may pose the risk of slipping, tripping, or falling and may require reconnaissance (a "recce") to assess potential risks and hazards. Water walks can also be conducted in a group (see Section 3.1.3). When doing so, it is advisable to have at least one other person support the researcher/interviewer, which in practical terms can mean walking behind a group, ensuring the group is safe and stays together. Extreme weather alters the experience or makes it unsafe to continue, either postponing the water walk or adapting it to an alternative location. Water walks can pose additional dangers, such as wild animals and other hazards in potentially unfamiliar and often rural settings. If walking in an urban area, road traffic, and noise are the main risks and distractors (Grecksch, 2021a). The interviewer and interviewee may not know where they are going or may not be familiar with locations, and this unpredictability creates potential health and safety concerns. A further challenge relates to capturing the details of the water walks. If the interview is recorded, the first issue is how to minimize the sounds of wind and the rubbing of materials on the microphone, which can make transcription more time-consuming and potentially lead to data loss. Using double-sided tape, a lapel microphone can be stuck to the participant's clothing, and the recorder (attached to the microphone) can be placed in their pocket. The double-sided tape around the microphone stuck inside the clothing reduces the wind sound, aiding the transcription process. A hidden microphone may be less visible to others and protect the interviewee's anonymity. Conducting walking walks in colder climates can dictate that jackets are worn, making it easier to disguise microphones. In warm climates, the heat can also dictate the timing and setting of walks.

Note-taking is a means of capturing the details of an interview and other forms of data. Note-taking during and following an interview is good practice to provide an account of the walk and what was discussed, sometimes offering the first glimpses of themes that the data encompasses (Saldaña 2021). Because the researcher cannot take notes while conducting a water walk, they must become skilled in remembering details and discussions and rely on after-event notes, especially if the interview is not recorded. In the example discussed in Section 3.1.3, the researcher recruited a second person as a co-convenor to take notes and make observations. In the case outlined in Section 3.1.2, the researcher did not record the interviews. Instead, they developed "soundbites" at significant points along the walk, recording self-reflective notes of discussions and observations and audio recordings of water flows on the walks as both sound fieldnotes and a memory device for reflection later. Water walks can benefit a research project, but they can produce extended and detailed conversations, often accompanied by other forms of data (i.e., fieldnotes), resulting in a mass of data that can be overwhelming to navigate during data analysis.

Following the above, water walks require significant preparation considering the weather, potential risks, hazards during the walk, physical abilities of participants/researchers, recording challenges, and note-taking while being attentive to politics and inequality (see Table 1). Water can open and close spaces of disclosure. They must be approached carefully and situated within the broader socio-political landscape where they occur.

TABLE 1 Practical and ethical consideration summary and possible actions.

Risk/consideration	Possible actions
Power	Be aware that walking is never neutral; ensure you and your participants are always safe.
Animals and physical dangers	Use local guides and experts.
Physical abilities	Select a route that is accessible or walk alone if necessary.
Trips, slips, and falls	Advise participants to wear appropriate footwear. If in a group, ensure the groups stay together. The convenor may have an assistant who walks behind the group, ensuring they stay together. Avoid overly muddy and loose paths.
Adverse weather	Find an alternative location or postpone the walk.
Cold and rainy weather	Advise participant(s) to wear appropriate clothing and reschedule the walk if necessary.
Hot and sunny weather	Advise the participant(s) to wear hats and sunglasses and apply sunscreen. Ask them to bring water to stay hydrated. Reschedule the walk if necessary. Take breaks when walking.
Traffic	Avoid areas with heavy traffic and remind participants of its dangers. Ensure all participants safely traverse roads in a group.
Noise	Ask the participant(s) to stand together, repeat questions or comments if necessary, and split into smaller groups.
Note-taking	Make notes immediately after the walk, jot notes while walking if possible, take pictures and soundbites to enhance memories, or have a co-convenor take notes.
Recording	If recording, ensure the recording device/microphone does not make the interviewee uncomfortable and that anonymity can be maintained. If relevant, reduce wind noise.

Having outlined our understanding of water walks, what they can bring to a research project and challenges and practical considerations, we next identify three "planes of variation" that characterize their diversity.

3 | WATER WALKS: THREE PLANES OF VARIATION

Based on our shared experiences of conducting water walks we define three planes of variation to examine our applications of the method, including the (i) walk leader, (ii) mode of walking, and (iii) engagement with water. After outlining the different characteristics of water walks, we demonstrate the variation through four cases drawn from our research.

Who leads the walk? The first plane of variation relates to who leads the route, varying from interviewee/participant-led to interviewer/researcher-led. In the case of an interviewer/researcher-led water walk, the location and route of the walk are determined by the interviewer/researcher, for example, to visit particular sites of interest. The plan may be developed in advance by the interviewer/researcher, including the location and route of the walk, distance, number of stops, and timing. In a participant/interviewee walk, the person being interviewed leads the way or decides where to go, as they will often know the local environment. Leading the walk can involve showing the interviewer/researcher around a place, explaining what took place at a location, and explaining how water infrastructure is used.

How structured is the walk? The second plane of variation relates to the mode the water walk takes, ranging from a wander to a structured tour. The route of the water walk can take several forms, ranging from a situation where the researcher/interviewer and participant/interviewee 'wander' through a landscape, sometimes without a predefined endpoint or destination. This may be a routine walk for the participant/interviewee, where a researcher accompanies participants as they collect water, mend infrastructure, or use water in their homes (e.g., Adams et al., 2022). These are akin to energy walks, an increasingly common method used in energy research, where a participant/interviewee shows the researcher/interviewer how they use energy in the home or landscape in their everyday life (Ellsworth-Krebs et al., 2021; Pink & Mackley, 2012). Alternatively, or in addition, the walk may involve going to places of significance for the interviewee/participant but are not part of the everyday routine per se, including rivers, streams, flood areas, and town halls where events have occurred or are significant in some way to the research questions and topic of conversation (e.g., see Section 3.1.1). At the opposite end of the spectrum is the structured tour, where a predetermined route is followed, with particular stops often designed to elicit responses to a specific place. In the more structured tour, there

can be variation and conversation can continue beyond a pre-defined stop or be struck up at any time during the walk. A water walk can be loose and open-ended (conducted as a wander), and the route can be decided in advance (conducted as a tour) or sit somewhere in the middle of these two options (semi-structured).

How is water integrated into the approach or experience? The third plane of variation relates to how the researcher/interviewer integrates water into the research and data generation process. There are key differences in how water can be "treated" in a water walk, ranging from a landscape or a backdrop to more deliberate or sensory engagement. Through a water walk, water can be incorporated figuratively (as an environment to facilitate discussion), discursively (as a source of debate or inspiration), or physically (as a physical act of sensing and experimentation with water) (e.g., compare Sections 3.1.1 and 3.1.2). A water walk can also offer opportunities to explore alternative meanings of water, for example, to open alternative philosophical lenses on water and creative practices that acknowledge water as an agent within social life rather than a central point of discussion that centers people (Ballestero, 2019; Barad, 2007; Romano, 2022). For instance, relational and more-than-human research approaches, which focus on a methodology of attending to and caring for, recognize that we are not and cannot be distinct from the world, including water (e.g., see Country et al., 2015). The three planes of variation are visualized in Figure 1. In the following section, we examine four cases of water walks in diverse research settings, drawing on key differences according to the three planes of variation.

3.1 | Doing water walks: Diverse water walks and planes of variation

The four cases below are drawn from the authors' experiences conducting water walks in diverse contexts with different purposes to offer insight into the breadth and range of uses of water walks as a research method. Each case is briefly discussed using the three planes identified in Section 3. Each combination of the three planes will generate combination-specific conditions, which researchers should consider and reflect on when designing the research approach. This is not meant as a "recipe," and the four cases are not exhaustive. However, we argue that synthesizing and understanding our collective experiences can shed light on the method and offer options for those who are new to it or who wish to gain further insight, as well as show the potential range of approaches water walks can take. The four water walks are summarized in Table 2 and expanded upon in the text. They were selected to provide a range of examples and variations along the planes.

3.1.1 | A walk-along water walk

Kirsty Holstead used water walks to gather data on the experiences of community flood groups in Scotland (Holstead & van Hulst, 2024). The broader ambition of the research was to examine the role of community flood groups in water
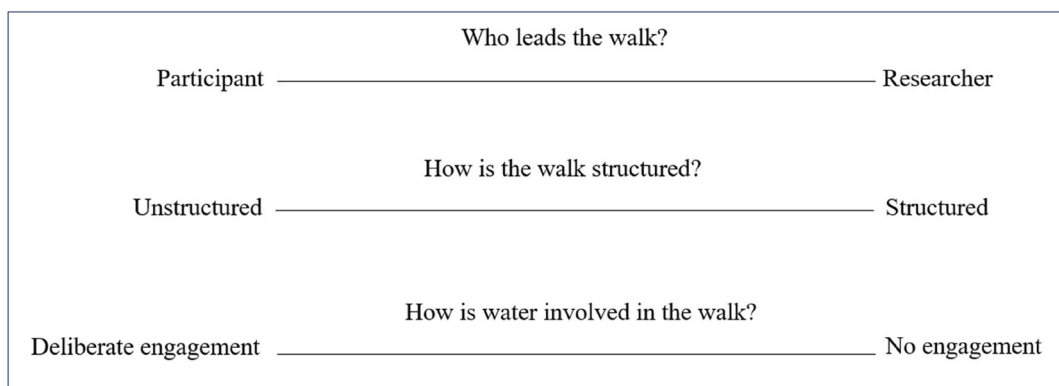

FIGURE 1 The three planes of variation include the walk leader, mode of walking, and engagement with water. Water walks differ along the three planes. The planes of variation are meant as a tool to consider the kind of water walk researchers may like to do and how it fits with others. A researcher may "turn the dial up" on one plane and down on another—as we show later through four cases in Section 3.1. No hierarchy is implied in the planes and their variations: They are a menu of options for choice, a means of walk characterization, and a way to encourage methodological transparency and rigor.

TABLE 2 Mapping four water walks according to the three planes of variation.

	Case 1 (Scotland)	Case 2 (Malawi)	Case 3 (England)	Case 4 (Scotland)
Who leads the walk?	Participant	Researcher/Participant	Researcher	Researcher
What mode does the water walk take?	Semi-structured	Wander	Tour	Semi-structured
How is water integrated into the approach or experience?	It is used to prompt discussion of local communities' role in flood risk management	It becomes a "participant" in the research to explore the physical and cultural significance of water	It is a backdrop and focus of discussion to explore policy and water governance institutions	The researcher mapped the water landscape to understand transitions in water provision systems

governance and how they shaped flood risk management in local areas. The water walks were led by the interviewees, who were invited to guide the researcher to sites of significance related to the research topic. The interviewees decided on the route, which then shaped the interview topics. The water walks allowed for vivid discussions of memories and experiences in context. As they walked, they made stops to show and describe past flood events and how they unfolded. They visited various locations including bridges, a self-built flood wall, flooded fields, parks, homes, and community centers. This engagement with water and the landscape during the walks propelled detailed discussions about how high flood waters rose, at which rate, who intervened, and how, as well as the resources and connections required for community flood responses. For instance, in one interview, the interviewee drew attention to three markers on a canal wall, which each indicated to community members during high waters at which point they should first move their cars, second consider alerting neighbors, and finally evacuate.

In this example, water walks served as a gateway to new research vistas, opening up discussions about the patterns of interactions between communities and public bodies and the solutions implemented (both satisfactorily and, in other cases, unsatisfactorily) in response. For example, while walking, interviewees discussed sandbags as a flood defense mechanism. Seeing the remains of the decaying sandbags in place throughout the town brought to life a visceral issue within the community. The visual prompts of the sandbags led to an intriguing discussion about the challenges of using them as a means of flood protection. As a result of the challenges that arose in using sandbags, including relying on others to provide and move them, the need to clean them away after use, and the decaying materials they produced which littered local areas, the discussion moved to the innovative community-led flood responses. Later, the interviewee detailed the activities related to the sandbags and the collaboration required by public bodies and the community flood groups to induce change, expressing the group's agency and capabilities. These ideas later became the central topic of the research, demonstrating how water walks can prompt new vistas. In sum, the water walk provided insight into perceptions of flooding problems, the multiple contexts and scope in which the community flood groups worked, and the areas where communities and public bodies came into tension (including approaches to flood defense, reporting incidents, ability to provide local knowledge, and accessing information). The case also speaks to the information we can gather with our body and senses in the water walk context and how these affective and sensory experiences, which can evade recognition or detection, can be accessed during walking (Stiegler, 2021). The character of the walk is shown according to the three planes in Figure 2.

3.1.2 | Case II: An open-ended water walk

James Bonner conducted water walks as part of an autoethnographic process to observe, gather, and represent encounters with water in Malawi during research on multiple social and ecological values of water (Bonner, 2022). Water walks were used to explore and examine how water was embedded in the everyday practices of research participants and its wider meanings by understanding water's physical, material, symbolic, and cultural value. Walking with water, guided by a local guide, allowed the researcher to explore the historical and political contexts of water in place and gain insight into traditional knowledge perspectives often ignored in water studies (Mathur & Mulwafu, 2018). Bonner collaborated with local partners and academics to identify the waterbodies and landscapes to walk along and collaboratively designed the series of water walks undertaken in the research with these individuals. Walks generally had a
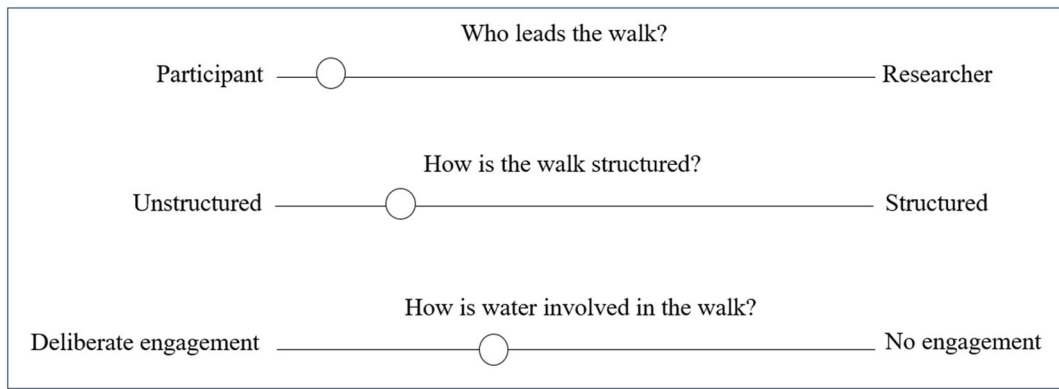
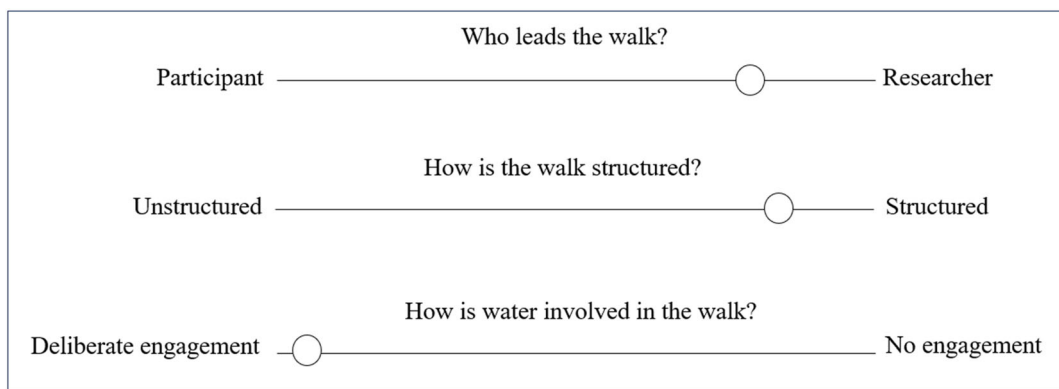**FIGURE 2** A walk-along water walk according to three planes of variation.

FIGURE 3 An open-ended water walk according to three planes of variation.

pre-planned route but with the capacity for deviating and were undertaken by the researcher with local guides. Examples included visiting a culturally significant waterfall, a natural pool where a new water pipeline was installed, and villages experiencing water challenges. Rather than undertaking interviews, ongoing discussions between participants were open and unstructured, leaving space for emergent lines of enquiry and storytelling from the participants. Bonner recorded these encounters by taking notes, making audio soundbites, and collating reflective diaries during and immediately after each water walk.

Adhering to a methodological orientation that sought to include the non-human, water itself was deliberately centered. The water was not only a point of discussion but also a subject of photography, audio and video recording, sketching, mapping, and artifact collection. The researcher and the participants engaged with water through different senses (visual, tactile, and aural) and considered water's aesthetic qualities (see Donald, 2019; Pink, 2015), exploring their encounters and experiences through discussion while they walked and paused for reflection. During the walks, they gathered evidence of water's presence together in a deliberate attempt to honor the water and its diverse meanings. Bonner experimented with ethnographic and arts-based methods to represent the "voice" of water, and relations to it by making sound and video recordings, drawing, forming photographic collages, recording narrative audio reflections, and experimenting with "deep mapping" (see Roberts, 2016, and Figure A1 in Appendix A for an example). These aided the data generation by providing insights into the data and field site while also bringing to life links and entanglements between water and participants' everyday lives, which may have otherwise been missed (Barad, 2007; Romano, 2022). The physical engagements through creative practices with water created space to give attention to alternative onto-epistemological understandings of water, extending the research generation process to provide agency to water as a research participant (Barad, 2007). In doing so, the researcher brought further contrasts between the ideas that dominated proposed solution-focused conversations with policymakers and technical team members and teased out alternative issues and insights raised during the walks. The character of the walk is shown according to the three planes of variation in Figure 3.

3.1.3 | Case III: A water walk tour

The following example involves the research of Kevin Grecksch, who conducted the Birmingham Waterways Walk as an initial scoping and exploratory phase of his research project on water efficiency and behavior change involving professional stakeholders (government, research councils, and other researchers) (Grecksch, 2021a; Grecksch & Lange, 2019). The walk aimed to understand issues of concern for stakeholders and gather ideas for the project, which would later shape the research design and focus. The route (led and predefined by the research team) followed a path through Birmingham's city center, stopping at a canal lock and public buildings, including the economic regulator for the water industry in England and Wales (Ofwat), the Consumer Council for Water, and a local authority. During each stop, the researcher posed several questions about the governance actors in or related to the buildings. Birmingham has a busy canal network, which is the artery of its former industrial character. Today, they are somewhat hidden from the city center, overshadowed by high-rise buildings. The stretch of the Birmingham and Fazeley canal walked along, in this case, is surrounded by modern buildings that face away from the canal, almost hiding its existence. This water walk required careful planning: it encompassed a larger group than interviews with one or two participants, meaning the research team had to ensure all participants could hear and stay together.

In this case, water walks were beneficial in inciting reflexivity in practitioners involved in water governance, thinking through their routines and involvement in water efficiency. For instance, the visit to the local authority building was used to discuss the role of local authorities in water efficiency, resulting in a discussion about water resources management responsibilities in England and associated challenges. Drought is managed mainly by privatized water companies in England, whereas flooding responsibilities lie with the Environment Agency, which is responsible for managing England's rivers. Similarly, at the first stop, a canal lock served as a reminder of how canals were once economic arteries transporting goods and resources across the country. The researcher read an oral history of a woman who got stuck with her canal boat in frozen water during a cold winter in the 1980s and could not continue her business. The stark contrast between the proximity of the municipality building to the canal sparked an interesting dialogue that, despite the proximity, the municipality had almost no say or decision-making power over water-related issues. The imagery and closeness to the topic would not have been reproduced through another means. Furthermore, the water walk supported interviewees in fostering relationships by bringing together people who may not otherwise meet, establishing the potential for shared understanding for participants while they walked (Grecksch, 2021a). Following the discussion and questions raised during the walk, the research team sharpened and refocused the research questions towards public sector organizations and their role in behavior change concerning water efficiency. This walk is mapped in Figure 4 according to the planes of variation.

3.1.4 | Case IV: Water walking with hidden water

Laura Major used water walks in her research on functioning and historical water infrastructures in rural Scotland as part of an ethnographic study investigating how socio-technical transitions in water provision are or could take place in the future (Major & Roberts, 2024). Water walks were used to explore water provision infrastructure and practices
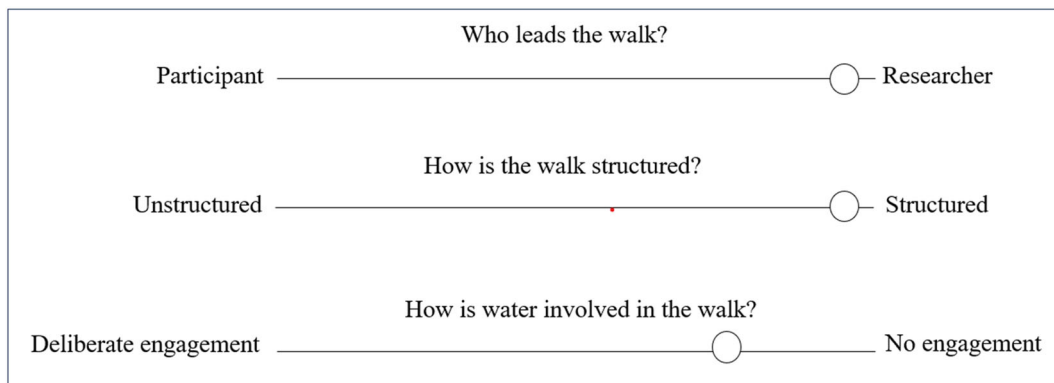

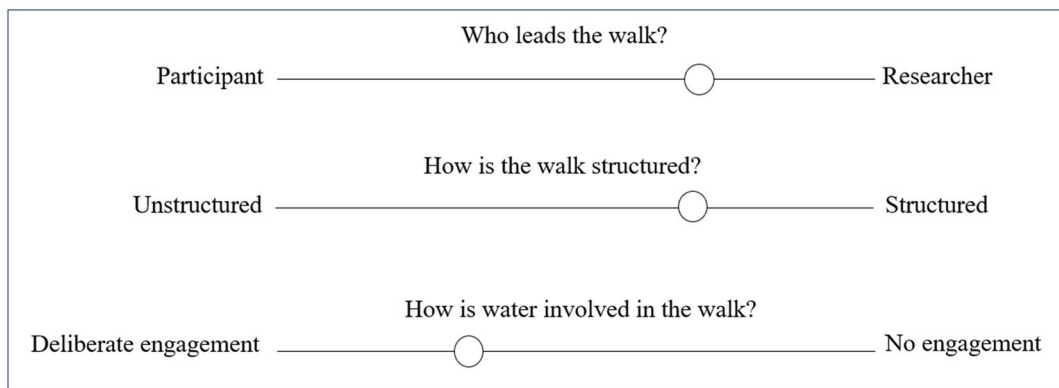**FIGURE 4** A water walk tour according to three planes of variation.

FIGURE 5 A lone water walk according to three planes of variation.

associated with those infrastructures. This included aspects of a water system that users consider relatively mundane, as well as infrastructures that had value beyond an everyday domestic purpose, for example, holding spiritual purpose. These observations were then situated alongside broader community values, priorities, and dynamics. Major sometimes walked alone, with routes planned through conversations with community members and via document research. This planning process involved mapping across scales, so the walk included infrastructure and technologies inside or around properties, through to wells, and the imagined, estimated, or visible routes of springs and other water sources. The walks took place across various terrain, from rough ground to well-maintained roads.

Walking alone overcame some of the limitations to inclusivity inherent in water walks and mobilities research methods since Major did not anticipate that participants would accompany her during the walks. Instead, information drawn from the water walks became part of research conversations and interviews that took place before (if it involved planning a route) or after the walks. There were three main reasons why a lone walk was useful. First, the infrastructure may not have been accessible to participants. Access to private water supply infrastructure can require physical mobility and involve climbing over fencing, slippery ground, leaning over, or standing in water tanks or enclosures. Navigating terrain with participants present was often part of understanding the relationship people had with the water and the waterscape. However, walking alone along a planned route also meant participants were not excluded from the research if they could not or did not want to take a walk. Second, participants might not want to be visibly close to certain aspects of infrastructure to avoid questions about what they were doing. Water supplies in some rural places are at the center of delicate and sometimes fraught relationships within communities, particularly if they involve supplies shared from a single source or are associated with common ground or land with contested or uncertain ownership (see Major & Roberts, 2024). Third, an aspect of the research involved walking in lesser-known or forgotten aspects of waterways. In this case, the researcher mapped or estimated the route, sometimes with the assistance of those with knowledge of the landscape. In the latter case, the activity became about getting to know water and waterways without assuming that the relationality involved is between a human participant and a researcher. What is emerging from the research, which is yet to be published, is a biography of water and infrastructures that foregrounds water in a variety of forms and offers new insight for future design practices (Figure 5).

4 | CONCLUSION

Water walks are increasingly used as a valuable means to gather qualitative data in water-related research. There is no single approach to water walks as a research method, and this paper provides a concise and accessible examination that synthesizes building on existing literature and the authors' past experiences with the method, including practical suggestions. We propose an inclusive conceptualization of water walks and what it means to walk with water to encompass the diverse possibilities the method affords. We then proposed and applied a heuristic based on three planes of variation, including (i) who leads the walk, (ii) the mode of walking, and (iii) the approach to engaging with water. In doing so, we outline how the method can support water-related research and the types of questions the water walk lends itself to. Rather than offering a menu of research possibilities, these planes of variation allow others to consider water walks as part of a craft of research that researchers can mold to diverse research questions and designs, always with reflection,

vigor, and commitment to their participants at the core. By offering transparency in our own applications of the method, we hope to inspire others to enhance reflexivity in methods and methodological choices in water-related research. We demonstrate that water walks offer an adaptable approach that can generate rich insights into participants' lives and experiences, often related to the affordances of being in the environment that water offers. Importantly, researchers must take a critical approach to water walks and contextualize the method with reference to the wider socio-political landscape within which our relationship with water and how we (can) move around it are shaped.

AUTHOR CONTRIBUTIONS

Kirsty Holstead: Conceptualization (lead); data curation (lead); formal analysis (lead); funding acquisition (lead); investigation (lead); methodology (lead); project administration (lead); writing – original draft (lead). **Kevin Grecksch:** Conceptualization (lead); data curation (equal); formal analysis (equal); funding acquisition (equal); investigation (equal); methodology (equal); project administration (equal); writing – original draft (lead). **James Bonner:** Conceptualization (equal); data curation (equal); formal analysis (equal); funding acquisition (equal); investigation (equal); methodology (equal); project administration (equal); writing – original draft (equal). **Laura Major:** Conceptualization (equal); formal analysis (equal); investigation (supporting); methodology (equal); validation (supporting); visualization (supporting); writing – original draft (equal). **Donald Robertson:** Conceptualization (supporting); data curation (supporting); methodology (supporting); writing – original draft (supporting).

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The authors declare no conflicts of interest.

OPEN RESEARCH BADGES

This article has earned an Open Data badge for making publicly available the digitally-shareable data necessary to reproduce the reported results.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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ORCID

Kirsty Holstead https://orcid.org/0000-0001-5121-3098

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APPENDIX A

FIGURE A1 An example of mapping undertaken as The Hydro Nation Scholars Programme funded by the Scottish Government and managed by the Hydro Nation International Center. part of a water walk during fieldwork in Malawi, depicting a visit to villages affected by changes in water infrastructure, collating and representing water-related relations and issues in place (Bonner, 2022).