"The legacy will be the change": Reconciling how we live with and relate to water

Lindsay Day, Ashlee Cunsolo, Heather Castleden, Alex Sawatzky, Debbie Martin, Catherine Hart, Cate Dewey & Sherilee L. Harper

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Lindsay Day
University of Guelph, Canada, lindsay@gordonfn.org

Ashlee Cunsolo
Labrador Institute of Memorial University, Canada, ashlee.cunsolo@mun.ca

Heather Castleden
Queen's University, Canada, Heather.Castleden@queensu.ca

Alex Sawatzky
Labrador Institute of Memorial University, Canada, asawatzky@mun.ca

Debbie Martin
Dalhousie University, Canada, dhmartin@dal.ca

Catherine Hart
Queen's University, Canada, cathart28@gmail.com

Cate Dewey
University of Guelph, Canada, cdewey@uoguelph.ca

Sherilee L. Harper
University of Alberta and University of Guelph, Canada, sherilee.harper@ualberta.ca

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“The Legacy Will Be the Change”: Reconciling How We Live with and Relate to Water

Abstract

Current challenges relating to water governance in Canada are motivating calls for approaches that implement Indigenous and Western knowledge systems together, as well as calls to form equitable partnerships with Indigenous Peoples grounded in respectful Nation-to-Nation relationships. By foregrounding the perspectives of First Nations, Inuit, and Métis peoples, this study explores the nature and dimensions of Indigenous ways of knowing around water and examines what the inclusion of Indigenous voices, lived experience, and knowledge mean for water policy and research. Data were collected during a National Water Gathering that brought together 32 Indigenous and non-Indigenous water experts, researchers, and knowledge holders from across Canada. Data were analyzed thematically through a collaborative podcasting methodology, which also contributed to an audio-documentary podcast (www.WaterDialogues.ca).

Keywords

water governance, First Nations, Inuit, Métis, Indigenous knowledge systems, Western knowledge systems, Two-Eyed Seeing, Canada, environmental dispossession, environmental repossession, podcast, water

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"The Legacy Will Be the Change": Reconciling How We Live with and Relate to Water

Water is a priority policy issue worldwide as natural water systems across the globe come under increasing strain from pollution, excessive agricultural and industrial withdrawals, land conversion (e.g., urbanization, deforestation), diversion of waterways, population growth, and the impacts of climate change (Cosgrove & Loucks, 2015; Pérez-Jvostov et al., 2019; Vörösmarty et al., 2010). These pressures and stressors on water systems create issues for water quality and access—in many cases perpetuating social inequities related to water (United Nations World Water Assessment Programme [UNWWAP], 2015). Increasingly, these critical and mounting water-related challenges compel us to re-examine our values, policies, and actions with respect to how we use, impact, and protect—or fail to protect—the water on which all living beings depend (Sandford & Phare, 2011; Schmidt, 2017; Wilson, 2019).

In Canada, the fundamental need for such critical re-evaluation is perhaps nowhere more evident and urgent than with respect to addressing the longstanding and pervasive water-related issues faced by Indigenous communities. These issues are reflected, in part, by longstanding boil water advisories, and inadequate, absent, or inappropriate water infrastructure (Auditor General of Canada, 2005; Simeone, 2009). For example, as of January 2020, Indigenous Services Canada (2020) reported 57 long-term drinking water advisories in effect on First Nation reserves. With respect to drinking water infrastructure, a comprehensive, independent national assessment commissioned by the Government of Canada between 2009 and 2011 found that of the 807 drinking water systems evaluated in First Nation communities, 63% posed a high or medium "overall risk to water quality" (Neegan Burnside Ltd., 2011). Studies pertaining to a number of Northern Inuit communities reflect similar concerns regarding access to, and quality of, drinking water (Daley et al., 2014, 2015; Goldhar et al., 2013; Hanrahan et al., 2014; Sakar et al., 2015; Wright et al., 2018), including concerns regarding impacts of climate change (Goldhar et al., 2014; Harper et al., 2011; Martin et al., 2007).

Concerns over water in many Indigenous communities extend well beyond drinking water, wastewater, and related infrastructure. Repeated flooding (Auditor General of Canada, 2013; Ballard & Thompson, 2013; Khalafzaia et al., 2019), environmental contamination (Harada et al., 2011; Sandlos & Keeling, 2016; Smith et al., 2010), and declining health of aquatic ecosystems and species habitats (Page, 2007; Prowse et al., 2009) are other examples of issues that change and reduce the ways in which Indigenous Peoples can access and use water. Richmond and Ross (2009) used the term "environmental dispossession" to describe the direct and indirect mechanisms that change and reduce Indigenous Peoples' access to environmental resources, including physical displacement from Traditional Lands, loss of access to and control over these lands, and the impacts of assimilationist policies, pollution, and climate change. Processes of environmental dispossession can impact Indigenous Peoples' health, well-being, livelihoods, and cultures in myriad ways, such as limited access to traditional foods and medicines (Tobias & Richmond, 2014); fewer opportunities for land-based education and knowledge sharing (Greenwood & Lindsay, 2019; Richmond & Ross, 2009); strains on social cohesion and connections (Harper et al., 2015); and impacts to the distinctive spiritual, place-based relationships many Indigenous Peoples hold with the lands, animals, plants, and waters that are essential components of cultural identities (Arsenault et al., 2018; Cunsolo Willox et al., 2012; Richmond & Ross, 2009).

The pervasive water-related issues stemming from environmental dispossession experienced by Indigenous Peoples in Canada are complex, broad ranging, and ultimately rooted in historic and

ongoing colonial processes (Basdeo & Bharadwaj, 2013; Stefanelli et al., 2017; Walkem, 2007). Many Indigenous scholars, leaders, and communities argue that prevailing approaches to addressing water issues that are embedded in colonial structures and policies—and that exclude, devalue, or ignore Indigenous knowledges, leadership, and autonomy—are not only ineffective but deeply unethical and, ultimately, unsustainable (Borrows, 2002; Walkem, 2007; Wilson & Inkster, 2018).

In response to ongoing and increasing environmental dispossession, Indigenous Peoples in Canada and around the world are engaging in processes of environmental repossession as a way forward for research, governance, and policy at the Indigenous environment–health interface (Big-Canoe & Richmond, 2014). "Environmental repossession," as described by Big-Canoe and Richmond (2014), involves the social, cultural, and political processes that support reclamation and renewal of relationships with the land through pathways such as sharing Indigenous knowledge and strengthening social connections within and between generations (see also Tobias & Richmond, 2014). Emerging from, and working within, a framework of environmental repossession, responsible and inclusive water governance that prioritizes Indigenous Peoples' rights to health equity in Canada involves building renewed, genuine, and respectful Nation-to-Nation relationships with all levels of government (Castleden, Martin, et al., 2017; von der Porten & de Loë, 2014).

As part of a growing movement towards the recognition and assertion of Indigenous Peoples' rights, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) was ratified in 2007. With respect to water in particular, Article 25 of UNDRIP states:

> Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

A starting point for achieving these Nation-to-Nation relationships involves entrenching Article 25 of UNDRIP into Canadian law (Craft et al., 2018) to protect the rights of Indigenous Peoples as they engage in processes of environmental repossession and follow more holistic approaches to water governance that are centred around Indigenous knowledges and epistemologies (Arsenault et al., 2018; McGregor, 2014).

In linking principle and action with respect to UNDRIP and Nation-to-Nation relationships, governments, researchers, and societies at large must move away from conceptions of water as a resource to be owned and managed, and create space for engaging and prioritizing Indigenous voices and knowledge in a dialogue around how we live with and relate to water, including on a spiritual basis (Craft et al., 2018). To contribute to this dialogue, this study explores First Nations, Inuit, and Métis lived experiences and ways of knowing around water, as well as settler perspectives and experiences, and examines what the inclusion of Indigenous voices and perspectives mean for water policy and research. The perspectives shared by participants in this research provide not only a greater appreciation and understanding of the water issues faced by Indigenous communities across Canada and their impacts on Indigenous Peoples, lifeways, and knowledge systems, but they also highlight the work involved in addressing water-related disparities, rebalancing relationships with water, and building renewed and

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respectful relations between cultures, peoples, and nations for Indigenous Peoples and non-Indigenous peoples alike.

Background

This research stems from a larger project, funded by the Canadian Water Network, that sought to identify, examine, and assess methods and models that bring together Indigenous and Western knowledge in Canadian water research and management through a systematic realist literature review (Stefanelli et al., 2017), as well as interviews with academic and community-based researchers who conducted water research with a stated intent to implement Western and Indigenous knowledge systems (Castleden, Martin, et al., 2017). This project followed a collaborative and participatory research approach, premised on principles of relationality, equity, co-learning, and mutual benefit for all those involved in the research process (Tobias et al., 2013).

A National Advisory Committee (NAC) of Indigenous Knowledge Holders and other Canadian water experts from across the country was formed, and subsequently two national Water Gatherings were held to engage the NAC as well as other invited Indigenous and non-Indigenous researchers and knowledge-holders. Water Gathering participants included First Nations, Inuit, Métis, and non-Indigenous individuals identified by the research team and the NAC based on their experience with water management in Indigenous contexts, Indigenous ways of knowing, and/or integrative approaches of bringing together Indigenous and Western knowledge. The first Water Gathering (June 2014) informed the direction of the project in foundational ways, while the second, a year later (June 2015), provided an opportunity to reconnect, discuss preliminary results and next steps, and co-develop recommendations for future water research and management in Canada. Through ceremony, storytelling, and dialogue facilitated by a sharing circle format, these gatherings were central to relationship building and the strong sense of good will that informed and stemmed from the project (Castleden et al., 2015).

Methods

Data Collection

Data presented in this article were gathered during the second national Water Gathering (Ottawa, Ontario, June 2015) through a collaborative podcast methodology—a participant-directed podcast creation process involving collaborative approaches to design, content, data gathering, and data analysis (Day et al., 2017). This collaborative methodology enabled co-learning among researchers and participants that prioritized community concerns, and honoured local knowledges and participant expertise, and contributed to the production of a three-part audio-documentary podcast, *Water Dialogues*, exploring how we live with and relate to water in Canada (Day, n.d.; see http://waterdialogues.ca/).[1] This method was chosen in response to the request from the NAC and the Water Gathering participants to create public outreach and dialogical contributions, and to gather data through a method that was reflective of Indigenous ways of knowing and storytelling and could serve as a decolonizing approach to research. The podcast data were gathered via large sharing circles and one-on-one interviews.

[1] Podcasts are digital audio files made available on the Internet for downloading or "on demand" streaming.

Sharing Circles

The one-day Water Gathering was structured around a series of three sharing circles, an approach to group dialogue and healing that is based in ceremony, in which each person has a turn to speak and be heard free from judgement, and where all voices and knowledges are valued equally (Lavallée, 2009; Tachine et al., 2016; Wilson, 2008). The first circle, "Open Waters," offered opportunities for participants to (re)introduce themselves and share stories and reflections on the past year. The second circle, "The Narrows," was a modified sharing circle where participants could provide feedback on any aspect of the project. The third circle, "Tidal Shift," involved a discussion around next steps and building a collective vision for water in Canada (Hart et al., 2015). There was a total of 32 participants at the Water Gathering including the research team, the NAC, and other invited participants, most of whom had participated in the first Water Gathering of the project a year prior (Table 1). The sharing circles were audio recorded, with permission, totaling 524 minutes of recorded discussion.

Interviews

One-on-one interviews with 16 participants were conducted at the Water Gathering with the aim of prioritizing Indigenous voices, with an additional two participant interviews conducted in the days following. Of the 18 interviews, 12 were conducted with Indigenous participants. These interviews were predominantly unstructured and conversational in nature (Kvale & Brinkmann, 2009), though a general interview guide was developed (available upon request). This approach fostered natural and spontaneous dialogue and allowed participants to delve deeper into topics and experiences offered during the sharing circles. In this way, participants were able to focus on what they felt was most important, rather than being restricted by a pre-determined structured series of questions. The interviews were audio recorded with permission and lasted an average of 19 minutes in duration.

Written and informed consent was obtained from all Water Gathering participants at the beginning of the event, prior to any recording. This research protocol received Research Ethics Board approval from the University of Guelph, Queen's University, and Cape Breton University.

Data Analysis

Data analysis and podcast editing occurred simultaneously among the research and podcast editing teams (Day et al., 2017). The research team was comprised of Indigenous and non-Indigenous researchers from multiple regions across the country, and the podcast editing team included core members of the research team as well as three Water Gathering participant volunteers.

A member of the research team (Day) transcribed the interview audio recordings verbatim and created a detailed audio log with time codes from the sharing circles that was used to navigate the various pieces of audio during analysis and podcast creation. Any quotes from the sharing circles that were included in the *Water Dialogues* podcast were transcribed verbatim for the podcast script (a text document detailing all auditory material including quotes, music, other sounds, and narration).

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Table 1. Summary Demographics of Water Gathering Participants by Region, Gender, and Identity

Characteristic	*n*
Region	
Manitoba	3
Nova Scotia	10
Nunatsiavut (Newfoundland & Labrador)	2
NunatuKavut (Newfoundland & Labrador)	1
Nunavut	2
Ontario	14
Gender	
Female	16
Male	16
Participant Identity	
First Nations	10
Inuit	4
Métis	2
Non-Indigenous	16
N	**32**

Thematic analysis of the interviews and sharing circle discussions followed a multi-stage, iterative process (Braun & Clarke, 2006). First, a member of the research team (Day) read interview transcripts and the sharing circles' audio log multiple times while simultaneously listening to the audio recordings and recording memos in the margins (Birks & Francis, 2008). Next, drawing from the memos and assisted through the use of concept mapping, we identified thematic categories inductively to provide a means through which to synthesize the material (Wheeldon & Faubert, 2009).

Several strategies were used to establish rigour throughout the analysis and podcast editing processes (Morse, 2015). These strategies included triangulation of data from the interviews and sharing circle discussions to expand and include multiple understandings of the themes, and peer debriefing among the research and podcast editing teams to identify, refine, and validate thematic categories (Creswell & Miller, 2000; Morse, 2015). Additionally, a draft of the podcast was shared with all Water Gathering

participants[2] for review, a process that served to facilitate member checking, solicit feedback from participants, identify potential concerns, and ensure participant vetting of all themes and content prior to release of the podcast and presentation of findings (Creswell & Miller, 2000). Altogether, these strategies for establishing rigour held the research and podcast editing teams accountable to participants by enabling team members to acknowledge and address individual biases and ensure respectful and ethical representation of participants' voices and contributions (Day et al., 2017).

Findings

Three main themes were identified through this research: Relationships and responsibilities to water; Confronting colonialism in the water sphere; and Mobilizing diverse ways of knowing to better live with water. In presenting these themes, we provide representative quotes from the *Water Dialogues* podcast, as well as from additional interview material that informed but was not shared in the podcast. While these themes resonated across the group dialogue and participant interviews, we also acknowledge the heterogeneity within and between the perspectives, knowledge, and experience of First Nations, Inuit, Métis, and settler peoples and cultures.

"I Am Part of the Earth": Relationships and Responsibilities to Water

> The first mother was our sacred Mother, the Earth. The water that runs through her, runs through us. (Elder Barbara Dumont-Hill, Minute 17:21, *Water Dialogues*[3])

Relationships with water were discussed and described by participants in myriad ways, reflecting the intricate manner in which water flows through all facets of our lives and, indeed, all life on Earth. Perspectives shared by First Nations, Inuit, and Métis participants conveyed that these relationships with water exist at personal, cultural, and spiritual levels, and are often embodied in a deep-rooted connection to traditional and current homelands, and the waterways and waterbodies within them. For example, in describing his connection to water, one Inuk participant shared:

> We drank from this land. We ate from this land. This land sustained us for generations, as far as our memory can go back. We ate the fish. We ate the birds. We went fishing as the tide turned. We launched our boats when the tide was high. And through time we come from there. We come from this land. We come from this water. It's part of us.

Participants further highlighted the foundational role that these intimate connections play in Indigenous knowledge systems. For example, one First Nations participant described Indigenous ways of knowing, as being "developed in a relationship with the land, relationship with Mother Earth, relationship knowing where you are in the universe." Indigenous knowledge pertaining to water was described in terms that encompassed both the nature of these relationships, and the information garnered through participating in them, thus illustrating the ways in which Indigenous knowledge is intimately linked with

[2] Participants' names were included with the presentation of their quotes in the podcast with informed consent.
[3] Participants' names were included in the publicly released *Water Dialogues* podcast with informed consent and are included here where direct quotes from the podcast are presented.
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the places, people, and processes through which it is cultivated. As a Northern community-based water expert shared:

> The residents of Nunavut, [who] are 85 to 90% Inuit, still maintain very, very close connections to the land and water. A lot of people still identify traditional [drinking water] sources—raw, untreated, natural sources—as, by far, their preferred [drinking water] source, which are a source of vitality and health and cultural connection for the Inuit who use them. How to locate, collect, assess, and protect those traditional [water] sources is a really important part of Traditional Inuit Knowledge, and again is specific to families and regions.

Though expressed in culturally diverse ways among participants, the perspectives shared all reflected a deep and fundamental respect for water and its essential role in nourishing and supporting all life. For example, from some First Nations and Métis perspectives, water was described as sacred and "the lifeblood of Mother Earth." In terms of Inuit perspectives on water, one participant described the term *Avatittinnik Kamatsiarniq*, an overarching principle from Inuit Knowledge, "which means respect and care for the environment—and that encompasses land, water, and wildlife." For all participants, this sense of respect and stewardship for water was also encompassed in a connection to the land more broadly. As one Inuit participant described her relationship:

> There's a deeper, stronger connection to the land because that is where your family comes from. This is where you can go to feel at peace. So it makes you feel proud that, yes, this is where I am, but I'm also respecting it by taking care of the land.

Underpinning these perspectives was a strong appreciation for the interconnectivity among humans and the natural world, or what one First Nations participant described as the "constant flux and motion" within and through life. As this participant further expressed:

> I always say that with water alone, life will be good and true. Once we start damaging the water, we damage life. We damage ourselves.

Expressing concern over the current ways with which we live with water, a Métis participant shared:

> The idea that you can get rid of your waste in the water and it goes away from you, is an idea that we need to throw away. We need to understand that all of our systems are affected.

Indeed, concern over the health and management of water today was something shared by all participants, Indigenous and non-Indigenous alike.

Many participants also emphasized responsibilities towards water, as well as future generations. As one First Nations participant and Elder stated:

> Nature has rights. Humans are responsible. And to me, that sums up our role into this scheme of this creation.

Another participant expressed this in terms of the Mi'kmaq concept of *Netukulimk*: "Taking what you need for today but leaving enough for future generations." Expressed in diverse ways, this responsibility

to care for water specifically and the environment more broadly was common across many of the First Nations, Inuit, and Métis perspectives shared. Drawing from the teachings that had been shared with them over the course of their lifetime, a First Nations participant explained:

> From Traditional Teachings we believe everything has a spirit . . . If we talk about the quality of the water that's in [a] stream and whether it supports life, then we are talking about the fact that the spirit is strong. If that water is polluted then that spirit is weak. So the work we have to do today in order to prepare our world for Seven Generations into future is to work on strengthening the spirit of our water, which means cleaning up our water systems, taking responsibility for things such as sewage, pesticide runoff, not doing too many diversions . . . And in doing this, like you are actually doing sacred work.

The special role of women as sacred protectors and carriers of water in First Nations cultures was also described and reflected on by many participants. Illustrating this unique connection between women and water, one First Nations Elder reflected:

> How can I forget that for the first nine months of my life I was in the ocean of water?

Another First Nations participant articulated the connection between a society that disempowers women and the current state of water, expressing:

> I feel that if we empower women, we will be in a better position to have a stronger spirit of our water, or in other words, better quality of water.

"You Can't Just Ignore Us": Confronting Colonialism in the Water Sphere

> This prayer you are going to hear has been in this country for thousands of years. And it was outlawed, because our spirituality was outlawed. Our right to vote was outlawed . . . The right to vote is powerful, but our spirituality is even more powerful than that. (Elder Albert Dumont, Minute 3:00, *Water Dialogues*)

In discussing how we live with and relate to water in Canada today, participants' experiences, stories, and reflections illustrated the far-reaching impacts of historic and ongoing colonialism on the health of Indigenous Peoples, Indigenous cultures and knowledges, relationships with water, and the health of the land and water itself. Participants described issues related to inequitable access to safe drinking water, environmental degradation, contamination, and other adverse effects from industrial and development activities that impact Indigenous lands and waters. A primary concern for all was the lack of input from and involvement of Indigenous communities in decision-making around water management and land use.

Many First Nations, Inuit, and Métis participants expressed deep frustration over the lack of recognition and respect for Indigenous knowledge systems and self-determination in Canada today. Their non-Indigenous allies at the Gathering noted the same. As one Northern non-Indigenous participant described:

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> There's a lot of disillusionment and disengagement, I find, with some decision-making processes, because people feel, "Oh, they're not going to listen to us anyway."

A First Nations participant spoke to the ways in which "our communities, our leadership, are so overburdened with different corporations, and federal departments, and provincial departments, that now it's just everything is being streamlined." As this participant described, there was little room for the inclusion of community members and Indigenous ways of knowing in decision-making processes:

> Because of that gap, we are almost, how I see it is, we have essentially become somewhat assimilated.

Several participants shared stories and experiences with respect to the water-related impacts of resource development and the failure of existing mechanisms of engagement to provide meaningful inclusion in decision-making processes. As one Inuk participant described his experience related to Northern resource development:

> We engaged with proponents; we engaged with both levels of government; we did extensive Aboriginal Traditional Knowledge gathering, adding it into the whole environmental [assessment] process . . . and we had a lot of legitimate concerns. And, you know, at the end of the day when we see a letter signed by the Minister of the Environment [approving the project] . . . it makes you wonder, why did we do it? What did we gain by sharing our information, sharing our knowledge? Projects like that, mega projects, have such a profound impact on the Aboriginal people that are closest to these developments. The damage is irreversible.

Impacts from development such as these were said to reduce or eliminate access to culturally and nutritionally significant food sources, and affected relationships with the natural world that lie at the core of Indigenous ways of knowing, identity, and lifeways. Describing Inuit-observed changes from a hydro-electric dam built in the 1960s, another participant explained:

> We saw changes in our area where we don't get cod fish any more, our ice isn't as hard as it was supposed to be, we don't get a certain kind of seal that used to come in and give birth. None of that is happening anymore. But because there's no [Western scientific] proof, because there was no study [about the impact of the dam] done in the 60s, nobody is believing us now.

With another hydro-electric project on the horizon in this participant's region, they continued to say:

> As people who live off the water, as people who live off our land, they're slowly killing what we need in our communities.

As a First Nations participant shared with respect to a community impacted by industrial effluent routed to an estuary adjacent to their community:

> This [Mi'kmaq] term, *Weji-squalia'timk*, which translates to "the land that we sprouted from," conveys how the [First Nation] community believes about their origin. So when you pollute it with environmental pollutants, you are polluting where we believe we came from, where all of

> creation has come from. So you are cutting us off from our spiritual connection, from our cultural connection, our ability to pass on those traditions. And so that whole concept is so central to what has to be rebuilt to get that connection back to before they started polluting the land [and water] in the first place.

Participants spoke to the need for communities "to heal from all the taking that's been done," and "for governments to start listening." Healing was also described in the context of environmental restoration. Referring to a project that brought First Nations, non-Indigenous communities, and government together to protect a lake system, one participant described a responsibility towards "assist[ing] the healing process of Mother Earth." Reflecting the different mindset this entails, this participant explained:

> We as human beings can't "fix" Mother Earth, but we can work with her.

Participants also stressed the importance of recognizing and supporting the Indigenous "traditions and relationships [with water] that are thriving today," and creating space to celebrate Indigenous cultures and resiliency, highlighting the transformation that can occur when "people are committed to retelling the narrative from a different perspective."

Several participants spoke about efforts toward reclaiming and strengthening cultural practices, Indigenous ways of knowing, and relationships with water and land. As one First Nations participant described"

> A lot [of our community members] have been removed from the river systems in [the region], so we're trying to get their boots back on the water.

Highlighting the importance of Indigenous languages and the concepts and understandings conveyed within them, another participant described how "with trying to restore the environment, we are also trying to restore language because they are so interconnected." A number of participants also emphasized the importance of connecting youth with Elders to support intergenerational transfer of knowledge that might not otherwise be occurring as it traditionally did in the past. For example, one Inuk participant described a research initiative that involved taking youth out on the land with Elders to learn about water:

> They [the Elders] always have stories and ways to make the young understand. And when they do that they all have a good time and it's easier to teach them things . . . Our Elders always say any knowledge passed down is good. Any knowledge someone takes is good because they can do something with the knowledge and pass it on.

Indeed, many participants noted the importance of on-the-land and experiential learning with respect to Indigenous ways of knowing. As one First Nations participant explained with respect to fostering a relationship with the natural world:

> How can a teacher teach it in school from a textbook? You have to be out there living it.

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"Connecting the Dots": Mobilizing Diverse Ways of Knowing to Better Live with Water

> I think it [other peoples turning to Indigenous knowledge for guidance] is happening now. Some accept it, some embrace it, some old school don't even want to look at it. But we are seeing change. The movement is there, and the world is slowly, like a clam I guess, slowly opening up to it. Sometimes it's shut; sometimes they say, "Oh this is interesting." So the stories will help it a lot. (Clifford Paul, Minute 49:11, *Water Dialogues*)

This final theme centered around possibilities and pathways for working together, across our diverse knowledge systems, to transform how we live with water, as individuals, communities, and nations that all call these shared lands home. Participants emphasized that caring for water needs to be understood as a responsibility shared by all people in Canada, illustrated by some First Nations participants through the understanding that "we are all Treaty people" with Treaty responsibilities. Another participant expressed:

> When we work with this Indigenous knowledge, we come across this sense of stewardship from our people, and we have to promote that role, that we as individuals—Canadians, First Nations, or otherwise—we have to promote that stewardship within ourselves and make it a message for future generations.

The symbolism of the Two-Row-Wampum[4] was used by some First Nations participants to illustrate a process of working together in ways that do not compromise the integrity of different knowledge systems, cultures, and ways of knowing by, for example, subsuming one within the other, as is often the case when there is only tokenistic consideration of Indigenous knowledge. As one First Nations participant explained:

> We will work together but we are going to paddle in our own canoes . . . With Western science and Indigenous knowledge, I think that is the approach that, yeah, we'll show you how we do things, and you show us how you do things . . . Today we live where we can't ignore Western science, but part of that, there is still a place for Traditional Knowledge. There will always be that. I think those two paths will always be there.

Part of this process, as this participant further described, involved "recognizing each other's values and what they are bringing into the project or discussion." Another participant, speaking to the teachings of First Nations Elder Murdena Marshall, described this in terms of being able to "walk around" one's knowledge system in order to understand both the strengths and limitations, as well as how it "exists in relationship with other knowledge systems." This sentiment was shared among all participants, and also included recognizing the "responsibilities [you have] to the knowledge system and the community of people who wish to draw upon that knowledge."

[4] The Two-Row Wampum is a Haudenosaunee Treaty belt from the 17th century, consisting of alternating rows of purple and white wampum beads running the length of the belt. The two purple rows symbolize the paths of two vessels – one European and one Haudenosaunee – travelling down the river of life together, but with each society remaining in their own vessel, signifying sovereignty over their own affairs (Ransom & Ettenger, 2001).

All participants spoke to the necessity of engaging and mobilizing Indigenous and Western-based knowledge systems together in the context of water research, governance, and policy. Specifically, participants emphasized the need to follow Indigenous methodologies or approach water research from the lens of Indigenous Peoples and include Indigenous knowledges in water-related decision-making processes. As one Métis participant expressed with regards to including Indigenous knowledge in water governance and policy, "the importance really can't be overstated that there is knowledge out there," in addition to Western knowledge systems, and "we just need to include people and be respectful of the people who have that knowledge."

Many participants emphasized the need to "invest in people and communities" by using bottom-up and grassroots approaches to develop Indigenous and community-led water research and programs that were reflective of community priorities. Approaches that were responsive and accountable to community priorities could help build capacity and ensure greater autonomy among Indigenous Peoples over related decision-making processes to inform policy. As one Northern community-based water expert expressed:

> When the research and the monitoring is initiated from concerned people in communities, and not kind of introduced or imposed on, then I think there will be natural opportunities for local knowledge and Inuit perspectives to be integrated in those research processes and to be scaled up to the bigger water management frameworks.

Participants also spoke to the need to create space for respectful dialogue in order to listen and learn from each other, recognizing that "our relationships and our stories really do matter," and that when working together "the room is smarter than the smartest person [in the room]." As one Southern-based academic and non-Indigenous participant described:

> Decolonization is really about reorienting ourselves, so that we can create inclusive spaces, that we can allow diverse approaches, that we can respect differing viewpoints.

Learning in these contexts was described as "ever ongoing" and transformational, in that "it becomes part of who we are." Sharing stories, and engaging the head, heart, mind, and spirit, were seen as essential to moving forward with water issues in a good way. As a First Nations participant described:

> You always have to share the stories. You always have to put it in story form. And your management plan may not be something that's on paper but in the hearts of the people. The legacy will be the change, not a document collecting dust on a shelf when I'm dead.

Discussion

As the experiences, knowledge, and wisdom shared by participants in this research illustrate, current approaches to managing water in Canada do not always meaningfully or equitably include Indigenous Peoples or their knowledge systems, and are thus failing to protect the health of water and ecosystems, both within and beyond Indigenous communities. Rather, opportunities to participate often occur within colonial water governance and natural resource management frameworks that do not respect Indigenous self-determination and ways of knowing (Borrows, 2002; Castleden, Hart, Harper, et al.,

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2017; Castleden, Martin, et al., 2017; McGregor, 2009; Simms et al., 2016; von der Porten & de Loë, 2013, 2014; Walkem, 2007). These colonial water governance frameworks are especially destructive for Indigenous Peoples, communities, and cultures (Basdeo & Bharadwaj, 2013; Borrows, 2002; LaBoucane-Benson et al., 2012; Royal Commission on Aboriginal Peoples [RCAP], 1996; Walkem, 2007), as seen with water dispossession under a regime of settler governance in Mushkegowuk territory due to a series of mining developments (Daigle, 2018), and Oceti Sakowin's (The Great Sioux Nation) protection of sacred waterways from the Dakota Access Pipeline (Young, 2017). Further, these frameworks can be destructive to water itself, by perpetuating colonial conceptions of water as a material resource available for human exploitation, ownership, management, and pollution (McGregor, 2014; Wilson, 2019).

As the experiences shared by participants in this research indicate, severed or otherwise adversely impacted connections with water also represent a significant form of environmental dispossession faced by Indigenous Peoples in Canada (Tobias & Richmond, 2014). Like other forms of environmental dispossession, these impacts to water have wide-ranging and interrelated impacts on the health and well-being of Indigenous Peoples, cultures, spirituality, and on the ability to practice and transmit Indigenous knowledges (Basdeo & Bharadwaj, 2013; King et al., 2009; LaBoucane-Benson et al., 2012; McGregor, 2009).

Importantly, however, participants spoke to the strength and resiliency of Indigenous Peoples and cultures in the face of these harms and emphasized the importance of ongoing efforts towards supporting the revitalization of Indigenous knowledges and relationships with water through language and ceremony (among other pathways). Participants described this need for revitalization both in terms of recognizing the strength and vitality of relationships with water that continue to exist today, as well as engaging in efforts to rebuild these relationships and reclaim Indigenous ways of knowing where they have been weakened or (for a time) lost. These findings highlight the importance of such efforts in addressing the negative impacts of environmental dispossession as it pertains to water, and align with a growing body of Indigenous scholarship on the resurgence, reclamation, and revitalization of Indigenous knowledges, spirituality, laws, and systems of governance (Alfred & Corntassel, 2005; Big-Canoe & Richmond, 2014; Borrows, 2002; Coulthard, 2014; Craft et al., 2018; Simpson, 2011).

Nishnaabe scholar and writer Leanne Betasamosake Simpson (2011) describes that engaging in processes and practices to reclaim and revitalize Indigenous ways of knowing are "about creating decolonized time and space where Indigenous voices and Indigenous meanings matter" (p. 96). In this regard, participants in this study described how land-based learning and opportunities for intergenerational transfer of land-based knowledge could help provide a foundation for centering and cultivating Indigenous knowledges in policy and decision-making related to water, and contribute to environmental repossession that is informed by Indigenous conceptions of health, well-being, and resiliency (Big-Canoe & Richmond, 2014; Hansen & Antsanen, 2016; McGregor et al., 2010; Redvers, 2016; Restoule et al., 2013; Robbins & Dewar, 2011; Tobias & Richmond, 2014).

This study also illustrates the importance of Indigenous languages in conveying Indigenous ways of knowing and understanding relationships with water. Indeed, a number of participants described Indigenous concepts and terms that reflect and contain within them teachings of a fundamentally different orientation to the natural world than dominant Western perspectives. The interrelationship

between environmental restoration and revitalization of language was also noted. Pointing to the power and potential within such (re)newed understandings (for all peoples), Indigenous scholar and plant biologist Robin Kimmerer (2011) explains how the revitalization of Indigenous language(s) "allows us to imagine and potentially implement different visions of sustainability" (p. 263).

Though expressed and experienced in culturally and regionally diverse ways, relationships with water are fundamental to Indigenous ways of knowing and lifeways, and entail both a respect for the importance of water as our source of life and a responsibility toward protecting and caring for it (Anaviapik Soucie et al., 2015; Anderson, 2010; Anderson et al., 2013; Blackstock, 2001; LaBoucane-Benson et al., 2012; Lavalley, 2006; McGregor, 2008, 2012; Walkem, 2007). As the First Nations, Inuit, and Métis participants in this project described, these relationships are embodied in deep-rooted connections to place, and founded in an appreciation for the interconnectedness and "constant flux and motion" of all life. Indeed, participants often spoke of their relationship with water in the context of, or as included within, their relationships with the land or the rest of the natural world. These perspectives underscore the diverse ways in which the health and well-being of Indigenous Peoples and the integrity of Indigenous cultures and ways of knowing are intimately linked with both the health of the land and water, as well as the ability to engage in respectful relationships with these lands and waters (Adelson, 2000; Battiste & Youngblood Henderson, 2000; Cunsolo Willox et al., 2013; Kimmerer, 2011; McGregor et al., 2010). In understanding these place-based relationships among Indigenous Peoples and water, water is not only a resource that makes life possible, water is life (Wilson & Inkster, 2018). Indigenous-led water governance structures that frame water as a living entity necessarily prioritize relationality among peoples, lands, and waters, and enable Indigenous Peoples to assert their sovereignty according to these relationships (Wilson & Inkster, 2018).

Further, in the context of place-based water governance structures, participants in this research emphasized the value of, and need to recognize, diverse perspectives, experiences, and ways of knowing. This relates to an understanding that there is no one-size-fits-all approach to addressing water challenges in Indigenous communities, and that the needs, desires, and path of each community towards self-determination may differ. Simpson (2011), for example, speaks to the need for "diverse nation-culture-based resurgences" (p. 17), or re-investing and regenerating political traditions, legal systems, and ceremonial pursuits that are specific to each nation and culture. Diverse nation-culture-based resurgences in addressing water-related issues in Indigenous communities will necessarily involve culturally grounded, community-led approaches to research, programming, and policy that align with the growing recognition of, and demand for, decolonizing systems of water governance and management that are defined and determined by communities themselves (Castleden, Martin, et al., 2017; McGregor et al., 2010; Smith, 2012).

Participants stressed that responsibilities towards water are shared by all, and that caring for water today means utilizing the strengths of both Western and Indigenous sciences. This approach must find traction in non-Indigenous institutionalized colonial spaces (e.g., government agencies, universities, industry, etc.) where those dominant discourses are taking place. To build trust, understanding, and capacity for collaboration, spaces for respectful dialogue between Indigenous and non-Indigenous scientists, policymakers, and community members must be cultivated where multiple ways of knowing and learning can be honoured and mobilized (Castleden, Hart, Cunsolo, et al., 2017). It also means

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fundamentally rethinking the way individuals and communities residing in what is now Canada live with and relate to water, and the concepts, values, laws, and decision-making processes that legitimate and even encourage the continued degradation of water and ecosystems on which we all depend.

Conclusion: Responsibility in a Time of Reconciliation

Findings from this study reflect the value and power of shared dialogue and storytelling in reclaiming responsibilities and relationships among Indigenous Peoples and water in Canada. Indeed, centering relationships among Indigenous people and water in this way represents a shift in dominant discourses around water governance and management. Such a shift is part of a larger movement towards re-envisioning policy and decision-making processes that foster more equitable, just, and respectful Nation-to-Nation relationships in Canada, relationships that hold space for Indigenous-led and Indigenous-focused water governance and management that prioritize health equity.

UNDRIP marks a major accomplishment in the international recognition of Indigenous Peoples rights and is viewed by many Indigenous groups and organizations in Canada as an important starting point for decolonization, reconciliation, and respectful Nation-to-Nation relationships (Truth and Reconciliation Commission of Canada, 2015). And yet, while Canada affirmed its commitment to upholding UNDRIP "without qualification" in 2016,[5] doing so will not only require strengthening relationships among nations, but honouring relationships and responsibilities among people, waters, and the rest of the natural world (Arsenault et al., 2018). As such, water governance structures that protect the health of people, water, and ecosystems must rethink laws, regulatory rules, and institutional structures with Indigenous knowledges and worldviews in mind, ensuring decision-making with regards to water is in line with Indigenous notions of relationality, respect, reciprocity, and kinship (Wilson & Inkster, 2018). In this light, mitigation efforts for addressing water-related issues in Indigenous communities must be considered alongside preventative efforts to protect water sources (Arsenault et al., 2018).

Notably, as the participants in this study described, centering Indigenous knowledges and worldviews in water governance structures is more than an intellectual or political exercise. That is, in order to renew, repair, and rebuild relationships, with each other and with the natural world, we must participate in them, and in so doing we transform ourselves—a generative source for real change.

[5] Canada was originally one of four countries to object to the Declaration. This position was reversed in 2010, with the qualification that the Declaration would be considered an aspirational document. This qualification was removed when a new incoming government reaffirmed Canada's commitment to UNDRIP in 2016.

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