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A Critical Reflexive Audit of Qualitative Water Governance Research in the Lower Hudson Valley, New York

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ABSTRACT: This paper presents a critically reflexive audit of research we conducted to explore perceptions of water resource governance and conditions. In 2018/19, we administered stakeholder perception surveys to people who were working in, or had contributed to, watershed governance in the Lower Hudson Valley, New York. Through an initial analysis we determined that participation was not representative of regional diversity. As a result, we took steps to address this disparity in participation by developing a mid-course correction and instituting a series of focused interviews with people from communities 'missed' in the surveys. We also conducted an audit of our methods to better understand where we went wrong. Here we discuss our research methods and experiences as well as how our positionalities and a 'colourblind' methodology introduced and maintained barriers to participation. We draw specifically on literature from watershed governance, participation, intersectionality, and critical race theory. We also draw on the responses of interview participants, which identified racialised barriers and lack of representation as key reasons for broader disengagement within the water governance community that we surveyed. We argue that our methods reproduced existing institutional modes of networking and reinforced existing barriers to participation, particularly for under-represented communities.

KEYWORDS: Watershed governance, methods, barriers to participation, critical reflexive audit, Hudson Valley, USA

INTRODUCTION

In this paper, we present a critically reflexive audit of research we conducted to explore perceptions of water resource governance and conditions. In 2018/19, we administered stakeholder perception surveys to people who were working in, or had contributed to, watershed governance in the Lower Hudson Valley, New York. As we were analysing our survey responses, however, we noticed that participation was not representative of regional diversity. Survey participant self-identification showed that our participants were 93% white and largely upper-middle class, with 39.9% of respondents earning more than US$ 100,000 annually, which did not represent regional demographics. As a result, we took steps to

address this disparity in participation, determining that the project would be incomplete without input from a more representative group of participants. We developed a mid-course correction, instituting a series of focused interviews with people from communities that had been 'missed' in the surveys. At the same time, we conducted an audit of our methods to better understand where we had gone wrong.

This paper discusses our research methods and experiences, but also how our own positionalities and 'colourblind' methodology introduced and maintained barriers to participation. We draw specifically on literature from watershed governance, participation, intersectionality, and critical race theory. We also draw on the responses of interview participants, which identified racialised barriers and lack of representation as key reasons for broader disengagement within the water governance community that we surveyed. By considering our own positionalities, alongside interview responses and critical literature, we also draw out how our methodological decisions reinforced institutional barriers to participation throughout our research development, implementation and analysis process. It is our hope that this paper will help others to learn from our mistakes and to develop their own inclusive methodologies.

In our usage, a critical reflexive audit means evaluating our research plan, the mid-course correction (the addition of interviews), and our project outcomes in order to better understand why our original survey did not capture a representative participant pool from the Lower Hudson Valley watershed. To undertake this audit, we assessed our processes in light of the literature regarding diversity and inclusion in public participation and environmental governance. This scholarship helped us examine both our positionalities as researchers and the way in which barriers to participation are maintained or created. This, in turn, helped us critique our choices on methodological design; it also helped make clear how we had depended on existing networks to identify participants and had not worked to overcome – and, in fact, had reinforced – existing barriers based on race and class. We argue that our methods reproduced existing institutional modes of networking and reinforced existing barriers to participation. This audit can contribute to conversations about watershed governance that address methods, critical engagement, and inclusion.

In the remainder of this paper, we will first review selected literature on watershed governance, participation, intersectionality, and critical race theory. We will then provide context and details about our research project and outcomes. We link our project to interview outcomes and scholarly discussions about positionality, representation, and racialised barriers, with a focus on how our methods failed to meet our originally stated goal of comprehensively surveying a regional watershed community. We conclude with a discussion of our positionalities, key themes that emerged through our mid-course correction and audit, and recommendations for how future research(ers) can avoid our missteps and improve outcomes. Throughout the paper, we audit and reflect on our research overall as well as the need for intentional, intersectional approaches to project design, implementation, and analysis.

LITERATURE

Watersheds are areas of land where all the water that falls on the surface drains to a particular body of water (Bunch et al., 2011). Although often politically and infrastructurally fragmented, watershed boundaries are key to understanding a myriad of relationships in socio-ecological systems. Watershed-based governance focuses on the management of such a system by members of formal and informal organisations; these can include scientists, activists, educators, members of non-profits, government officials, and other community members. Watershed groups in particular work at the scale of the watershed and endeavour to inform municipal policy through regional advocacy, prioritisation, and/or public education on issues that affect environmental health, such as lawn chemical use and invasive species (Koontz and Johnson, 2004). Key benefits of effective watershed governance include collaboration, access to local knowledge, and generally adaptive approaches to socio-ecological well-being (Sabatier et al., 2005). With stakeholder inclusivity and shared goals, watershed governance can be an effective collaborative approach to addressing challenges in regional socio-ecological systems (Biddle

and Koontz, 2014; Akhmouch and Clavreul, 2016). Understanding the perceptions of environmental challenges that are held by regional stakeholders can help inform decision-making to the benefit of communities and non-human nature.

There have, however, been many challenges with regard to approaches to watershed governance. Watershed-based organisations have been found to inadequately address inclusivity and representation and to have made insufficient or inappropriate efforts to engage communities (Cohen and Davidson, 2011; Hall, 2016). Cost saving is often prioritised over outreach and inclusion opportunities (Roggero, 2013). Additionally, access to current scientific findings is often limited due to the tendency of the academic community to share findings amongst themselves with little incentive to prioritise public accessibility (Fischer et al., 2015). Even with proper public engagement, some view watershed governance as an approach that lacks legislative and enforcement authority as they are not necessarily representative of municipal interests (Davidson and de Loë, 2014). Also, without terms or electoral positions, organisations can face limited accountability for their decisions (Cohen and Davidson, 2011). While socio-ecological systems such as watersheds are often diverse, historically marginalised groups often experience barriers to participation in environmental decision-making (McDermott et al., 2013; Merino, 2018; Egunyu et al., 2020).

Critical race theory (Delgado and Stefancic, 2017) helps illustrate the ways in which barriers to effective participation in watershed governance – particularly those affecting historically marginalised groups – are embedded within existing systems. The concept of institutional racism (Pulido, 2000; Kohl, 2019; Brand and Miller, 2020; Pin, 2020) posits that environmental organisations and structures continuously (re)produce deeply racialised and uneven power relations. For instance, seemingly 'colourblind' (Omi and Winant, 2014) institutional activities such as surveys or policies support institutional hierarchies of power by obfuscating how the construct of race is naturalised and deployed in service of racialised inequalities (Su, 2017; Brand and Miller, 2020). Without first addressing the ways in which racism is deeply embedded within existing institutional structures, efforts to improve diversity, equity, and inclusion are unlikely to have any lasting impact on inequitable participation and access (Su, 2017; Pin, 2020).

To counter these processes, some environmental justice scholars deploy the concept of intersectionality (The Combahee River Collective, 1995; Crenshaw, 1989, 1991) in order to highlight how intersecting axes of privilege and oppression shape participation within environmental planning efforts (Lloro-Bidart and Finewood, 2018; Kohl, 2019). Crenshaw argues that those who exist at the intersection of multiple "systems of subordination" – for instance, Black women who experience both racism and sexism – experience unique vulnerabilities which often go unaddressed in efforts to address racism or sexism singly (Crenshaw, 1991: 1468). It is therefore necessary for environmental management efforts to pay close attention to intersectional identities when seeking to improve participation among marginalised and racialised groups (Kohl, 2019).

Myriad examples demonstrate the difficulties of addressing representational injustice across environmental governance and engagement efforts (Merino, 2018; Taylor 2018; Egunyu et al., 2020; Troxell, 2021). Watershed management literature is relatively sparse in this area; there are, however some exceptions. Dolan and Middleton (2015), for example, found that Integrated Regional Water Management (IRWM) programmes were beneficial to collaborative watershed planning between Tribal and state/local partners in California when strong working relations were already in place. that already demonstrated strong working relationships. They also found, however, that such programmes acted as further barriers to Tribal participation when such relationships were adversarial. In other cases, even when participation is robust, a false consensus can be created due to discomfort in expressing diverse opinions (Curşeu and Schruijer, 2017).

Taken together, the literature above suggests that a lack of participation or engagement is often the direct result of institutional/structural barriers that are embedded in these processes, and that they are

not evidence of a disengaged or uninterested community. As will be discussed below, responses to our surveys and interviews indicate that while many concerns are shared among a wide variety of participants, typically excluded community members such as people of colour often articulate barriers to participation that are not expressed or experienced by their white neighbours and colleagues. In the next section we will outline the research context, methods, and outcomes in order to provide a better sense of our process, goals, and results.

CONTEXT

In this paper we present a critically reflexive audit of our research on perceptions of water resource governance. Our initial survey results did not represent the actual diversity of the study area and our goal here is to interrogate and articulate why. In this section, we will briefly describe the demographics and context of the study area, the Lower Hudson Valley.

The Lower Hudson Valley, generally speaking, is an area within the Hudson River watershed of New York State, spanning from Albany to Riverdale, Bronx. The total population of the Lower Hudson Valley is about 3.6 million. Figure 1 depicts what is often considered to be the entire Lower Hudson Watershed, although differences in geographic perspective suggest that it is more of an informal region with fuzzy boundaries.

Figure 1. The Lower Hudson Valley.
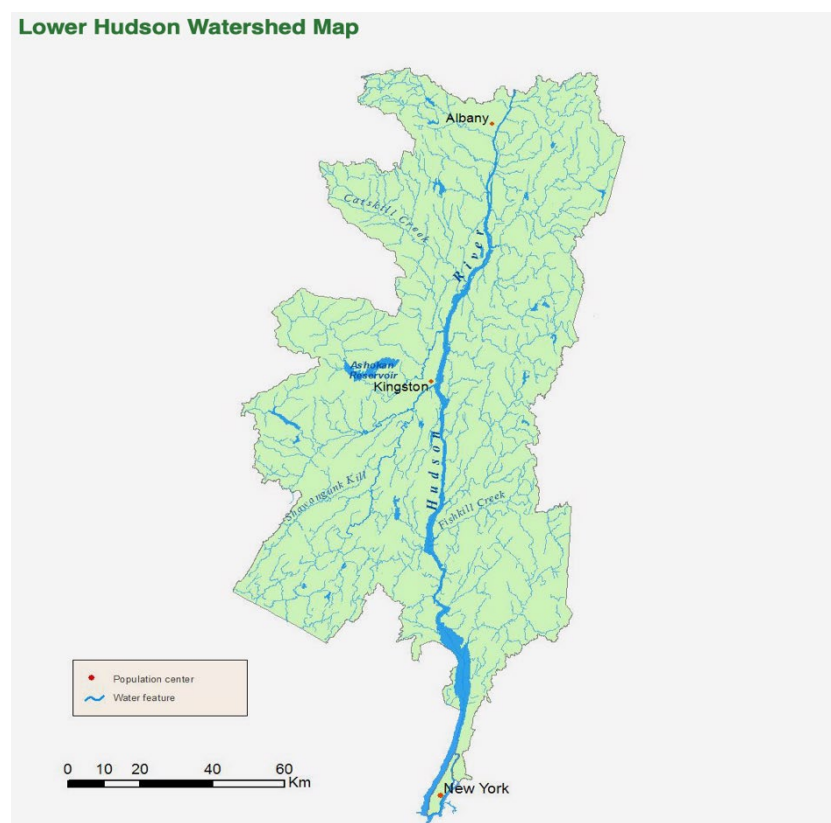
Source: New York State Department of Environmental Conservation (accessed 21 September 2021).

The Lower Hudson Valley includes parts or all of Bronx, Westchester, Putnam, Dutchess, Ulster, Orange, and Rockland Counties. Demographics and land use in each county are diverse, including everything from

densely urbanised areas to sparsely populated rural areas. Except for Bronx County, most counties are majority white. The Bronx is more diverse, with large populations of Black and Latinx communities. Throughout the rest of the region, members of Black and Latinx communities are both more dispersed generally, and residing in particular locations at higher concentrations; African Americans, Hispanics, or Latinx, for example, constitute up to 65% of the population of cities such as Poughkeepsie, Newburgh, Peekskill, Middletown, Haverstraw, and Mount Kisco. About 30% of households in these areas earn less than US$ 25,000 annually, while in the towns of New Castle, Pound Ridge, Scarsdale and Woodbury up to 85% of households earn more than US$ 100,000 annually.

Figure 2. Population density of the Hudson River Valley
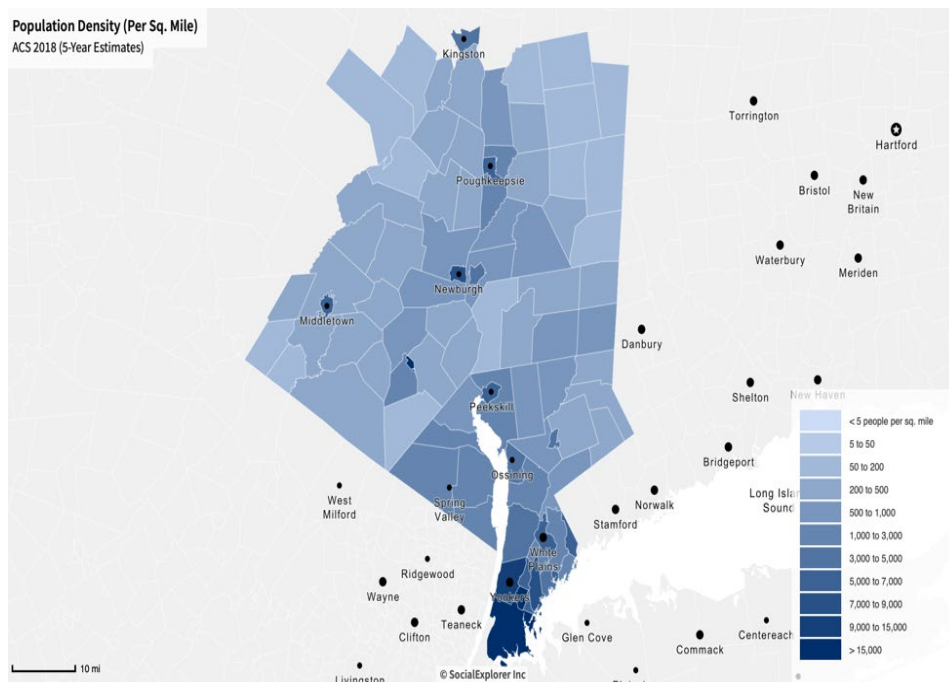
Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020). Map made by authors in Social Explorer.

Table 1. Population of Lower Hudson Valley by race.

Race	Percentage of Lower Hudson Valley population (%)
White alone	40.6
Black or African American alone	18.6
American Indian and Alaska Native alone	0.2
Asian alone	4.2
Native Hawaiian and other Pacific Islanders	0.0
Other	0.5
Two or more races	1.5
Hispanic or Latinx	34.4

Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020).

Table 2. Household income in Lower Hudson Valley by percentage of residents.

Income range	Percentage of Lower Hudson Valley residents (%)
Less than $25,000*	23.5
$25,000 to $49,999	18.9
$50,000 to $74,999	14.7
$75,000 to $99,999	10.6
$100,000 or More	32.4

Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020).

Note: * All dollar amounts are in US dollars.

Awareness of the importance of water resources and watershed governance has a long history in the region. New York City's water system is famous for its source protection strategies (Gandy, 2002; Soll, 2013), and events such as the 1960s struggle to prevent the building of a hydroelectric plant on the slopes of Storm King Mountain have been foundational for the United States' environmental movement (Schuyler, 2018). Regional watershed organisations consist of relatively active and engaged stakeholders who focus on challenges such as development, water quality, flooding, and biodiversity. Historically, these organisations have been driven by concerns about the health of the Hudson River and its tributaries, an important ecosystem known for its estuarine waters that provide habitat and spawning sites for many important species (Riverkeeper, 2017). The Hudson River has had major pollution problems since the 1940s with the disposal of polychlorinated biphenyls (PCBs) in the river; it has been partially dredged in the decades since, but PCBs are still found in aquatic organisms and those that consume them. Commercial and residential areas overuse lawn fertilisers, which contributes to harmful algal blooms. Regional wastewater infrastructure has proven to be unsustainable in some places; under heavy storm conditions, the combined sewer overflows increase the presence of bacteria in local waterways (Riverkeeper, 2017). There has also been an environmental health crisis around the presence of perfluorinated alkylated substances (PFASs) in Orange County drinking water. These and other issues have elevated the importance of regional environmental organisations such as Riverkeeper, the Hudson River Watershed Alliance, and the Hudson River Sloop Clearwater, all of whom seek to monitor and address these issues and to inform the public about them. New York State also created the Hudson River Estuary Program to collaborate with scientific institutions, businesses, local governments, and interested citizens; its aims include conducting research, protecting natural resources, promoting green infrastructure, and supporting climate resiliency. Many of these organisations collaborate to advocate for improved environmental conditions in various capacities (Hudson River Watershed Alliance, 2020). Despite extensive collaboration and the broad-ranging nature of their concerns, these organisations still struggle with a lack of diversity and poor representation of the broader communities they serve.

It is within this context that we developed our project to study environmental priorities and concerns and to survey perceptions of watershed governance in the Lower Hudson Valley. The watershed's importance as a resource, its rich history of environmentalism, and its complex land use and conditions make it a compelling place to study perceptions and decision-making. Its complexities also mean that decision-making can be enhanced by an ongoing analysis of regional perceptions.

SURVEY METHODS AND RESULTS

In 2018/19, our research team conducted surveys focusing on the perceptions, behaviours, and attitudes of Hudson River watershed stakeholders (see also Schneider, 2015; Baxter and Eyles, 1999; McLafferty, 2010). Our survey was divided into general question categories framed around environmental assets, environmental challenges, goals for environmental health, barriers to reaching goals, and participant

demographics. The survey was built on the web-based platform Qualtrics, with 50 questions that took approximately 20 minutes to complete. Questions were multiple choice, ranked choice, and open-ended. The survey was reviewed by peer social scientists and tested for errors before being made public in September 2018.

For the study, we targeted participants that work in the field of, or contribute to, watershed governance in the Lower Hudson Valley region. These included, but were not limited to, engineers, town managers, employees of environmental non-profits and non-governmental organisations, municipal managers, and community activists. Participants were contacted directly through existing networks of watershed groups and the survey was distributed through email listservs. At three regional watershed-centric conferences, we handed out cards with a QR code linked to the survey. By June 2019, the response rate had significantly slowed and we began reviewing the data. The final analysis included 156 survey responses.

General themes were assessed using an inductive approach (Charmaz, 1996; Dixon et al., 2018); individually, and then as a team, researchers reviewed and coded the quantitative and qualitative responses. The peer evaluation process helped to create inter-reliability. Considering who participated and the socio-ecological conditions of the research context, our review of the responses yielded no major surprises. Participant responses reflected overall concerns around environmental health, ecosystem health, climate change, and natural resource protection. Participants most frequently identified regional environmental health as a key asset; qualitative answers in this regard specified clean drinking water, resource access, and recreation. The biggest challenge in the region, on the other hand, was portrayed in participant responses as being environmental management; this included land use decision-making, overdevelopment, and pollution from stormwater, PCBs, and PFASs. Goals for regional environmental health that were articulated by participants primarily focused on the management of pollution, overdevelopment, invasive species, and stormwater flooding, as well as on maintaining water quality, expanding public education on environmental issues, and increasing stewardship. Finally, the barriers to regional health goals were identified by participants as being lack of authority, low levels of collaboration, and poor enforcement among municipalities, followed by lack of funding for research and public education projects.

While these results were useful in helping to better understand regional perceptions – a key motive for this project – our analysis also showed that survey participants did not represent regional diversity. Of the participants, 93% identified as white and most were upper-middle class, with 39.9% of respondents earning more than US$ 100,000 a year, while the region itself is in fact much more diverse in terms of race and class (Tables 1 and 2). In the following section, we discuss the steps we took to address this gap, and in the subsequent section we discuss why.

Table 3. Survey participants by race.

Self-identified race	Percentage of survey participants (%)
American Indian or Alaskan Native	0.00
Asian	1.39
Black/African American (non-Hispanic)	0.00
Native Hawaiian or other Pacific Islander	0.00
White/Caucasian (non-Hispanic)	93.06
Hispanic/Latinx	0.00
Multiracial	1.39
Prefer not to answer	4.17

Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020).

Table 4. Survey participants by income range.

Income range	Percentage of survey participants (%)
Less than $20,000*	9.09
$20,000 to $34,999	6.06
$35,000 to $49,999	12.12
$50,000 to $74,999	22.73
$75,000 to $99,999	10.61
Over $100,000	39.39

Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020).

Note: * All dollar amounts are in US dollars.

METHODOLOGICAL CRITICAL AUDIT AND ADJUSTMENT

After reviewing our project's participation disparity, we conducted a critically reflexive audit driven by two directives: first, what steps can we take to diversify our responses in a way that better represents our study area; and second, why did we have these participation outcomes in the first place. To address the first question, the research team decided to conduct interviews to include more diverse and regionally representative voices. Specifically, we conducted semi-structured interviews using a focused approach, where particular actors were sought out for their knowledge, experience, or perspective (Koontz and Johnson, 2004; Jemison et al., 2014; Medema et al., 2016; Reed et al., 2014). A focused approach means having conversations with people who have had specific experiences or who can address particular topics. This approach also provides flexibility in conversations, opening up space for participants to express their passions, experiences, and perspectives (Valentine, 1997; Paolisso, 2002). The approach does not mean rigorous interviews are conducted to discover all missing perspectives; however, this particular focused interview data helps highlight potential areas of disparity between the survey data and what a more representative sample would indicate. This data can also help guide future, more in-depth, interviews.

Using our existing networks, we contacted colleagues who self-identified as being under-represented in the water governance field either by race, class, gender, or some combination of those categories. Upon initial contact, we described the project and the participation disparity. We then explained our specific interest in addressing the weakness in our current method and data by diversifying participation. We proposed questions around perceptions of regional environmental issues (mirroring the survey), but we also added questions about barriers to participation. Eight participants agreed to be interviewed. Following approved Institutional Review Board protocols, each interview lasted approximately an hour and was recorded with consent. Recordings were then transcribed and analysed manually for shared themes (Charmaz, 2006). It is important to note that we did not request specific information about how participants identified because we explained our motives when soliciting participation; however, when giving their interviews, participants volunteered information about how their own identity fit within the broader community. All but one participant identified in terms of race (Table 5).

Table 5. Interview participants who self-identified by race.

Self-identified race	Percentage of interview participants (%)
Black/African American	50.00
"Brown"	12.50
White	25.00
Did not self-identify	12.50

Source: US Census Bureau American Community Survey 5-year estimates (accessed 20 March 2020).

Interview results

The interview questions had two goals. First, we wanted to know the perceptions of watershed governance that were held by interview participants. To do so we asked questions that were similar to our survey questions. This also helped to meet the first directive we created through our audit, which was to better understand the perceptions of those whose voices were under-represented in our survey of the water governance community. The second goal of our interview questions was to learn what barriers existed that would prevent some community members from participating both in our project and in the water governance field. To address this, we asked questions specifically about barriers to participation from personal and institutional standpoints.

Regarding perceptions of environmental assets, environmental challenges, and goals for environmental health within the watershed, interview responses were consistent with survey results. Interview participants discussed assets such as recreational and open spaces, high quality regional waterways, land preservation, low pollution, and good water quality. One participant, however, parsed these assets by race when speaking of the community they lived in, saying that, "it depends on from person to person but for Black folks in [this] city, environmentally [it] has been a piss poor town".

Regarding environmental challenges, both survey and interview participants emphasised unsustainable development and pollution. Qualitatively, interview participants identified specific regional concerns as being poor construction or development practices, unsustainable consumerism, and the burning of fossil fuels. Here again, interview participants elaborated on how these issues could be specifically understood through the lens of race and class; they told stories of family and community members who got sick from PFAS-polluted drinking water, how lead and asbestos were still present in houses in poor communities, and the general malaise created by living near combined sewer outfalls. Both survey and interview responses to questions about barriers likewise mentioned a lack of enforcement authority, inadequate funding, and little political will to protect environmental resources within these communities.

We found a key difference between survey responses and interviews in terms of improvements the region could make in their approach to water governance. There was a consistent desire expressed for better environmental conditions, more funding for scientific research, and more extensive public education and outreach. However, while survey responses focused on creating a larger network of citizens to support policies and initiatives through general environmental activism, interview participants were more likely to feel that the overall goal should be less about supporting large-scale action and more about instituting fairness and trust in the decision-making process, particularly by working with non-profits whose employees are representative of the communities they serve. As one participant noted, this would help "empower marginalised communities" rather than "creating tokenism or making diversity hires" that advance the appearance of an organisation but do not allow communities to fully participate.

Barriers to participation

The second goal of the interviews was to better understand barriers to participation as they relate to people who were under-represented in our survey. Here responses shifted drastically from the qualitative responses in the survey. While there was scant reference to issues of race, class, and gender in the surveys, interview participants explicitly discussed the role of these characteristics as they relate to the capacity to participate in watershed governance. The interview analysis yielded four main themes that are helpful for thinking about barriers to participation: the role of class, systemic racism, interpersonal racism, and lack of representation. In the subsections below we elaborate on these thematic responses through descriptions and quotes. In the final section of the paper, we discuss how the literature and interview responses combine to help explain the shortfalls or our survey project as well as provide guidance for researchers conducting similar work.

Class as a barrier

Class – as a marker of where someone is positioned on the hierarchy of household wealth and access to resources – was one of the most common themes interview participants identified as being an issue when attempting to get involved in, or learn about, watershed governance. Class manifested itself in multiple ways but was almost always referred to as a barrier. One participant mentioned a proposed power plant in a low-income community where residents did not have the time or resources to attend informational hearings. As a result, they were not able to make an educated decision as to whether to allow it or to protest its development. As they described it,

> They held an open house in a secluded area. They didn't give enough information to alert the community that this was what was happening in due time. If you're working three or four jobs, you need to prioritise, you need to schedule and other things. If you have other issues going on like you need to feed your kids, you don't have childcare for your kids, you don't have enough food. It's poverty.

Another participant expressed similar concerns about lack of time and insufficient capacity for participation, saying that,

> In lower income communities who don't have those resources. Or even – not just money, but time as well – is really important in terms of being able to advocate for yourself and these kinds of things. I know for me I haven't been able to. I don't go attend these meetings because I have other things that I have to be doing.

This was further extended to the limited choices and capacity that community members had for sustainable environmental choices in general. Income, in particular, was a major determinant of the ability to pursue sustainable strategies at home. As one participant said, "When you're living from paycheck to paycheck, you can't spend time going, okay, which apple should I buy because it's the most sustainable. I'm going to the grocery store and I'm buying the apple that's there".

Education as a marker of class also emerged regularly among participants. In this context, the cost of getting a four-year degree in the environmental science field was posited as a privilege that many people with lower incomes do not have. Nonetheless, these degrees were perceived to be social equalisers and the opinions of those who held academic credentials were automatically accorded more respect and authority. It was also relevant that employment in the environmental field is competitive and that most entry-level jobs do not pay a living wage. Even with four-year degrees, people with little economic support often have to work their way up an increasingly difficult ladder with few opportunities for growth or leadership. Coupled with student debt and income inequality, participants expressed frustration at the difficulty of getting an education, gaining experience, and earning a living wage within the field. One participant said, for example, that,

> To get an entry-level position you have to have five years' experience plus a bachelor's degree, so you need to spend like so much money getting this education, but that's not good enough. You also have to work for us for a free or reduced rate and then maybe something will open up.

Other class-themed barriers included the concern that low-income communities would never have sufficient resources to protect themselves from environmental hazards while often being, at the same time, disproportionately burdened. This creates a level of indifference to governance that also serves as a barrier to participation. In the context of whose health is valued and whose is not, one participant said that,

> It's that clichéd saying of those who don't examine the past, those who don't learn from it, are doomed to repeat it. So thinking of Flint, for example, and even thinking about Detroit where the Detroit River runs where the Flint water supply came from. People packed up and left and there was a disregard. In the case of Flint, [the] contaminated acidic Flint River was good enough for the Black folk of Flint, but not good enough for others. And the cost-cutting measure saved the equivalent of like pennies. It was a risk that people wouldn't accept for their own neighbourhoods, but it was good enough to put on somebody else.

Participants also noted how communities with fewer resources faced difficulties in accessing, growing, and/or maintaining green spaces, which are key to community members creating memories and developing fondness for the physical environment. This barrier is institutional in that it drives people away from participation through a lack of knowledge or interest. In the following quote, a participant is pointing out how the degradation of their local parks connects to broader indifference in their community:

> The problem with the parks is, I don't believe kids play in parks as often as they did. They do on really nice days and everything but a lot of these parks are underutilised because they don't look that good. Aesthetically they are not that good looking. There's graffiti everywhere and they need money.

Although most participants recognised that there was funding available for improving communities, these resources were perceived as unavailable due to a lack of knowledge on how to access them. Participants felt that a community, organisation, or private entity that has more resources also typically has better access to grants or is more likely to receive support. This contributes to the capacity for these groups to work on improving watershed health. And this also means that communities with fewer resources either do not try to find the support they need or struggle when seeking it. This barrier was expressed in interview participants' critiques of both institutional funding priorities and of the general resources that go to communities. One person, referring to Federal Emergency Management Act (FEMA) emergency funding, commented that you can see this disparity by observing, "whose FEMA claims are denied or whose are approved".

Another class-related theme that emerged was related to who benefits from research. Many participants felt that scientists often investigate the conditions in environmental justice areas, but once they are finished, they leave and never bring benefits back to the community. In some cases, participants talked about how they did not know how to access the research or how to contact the researcher. This creates a belief that researchers are only interested in the community for their own benefit. Participants also did not think that scientists believe it is their responsibility to communicate research back to the community. This lack of inclusion and failure to build trust throughout a research process alienates communities, creating long-term barriers to engagement. As one participant commented, "Researchers are coming into a community that they're not a part of and coming in and doing work and not giving that information to the people that are there and kind of being left in the dark".

One participant also mentioned that when research is published or made publicly available, it is usually written in vexing, inaccessible language that only experts can understand:

> I was reading a paper actually today and it was filled with 40-word sentences that I had to stop and start to read. They were trying to convey something important but just how they did it was like, 'I'm going to use as many big words as possible'. The meaning gets jumbled. I think we struggle with how to communicate and there is a sense of showmanship; 'I need to one-up somebody else' and it's not effective communication. I think how we get information out is a thing. Moving past our own egos in the scientific world.

Interpersonal racism as a barrier

The second key theme that emerged from interviews was interpersonal racism; this occurs between individuals when personal racist beliefs are expressed, either explicitly through an interaction or implicitly through microaggressions (Paradies, 2006). Interpersonal racism presents an obvious barrier, as direct or indirect acts of bias in white-dominated spaces can make people of colour feel uncomfortable and thus deter them from participating in watershed governance. Interview participants shared their experiences with regard to interpersonal bias or racism and the effects those experiences had on their willingness to engage in watershed-based activities. One participant, for example, described their experiences of being out in a park or on a hike with friends and feeling unwelcome or being perceived negatively by others for congregating in an open space:

> There's this silent barrier. This invisible barrier, if that's what you want to call it, to open spaces. If there's an open space, chances are people of colour [want to] congregate, [but] it could be viewed as something negative. And I think that's what set people of colour from not going to these open spaces.

Another interview participant shared a story of conducting fieldwork on private property where a young Black man was fishing, unaware that he was trespassing. The land manager decided to call the police rather than just let the young man know he was trespassing, which was the more common practice. The participant described how this unnecessary escalation concerns many people of colour and prevents them from enjoying green spaces. They further noted that this enjoyment of green space is an important way that people make connections with their surroundings and generate an interest in their watershed. An escalation such as they described was an example of creating an unnecessary barrier to making such connections.

Another participant shared a similar story of doing fieldwork in an official vehicle. In that case, the participant was interacting with a landowner who was directing his racism at local day labourers, wanting to antagonise them. Despite it being directed at others, such interpersonal racism still affected the interview participant as it acknowledged the landowner's willingness to be more aggressive towards others. As the participant recounted,

> I was in Orange County and at a culvert per usual, and a landowner was speaking with me and all of a sudden he said, you should take your truck. You know I have a vehicle, it's a former law enforcement vehicle that I use. But he said I should take my truck and drive it around Home Depot and I said why? Why would I do that? And he said, so you can watch the Mexicans run like rats.

All participants acknowledged experiencing microaggressions in their work. As these build up, they create strain in navigating the cultural and political norms of watershed governance. Over time, microaggressions accumulate and serve as a barrier for those seeking to sustain a career or professional-level involvement dealing with environmental issues within a watershed. This day-to-day necessity to be on guard becomes a part of the job. As one participant noted, "I still have to check myself because there are stereotypes, you know? I am not allowed to show emotion because if I show emotion then I become the angry Black bitch".

Systemic racism as a barrier

Here we define systemic racism as the institutionalised processes that establish, maintain and codify white supremacy in societies (Pulido, 2000). Interview participants often linked their interpersonal

experiences with broader systemically racist institutions, histories, and policies; these often intersected with categories of race and gender to create barriers that seemed to occur 'naturally' in society or were at least socially acceptable. Institutional racism at a range of scales weighed heavily in the stories told by interview participants, and national anecdotes were often woven together with local experiences. Here, for example, an interview participant articulates how racism is foundational to national origins and continues to impact communities today:

> A long time ago in this country, very long time ago, there was a game played. The monopoly game. Where resources were handed out and Black people were not allowed to play monopoly. For about 450 years' worth of turns. And *then* they let us in the game. So now it's time to pull up by our bootstraps, but we don't have the money because everyone else has had resources all that time, and we had limited access to resources. So now, with our limited access to resources, we're made to live out here in the world where we have to fend for ourselves in downtown, where it's dirty water, dirty air, and we can't move out of downtown because we don't have the money or the resources. So all this stuff, whenever you see this stuff, it's always a tax on Black folks first. I guarantee it. It starts with racism.

Another participant drew out more specifically the multiple ways that racism has impacted communities over time. In communities of colour, these long-term public and environmental health impacts are not only acutely felt, they also present yet another barrier to participation, as people must often put the majority of their resources into coping instead of navigating political processes of environmental engagement. These efforts also transfer across generations, entrenching injustice in the communities that already have the fewest resources:

> It's about the haves and the have-nots. Everywhere you go. Like right now I think of Beaumont, Texas. And there's another Black enclave down south. In those towns you have a bulk of the country's sewage dropped there. The air they breathe down there is poisonous. But [politicians] don't give a damn about them because they're all Black. If you go through the history of all the stuff that we're going through – where it's easy to take advantage of people – you find it's always racism. Look at all these environments and you see people with the highest rates of lead poisoning: inner city. Asbestos exposure: inner city. All that shit that goes on with the high blood pressure and obesity: inner city. The haves versus the have-nots. It starts with racism and it starts with people having resources and the people that haven't resources.

Another participant elaborated on similar connections between systemic racism and how it maintains poor public health conditions in vulnerable or under-resourced communities. Notably, this participant also described how even naming environmental racism can hurt the feelings of white people, and thus must be sanitised to be discussed:

> [Today's] generic American inequity… is a history of systemic racism that infiltrates all aspects [of society], whether we realise it or not. Environmental racism is something that I wish we would call the term, but we call it environmental justice so we don't hurt people's feelings. But people who have the least amount of money – especially immigrants, especially people of colour – people who have the least amount of resources to defend themselves, plus the least amount of time to navigate how really messed up the system can be, are the ones who bear the environmental consequences.

In a final example of systemic racism as a barrier, a participant expressed the overwhelming entrenchment of systemic racism as having an effect on their own anxiety about their ability to affect meaningful change. Linking local action to broader scales of policy and decision-making, while often a strategy of resistance, here instead becomes a way to express true frustration with our collective political system. The feeling of inability then serves as a barrier to continuing to work on improving environmental conditions:

> It boggles my mind a little that we're diverting military spending to build a wall, but Flint still doesn't have clean water. Even in Newark there's a water crisis there as well. It's hard to sometimes know what to do

beyond just being aware of the fact that there are these disparities and that certain communities are being disproportionately affected.

Lack of representation as a barrier

A final key theme that emerged from our analysis was the way in which lack of representation acted as a barrier to participation. While this may seem counterintuitive coming from individuals who participate in watershed governance, it is a lack of representation alongside the burden of representation that becomes a barrier. On the one hand, lack of representation is problematic because it inherently means there are voices missing from the conversation, and exclusion can then become self-perpetuating. On the other hand, participants often mentioned the discomfort they felt from being in rooms full of people where no one else looked like them. These participants also expressed how they were then expected to represent the interests of all communities of colour, despite the diversity within those communities. Pioneering a path for future people of colour without the support of someone who has been through it can be a source of heightened stress. This phenomenon occurs across all fields, but those engaged in watershed governance seemed particularly frustrated by the lack of diversity within the field. As one participant found herself constantly wondering, "How come I'm the only brown person in the room?"

The burden of representation can also make it difficult to grow or excel in the field. As the participant explains below, they feel as though they must always be prepared to represent their community with excellence, which wears on their mental and physical well-being. They must constantly shift capacity to this effort, which can take away from their ability to achieve long-term career goals or access new opportunities:

> When I feel like I'm being a representative of people who look like me, and trying to prove that I can do this work and that I am worthy of putting these resources behind, it can be a lot – I can get a lot of anxiety. It's exhausting. It's constant. I always feel like I have to have my guard up.

While support from people who look like you or come from your community is critical for individual success, support must also come from others in your organisations and collaborations. When participants feel, as noted above, that they are tokenised, they often have the sense that they are set up for failure because there are no resources to address their specific experiences. All the participants noted that it was more difficult for them than for their white counterparts to remain in the field of watershed governance specifically because of the particular challenges of being from an under-represented group. One participant, suggesting that this consistently compels people to leave, said that, "Our organisation has a history of tokenising people which is devastating to them and I've seen it time and time again where it's really pushed someone out the door".

DISCUSSION AND RECOMMENDATIONS

In this paper we present our research project and the challenges we faced due to our own positionalities and our attempt to institute a colourblind methodological approach. Our primary research group was comprised of a white male, a Latinx female, and a white female, all of whom were working at or attending a regional university. We developed our project with the intention of surveying a community of people that we knew to be diverse; however, we also knew that the key players – those who were most tightly networked – were largely white and upper-middle class. As we noted in our research proposal, instead of explicitly attempting to seek out participation from the wider, more diverse network, we centred our efforts on, "creating rigorous methods through appropriately designed questions". In order to ensure 'objectivity', we spent considerable time reviewing our questions and addressing peer reviews of them. By the time we made the survey public, we felt confident that our assumed objectivity would ensure that it would be well-received in the water governance community. In our opinion, that focus on objectivity – on 'colourblind' methods – was our foundational mistake. Besides questioning what objectivity means,

we should have focused more on surveying beyond the tightly networked community within which we worked.

The survey was indeed well-received and there is ongoing interest in the results. Despite some critical feedback (including some criticism for *including* demographic questions in a survey about environmental issues), the survey was shared widely across listservs and through emails. As noted above, the project research group also distributed business cards with links and QR codes at various types of meetings. Each of these distribution methods used and reproduced existing institutional modes of communication, which reified existing participation networks. After the survey had been public for a few months, we were excited about the response rate. However, after looking at the results it became clear that we had missed part of our goal. We were also troubled by a lack of diverse responses, even though diversity and equity were/are important to our personal and project ethics. It was at that point that we began our critical audit.

We believe there are two broad takeaways from our experience. First, there are three important overarching themes that emerged from the interview analysis, particularly when considered alongside literature on watershed governance, participation, intersectionality, and critical race theory: participation is not objective, expectations for participation can be a barrier, and perceptions of the appropriate scales of action are diverse. Second, we believe there is something to learn from our experience and we hope we can make recommendations that will help others. We summarise these two takeaways in the remainder of this paper.

In instituting a critical audit, we returned to the literature to evaluate and redesign our methods and to better analyse our responses. This helped us to examine our own positionalities and methods more effectively; it also guided the design of our research methods and protocols such that they yielded more representative responses. Instead of analysing our interview responses 'objectively', we analysed them through the lens of race, class, and gender to identify barriers to participation. The first theme yielded by that analysis was that participation is not objective. In both our project and in the field of water governance more broadly, for under-represented communities, participation was overshadowed by the unacknowledged norms of whiteness and the feeling of outsiderness. If participation is an expectation without an acknowledgement of diverse experiences, then that failure to acknowledge diversity can serve as a barrier.

The second key theme revolved around the expectations placed on members of under-represented communities in the water governance world in terms of the nature and quality of their engagement. Participants described the constant requirement that they adapt and 'get along' in the face of institutional and interpersonal racism, sexism, classism, etc. This played out through microaggressions, institutional barriers, unequal information access, and/or the general toll that these aspects of engagement took in terms of general exhaustion, reduced capacity to focus on the main tasks at hand, and an overall compromised sense of well-being. The expectation that people can and should participate is thus undermined by their lived reality. If participation is centred on the needs and experiences of white, upper-middle class stakeholders, then barriers remain in place for others and are often unacknowledged.

The third key theme that emerged from the interviews (read together with the surveys) was that the perception of the appropriate scale of action is different among diverse community members. In other words, the actions that survey participants wanted to take for improving regional environmental conditions were focused on large-scale policy and regulations; however, interview participants talked about the importance of more localised, on-the-ground action. While survey and interview participants thus shared concerns, they diverged on ways to solve problems. We found this outcome to be one of the strongest reasons for focusing on the diversification of methodological approaches: if only one group is represented then that group's ideas will become the norm, creating barriers for alternative perspectives.

Finally, we would like to offer two recommendations to other researchers who are interested in similar topics and methods. First, if researchers are serious about diversity, equity, and inclusion, they must be

deliberate in decolonising the research and must institute practices that centre race, class, gender, and other intersectional characteristics. We were not proactive in this regard and that was our major mistake. The lesson that plays out from our project is revealed through the differences in responses between survey participants and interview participants. The interview themes – class, systemic racism, interpersonal racism, and lack of representation – were virtually unrepresented in the survey data, despite sharing many regional concerns with the original survey responses. This suggests that not only are there barriers to participation, but also that these barriers are a low priority for the majority of watershed governance actors.

Second, decolonising our own research must include admitting when and how we reinforce institutional racism and white supremacy. In this paper, we present our critical audit in part to acknowledge our own biases and privileges and how they shaped our research outcomes in service of institutional racism. We also aim to show how our research actually contributed to, and reinforced, these systems of inequity. We continue to share our findings regionally and nationally in an effort to break the patterns that entrench barriers to participation. We encourage others to take on these efforts as well.

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