Reconceptualizing Educational Research Methodology

Water as Artist-Collaborator: Posthumanism and Reconciliation in Relational Media Arts-Based Education

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Abstract

The global climate change-related water crisis, disproportionately affecting peoples marginalised by ongoing settler-colonialism, challenges us to take up a new ontology beyond the Anthropocene. Recognising universities as ethically entangled, my PhD praxis process aimed at engaging universities in reconciliation – of peoples and ecosystems – as a practice. This practice takes the form of a relational university course that involves intra-actions between students, water bodies and technology (audio/video as relational texts) to co-construct water narratives as films. In this paper, using posthuman theories to read the data, I uncover what/who is being changed in this course and how. Most notable of these changes is that of water as becoming collaborator in artistic/knowledge co-production, where students think with water. I argue this renders possible reconciliation understood as a material-discursive practice, with water, (re)configuring relationality to decentre humans and their ways of knowing/being/doing, and to co-constitute more equal power relations between bodies (both human and nonhuman).

Keywords: water, reconciliation, posthumanism, media arts, activist educational research, relational

Introduction to the study

The Price Tag of the Sea (2019), a video created for a university course called _Making Waveforms,_[1] illustrates Keinaenen,[2] its creator's sense of connection with and related valuing of the ocean that expanded through the making of the video. The narrative posits that proximity to water can affect one's valuing of water, and questions of who or what has access. According to Keinaenen, "now, instead of the Indigenous people of the land, the ones living by the water are the 1%" and "spending time by the water has been a luxury". This is further emphasised by Keinaenen narrating the question, "Could this disconnect fuel [the] environmental annihilism that many people seem to partake in?" There is a visual of an Indigenous paddle displacing sea water to propel a canoe created with an underwater GoPro camera operated by Keinaenen during a class field trip led by Whonaok Dennis Thomas of the Tsleil-Waututh Nation's Takaya Tours (see Images 1 and 2). The course had intentions of exploring reconciliation as a practice towards thriving together, with the together inclusive of both humans and nonhumans, while working to support healthy waterways. While the course was planned/enacted from a relational sociology (Donati, 2011) ontology, I argue that reading the empirical material collected during the course from a posthuman theoretical perspective, reveals how Keinaenen's intra-actions (Barad, 2007) with water and technology in the course influenced her ideas for the narrative of her film. In this paper, then, I explore how a mediated art approach with water renders possible reconciliation, understood as a material-discursive practice, _with_ water, (re)configuring relationality to decentre humans and their ways of knowing/being/doing, and to co-constitute more equal power relations between bodies (both human and nonhuman). And I ask, how, if at all, does this approach help to address a growing racialised global water crisis?

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[1] I originally created this title by combining concepts of "making waves" (or going against the status quo) and "waveforms" (the visual representation of sound, which varies depending on which entity is enacting sounds).
[2] Students and some Knowledge Keepers' real names appear in the text, with their permission, to acknowledge their contributions to the understandings that emerge in this paper.

(Image 1: Video still from Aino Keinaenen's *The Price Tag of the Sea* (2019) showing paddles from underwater GoPro camera)

(Image 2: Canoe trip led by Whonoak Dennis Thomas of the Tsleil-Waututh Nation/Takaya Tours. Photo by Sarah Van Borek)

Aim

In this paper, I analyse the *Making Waveforms* course held in Canada in 2019 using posthumanist theories. The aim is to apply a posthuman reading of the empirical material to focus the analysis on relationality, in order to see and perform co-constitutive knowing-and-being around who and

what is changing, and how. The enactment of the course initially took place with certain concepts of who/what might change (e.g. students) and how (cause and effect). However, considering the course through a posthuman perspective allowed for the exploration of the desired changes (e.g. institutional structure, culture and role; water narratives; etc.), who/what has changed (e.g. students, teacher, nonhumans, film viewers, etc.), and how (material-discursive practices) in a different way. Research questions asked in a posthuman reading of the data include: (1) How might the use of mediated art-approaches in educational settings entangled with water be tools to change reconciliation as a practice that takes place *with* water? (2) How might media arts-based teaching methods decentre human-centric ways of being/doing/knowing, and how can this contribute to reconciliation?

A posthuman activist approach

The teaching practice foregrounded in this study is part of an activist academic approach to educational research with a values-based/ideological offset. Activist educational research is a performative practice which seeks to change the world while studying the world and how it is changing. It is collaborative and "intentionally seeks to transform the social structures that reinforce social inequities" (Nguyen, 2019, p. 3). Drawing inspiration from "research as praxis" (Lather, 1986), activist research can be understood as "openly committed to a more just social order" (Lather, 1986, p. 258). In this paper, this activist/ideological approach is read through posthuman thinking. Posthuman activist research shifts away from the view of the scholar-activist as having agency and acting on or reacting to the world, towards emerging from entanglements as co-constitutive agents (Barad, 2007) and "acting-with the world, [where] we cannot fully predetermine or limit what those actions should or will be" (Verlie & CCR 15, 2018, pp. 2-3). A posthuman activist researcher performs diverse material re/configurations across the here-and-now with an openness to change presenting itself if, when and how it does from each assemblage, while dancing with emerging agential qualities of other bodies. While the curriculum in this study was enacted within an educational institution of ongoing settler-colonialism which privileges Euro-Western theory over Indigenous knowledges, applying posthuman theories allows for showing how Euro-Western theories and Indigenous theories, for example that of Haudenosaunee and Anishinaabe scholar Vanessa Watts' (2013) *place-thought*, can intersect.

Background

Despite the resurrection of swimming pools and sprinklers across Cape Town only two years after the major city nearly became the first to run out of its municipal water supply, a global water crisis, exacerbated by climate change, continues to prevail (UNESCO, 2020). Sao Paolo, Bangalore, Beijing, Cairo, Jakarta, Moscow, Istanbul, Mexico City, London, Tokyo, and Miami are amongst the capital cities considered at risk of water shortage within the next 10 years (W12 Congress, 2020). This material configuration of a world out of balance with one of the very elements it requires to live, is driven by the narrative of Anthropocentrism (Crutzen & Stoermer, 2000). From this position, humans see themselves as separate from those differentiated as lesser nonhuman entities (e.g. water) whose value hinges on the extent they serve human desires. Even the

environmental protection discourse, propagating narratives of 'save water', still positions nature as "other" (Taylor & Blaise, 2014). Peoples marginalised by ongoing settler colonialism – as Ferrando (2019) clarifies, excluded from the aforementioned "human" of the Anthropocene – are the most affected, and thus, the water crisis has racialised impacts. In Canada, Vancouver city residents flush potable drinking water down their toilets (Gomes, 2019) while, as of 9 January 2020, 57 boil water advisories (meaning water is unsafe for human consumption) still remain in First Nations communities (Government of Canada, 2020). The challenges posed by environmental racism (UCCCRJ,[3] 1987) press us with growing intensity to take a hard look at the very ontology that has gotten us here.

Universities can be likened to the ontological brick and mortar of the Anthropocene. Herbrechter argued that universities are "arguably the most humanist of institutions" (2013, p. 14). Some of this can be seen as expressed through the ways universities perpetuate "unthinking Eurocentrism" (Braidotti, 2013, p. 153), supported through using mainly academic language-based (writing/reading) tools for communicating learning (Boughey & McKenna, 2016). This Eurocentrism thus limits which ways of knowing might contribute to solutions, which does not help the global water crisis. Anthropocentric water narratives, for examples, those of water being valued according to how it can serve human consumption, may continue to dominate if these humanist institutions are left to continue business as usual. Seen from this vantage point, I argue, that a practice for universities to reconcile diverse peoples and ecosystems is required.

This article draws on my PhD in Environmental Education through which I developed a model of a relational media-arts based university curriculum, focused on water, towards reconciliation in Canada and South Africa. This involved co-designing/facilitating iterations of a university course across Canadian and South African contexts. This paper analyses the course that was enacted in Canada, and which was originally developed around Donati's (2011) relational sociology and Gergen's (2009) relational education theory. At the point of enacting this course, I defined reconciliation as:

> *a practice towards thriving together*, where the 'together' is inclusive of both humans and nonhumans. This aligns closely with Cole's (2007) concept of reconciliation as a *process,* Morcom and Freeman's concept of reconciliation as 'mov[ing] forward in a spirit of right relations' (2020), and Wright's concept of *aesthetico-ethical* reconciliation which Platz describes as a reconciling of humans and nature through 'aesthetic appreciation of nature' (2004, p. 1). (Van Borek, 2021, p. 9-10)

Cree[4] scholar Daigle (2019) called for reconciliation in the form of "course content and pedagogy

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[3] United Church of Christ Commission for Racial Justice
[4] Cree is a First Nations band, the basic unit of government for those peoples subject to the Indian Act, in Canada. Such distinctions have been included in the introduction of First Nations scholars to respectfully acknowledge the differentiation of Indigenous peoples.

[that] center[s] the experiences of Indigenous and other racialized students" (p. 713) and that takes into account ongoing settler-colonialism. Wilson (2020, p. 5) of Kwakwaka'wakw Nation5 considered reconciliation as "moving the dial ... towards getting rid of systemic, inherent discrimination in our systems". Madden, a scholar of settler-Canadian and Indigenous (Wendat, Iroquois, and Mi'kmaw) ancestry, proposed a de/colonising theory of truth and reconciliation education (2019) that emphasises: processes of deconstructing and reconstructing to make visible, while engaging root causes of, inequalities and divisive relations; Indigenous land-based traditions; and counter-storytelling. Counter-storytelling involves challenging dominant and/or under-represented narratives (Madden, 2019). Concepts of reconciliation by various scholars (Hodgkin, 2006; Cole, 2007; Zembylas, 2012; Rouhana, 2018) across diverse contexts suggests a kind of reparation between separate human groups. From a posthuman perspective however, humans/nonhumans are "embodied and embedded entities" (Braidotti, 2013, p. 66) and "relata do not preexist relations" (Barad, 2007, p. 14). In this embedded, entangled existence there are no separate individuals or groups to practice reconciliation between, but rather a relationality which can be material-discursively (re)configured to co-constitute more equal power relations between bodies (both human and nonhuman). A focus on relationality renders it possible to see emerging identities as socio-material constructions and how they are constructed. Building on the way Indigenous peoples have traditionally been viewed by humanist institutions as less than human, this paper embraces a view of posthuman reconciliation as enabling relations that decentre humans and their ways of knowing/being/doing, and that support the creation and maintaining of equal power relations between bodies (both human and nonhuman).

Previous research

Student-water-technology intra-actions may open students to what several posthuman scholars refer to as "thinking with water" (Somerville, 2014; Neimanis, 2017; Rowan, 2015; Pacini-Ketchabaw & Clark). Margaret Somerville (2014) co-developed a collaborative methodology, with Indigenous researcher Immiboagurramilbun (Chrissiejoy Marshall), called "Thinking through Country" (p. 406) as a set of relational practices combining painting, story, translation of Indigenous languages, and digitised oral explanations, linked to a specific material landscape, for "researching water knowledges" (Somerville, 2014, p. 410) in the Murray-Darling Basin region of Australia. Some scholars have been working with concepts around water's agential qualities in early childhood education. Mary Caroline Rowan, for example, has been exploring how "thinking with land, water, ice and snow" (2015, p. 198) embodied in material-discursive intra-actions, such as snow carving, can reconnect Inuit children in Canada with their traditional ways of knowing and being. Veronica Pacini-Ketchabaw and Vanessa Clark have explored how a "relational watery pedagogy" (2016, p. 110) for early childhood classrooms might foster new ways of relating with and behaving towards water. My study builds on these approaches to decentering Western knowledges, by introducing relational (audio/video) texts, mediated art approaches of slow media

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5 Kwakwaka'wakw is a First Nations band.

and soundscape recording, and a strategic focus on water aesthetics, to deepen student-water intra-actions (and relational/observational practices). Like these scholars, my research seeks to change perspectives on water towards healthier becomings-with water, however, my study further draws out the entanglements of waterways and human relations, emphasised through a focus on reconciliation (between bodies of both humans and nonhumans).

Theoretical framework

The posthuman reading of this paper draws on Barad's (2007) *agential realism* by applying the concept of *intra-action.* Intra-action changes how we might think about our relationships and our abilities to affect change. With intra-actions, entities emerge from entanglements, and emergent entities "lack an independent, self-contained existence" (Barad, 2007, p. ix). Thinking with intra-action means that identities, and inter-related properties of agency and responsibility, shift away from being viewed as pre-existing and naturalised, towards being viewed as emergent. With agential realism, agency is no longer seen as something any one entity can have but rather as entangled in intra-actions from which entities emerge with agential qualities that "are only distinct in relation to their mutual entanglement" (Barad, 2007, p. 33). Responsibility, which "entails ongoing responsiveness to the entanglements" (ibid., p. 394), is shared across constituted entities. As our ability to act emerges from within relationships, we use the term "response-ability" which Haraway (2016) explained as being, "about both absence and presence, killing and nurturing, living and dying – and remembering who lives and who dies and how in the string figures of naturalcultural history" (p. 28). Responsibilities remain differentiated, with "details link[ing] actual beings to actual response-abilities" (Haraway, 2016, p. 29).

To effectively apply Barad's agential realism, I gained support from Ceder's (2019) theory of educational relationality and related terminology used in his work. Simon Ceder's posthuman theory of "educational relationality" (2019, p. 21) is anchored in concepts he calls *post-anthropocentrism* and *intra-relationality*. Post-anthropocentrism is about decentering the human and recognising nonhumans as equal parts of an entangled world. Intra-relationality, "based on movement, process, entanglement, becoming, and transformation" (ibid., p. 22), and articulated through "an entanglement of Biesta's (2004) use of the term 'relationality' and Barad's intra-action" (p. 65), is about focusing on relationality itself (rather than the actors in relation). The view of reality consisting of human/nonhuman entanglements instead of human-centric self-identities is key to how reconciliation unfolds in the analysis of this paper.

Bekerman and Zembylas (2012) have argued that *de-essentialising identity* is necessary for reconciliation, since nation-states typically interweave their political agendas with the concept of identity, essentialising identity in the process. Drawing on an example of history education in Cyprus, Bekerman, Zembylas and McGlynn (2009) showed how, within communities in conflict, narratives centre on harm portrayed to be caused *to* one side *by* the other side, producing "dehumanized images of the other" (p. 218). This implies that responsibility for the conflict, and therefore conflict resolution efforts, lie with the dehumanised 'other'. The same can be said of the

reconciliation discourse in Canada which emphasises Indigenous/colonial government distinctions and which frames reconciliation as something needed to correct wrongs of the past. This does not consider the impacts of ongoing settler-colonialism, for example, the abuse and exploitation of waterways essential to Indigenous communities, nor the complicity of diverse residents in settler-colonialism and/or the mistreatment of waterways. Wong (2011) argued that reconciliation requires restitution where "the land and watersheds [are respected] as life-giving forces, not merely as resources to be exploited and controlled" (2011, p. 84). Wong further argued that one way to go about doing reconciliation in this way is "to cooperatively focus on the health of the water that gives us all life" (p. 85). As discussed in the Background section, from a posthuman perspective, I view reconciliation as a material-discursive practice, *with* water, (re)configuring relationality to decentre humans and their ways of knowing/being/doing, and co-constituting more equal power relations between bodies (both human and nonhuman).

Respecting water as a life-giving force, with watery ways of knowing/being/doing, may become possible when drawing on Neimanis's (2017) 'hydro-logics' of water, which Neimanis (2017) proposed as a feminist[6] means for looking to water's multiple modes and dimensions – "according to which bodies of water make themselves sensible and intelligible" – as important ways for learning that move beyond binaries and challenge power constructs, for example, developing an *epistemology of unknowability* (Neimanis, 2017, p. 58) through embracing water's *unknowability*; and for improving one's treatment of water through these learnings. Neimanis's specific concepts of *communication*, where water "articulates sounds, temperatures, and other matters between and across bodies" (2017, p. 55), and that of *archive*: "storing flotsam, chemicals, detritus, sunken treasure, culture, stories, [and] histories" (ibid., p. 55) resonate as potentially potent tools for analysing the *Making Waveforms* course which brings relational texts (audio/video) into a *thinking with water* dynamic. Through the water's communication, we might engage in water's aesthetics and produce affective relations with water which might change our feelings about and behaviours towards water. Through water's archive, we might come to see the health (or lack thereof) of the water and gain insights into the other bodies entangled in this over space and time. This might allow for us to further our intra-actions with water, and to shape narratives (as part of material-discursive practices) that might contribute to (re)configurations for healthier becoming-with water. Engaging with water's hydro-logics of communication and archive may be rendered possible by working with strategic media arts-based approaches. Intra-actions with technologies that can strengthen our attention and perception, in this case a camera lens to better focus our vision and a microphone, headphones and sound recorder to amplify our hearing, act as sorts of prosthetic enhancements that fine-tune our senses to water. Within this communication across bodies, meaning moves away from linguistics towards "ongoing performance of the world in its differential dance of intelligibility and unintelligibility" (Barad, 2007, p. 149). This embraces the

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[6] Neimanis proposes that thinking with water is a feminist approach because, as she argues, the water crisis has gendered effects (Neimanis, 2017).

posthumanist influence "to rethink our taken-for-granted modes of human experience, including the normal perceptual modes and affective states of *Homo sapiens* itself, by re-contextualising them in terms of the entire sensorium of other living beings and their autopoietic ways of 'bringing forth a world'" (Wolfe, 2010, p. xxv).

Methods

Teaching methods

In 2019, I co-designed and led a course called *Making Waveforms* at the Emily Carr University of Art + Design (ECUAD) on the traditional, unceded[7] territories of the Musqueam, Squamish, and Tsleil-Waututh peoples, currently known as Vancouver, Canada. The primary task of this curriculum was the making of a site-specific video, where the 'site' of learning-creation was a specific water body. The *Making Waveforms* course engaged with media literacies using a concept I refer to as 'relational texts' (audio/video). Audio and video are more relational than other texts, specifically human-centric language-based literacies (writing/reading) because audio/video real-time assemblages (e.g. images, sounds, colours, movements, pacing, etc.) enable non-verbal/affective communication (while recording, editing, and viewing/listening). This produces emotional connections (Sherman, Michikyan & Greenfield, 2013; Rasi & Vuojärvi, 2018) between entities and can thereby change affective relationality. Intra-acting with media literacies using 'relational texts' (audio/video) enable a kind of "material/discursive learning *with* the world" (Riley, 2019, p. 97). I selected four water bodies across Metro Vancouver to be part of the course: Deer Lake, Lost Lagoon wetland, Capilano river, and the Point Grey Foreshore (ocean/beach). I chose these water bodies to reflect a diversity in water forms and neighbourhoods, and because I had confirmed Knowledge Keepers[8] with pre-existing relationships to the water bodies mentioned, two Indigenous and two non-Indigenous, to participate in our course. Students each chose one of these water bodies as a focus for their videos. Key to the video making process, students had homework assignments that required them to conduct at least three site visits to their particular water body to engage in relational learning processes. In the first two, students were tasked with semi-structured video and audio mapping assignments respectively (see Appendices). The third site visit involved students meeting with a Knowledge Keeper to learn more about the water body through that person's relationship with it. The course culminated in a public screening event. Six undergraduate students, all of whom self-identified as being non-Indigenous and from a range of artistic disciplines, signed informed consent forms to participate in the research.

Methods for collecting empirical material

The research was designed to be embedded within, and therefore contribute to, the teaching/learning as much as possible. For this reason, data collection involved two main methods which were also assignments in the course: (1) videos; and (2) reflective journals.

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[7] Unceded refers to lands never legally signed over to the government or Crown.
[8] Knowledge Keepers, in this context, refer to people outside the university who have pre-existing relationships with water bodies included in the course.

Questionnaires/interviews, as secondary methods with which to cross-check findings, were conducted before and after the course by a third-party research assistant to further intra-actions of the researcher and the empirical. As a teacher/researcher entangled in the teaching/research processes, I also documented my own reflective observations. The video-making process and resulting videos are the main aspects of the course analysed in this paper. I also analyse and, where relevant, reference students' journals and/or questionnaires/interviews to support the paper's argument.

Methods of analysis

To read the data through a posthuman lens, I intra-acted with the concepts in the theoretical framework from which an analytical framework was produced. To analyse students' videos produced through the course, I did a posthuman narrative analysis using Arndt and Tesar's (2019) post-qualitative conceptualisation of narrative as "dreaming/s" in combination with the aforementiond analytical framework. Arndt and Tesar (2019) defined dreaming/s as: "a way of becoming worldly with, by blurring notions of realities, and unsettling the stubbornness and apparent simplicity of discursive, narrative frameworks" (p. 136). Whereas traditional qualitative narrative methods foreground a humancentric voice as a distinct knower of a certain reality, dreaming/s foreground nonhumans, problematise the known/knower and "enable the emergence of events and questionings that would otherwise remain invisible and silent in 'the real world'" (ibid., p. 136). To do this, I looked at both video content and style (assemblages of images, sounds, text, colours, pacing, etc.) and gave attention to practices and possible meanings produced at temporal moments within and across the video. I foregrounded both human and non-human voices, and applied my analytical framework, by asking in each moment of the video: What/who emerges as intra-acting? At what stage of the process? What happens through this intra-action? What changes? What is made in/visible and/or in/audible, how and why? What subject-positions are de/re/constructed, when, and how? What might this enable which actors to feel, and what does this render possible? What might this allow for, in terms of reconciliation? To build on what was emerging, I then read across my intra-actions with students' journals/questionnaires/interviews and my own reflective observations of the course (still using the analytical framework). The results in this paper were produced from such intra-actions. Video stills and links to video and audio excerpts are embedded into the paper to allow for the agential qualities of water, on its own terms, to be seen, heard and felt affectively by readers-viewers-listeners.

Analysis

Thinking with water through student-water-technology intra-actions

Going back to the first example of empirical material from the *Introduction* of this paper, student-water-camera intra-actions allowed Keinaenen to see water entangled with bodies producing and produced by capitalism (e.g. commercial cargo ships, cruise ships, oil tankers, and expensive housing, which appear as clips in her video – see Image 3), and the invisibility of lower-class residents and/or the original Indigenous inhabitants of the waters (that emerged through student-

Knowledge Keeper-water intra-actions). Showing who/what does or does not have access to water and introducing the colonial displacement of Indigenous peoples (through narration), renders visible the entanglement of race, class and ecology. This produces a view of settler-colonialism as ongoing and entangled in water inequality. Narration emphasises how intra-acting with water allows for an understanding of water which Indigenous peoples practise. Clips of water aesthetics reveal Keinaenen's student-water intra-actions performed in the making of the video, thereby enacting Keinaenen's performance of knowing-with that aligns with Indigenous ways of being/knowing. In an interview, Keinaenen described how thinking *with* water taught her how to see/feel water:

> I'd been there [water body] before ... But then, actually taking a step back or, well, more like a step forward into that place and actually seeing it, that's what ... made me feel a deeper connection with that place ... I was physically [close] to different water bodies and I realised there that I was experiencing it in a different way. Rather than just looking at it, I could like feel it ... And I don't really know how to describe that or put it into words.

 "Actually seeing" the water body through the course in a way that made Keinaenen "feel a deeper connection with that place", means the student-water-technology intra-actions of audio/video mapping enabled the student to see/feel her entanglement with water, which rendered the water more valuable to her. This seeing/feeling was made visible by having been narrated in the video. This change in perspective allowed the student to become a water protector and make this video which enables audiences to interact with water (performed in the film). In an interview, Keinaenen admitted to previously having felt the environmental annihilism referenced in the video and outlined how a sense of response-abilities had been produced: "I've been kind of like, whatever, we're all gonna' die anyways. And now it's like, I can do something about it." Keinaenen's student-water-technology intra-actions contribute to reconciliation by decentring Eurocentric ways of being/knowing through thinking with water; and de-essentialising the identity of the student as knower, and water as known, by rendering visible ongoing entanglements. Keinaenen-film-audience intra-actions contribute to reconciliation by revealing ongoing settler-colonialism and enacting water protection as an agential performance towards substantive restitution.

(Image 3: Video still from Aino Keinaenen's *The Price Tag of the Sea* (2019)

showing the Point Grey Foreshore beach with intertidal organisms in foreground and oil tankers in background)

Observing water aesthetics as water's hydro-logics of communication

The mapping assignments students engaged with during their site visits focused largely on observation. The practice of observation presents specific openings. As Ceder (2019) explained, "observing is allowing sensations to make sense without having to actively or rationally handle them ... To only observe can allow us to experience aspects of the world that do not make sense, or do not appear to, when we try to put them into categories" (p. 200). Mapping assignments asked students to focus some of their observations on water aesthetics, both visual and auditory, which can be understood as what Neimanis (2017) referred to as water's hydro-logics of communication. Bergler, a student in the course, presented through her student-journal intra-actions, the visual aesthetics of water she observed while video mapping the Capilano River (Bergler, 2019):

> I recorded the images based on my sense of exploration and observation. I captured a variety of shot types while experimenting with rack focusing[9] and abstract or out of focus images of the water. I found that I was drawn to the light on the water, the light on the trees, reflections in the water and the contrast between the man-made structures (dam, walkways) and the natural canyon carved from the river along with the dense green forest. [see Images 4, 5, 6 and 7]

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[9] To 'rack focus' means to quickly pull focus so that the object in focus jumps between the foreground and background.

(Image 4: Video still from Ryanne Bergler's *Reflection* (2019) showing abstract/soft focus of water rippling)

(Image 5: Video still from Ryanne Bergler's *Reflection* (2019) showing reflection of trees on water)

(Image 6: Video still from Ryanne Bergler's *Reflection* (2019) showing reflection of light on water)

(Image 7: Video still from Ryanne Bergler's *Reflection* (2019) showing water flowing down Cleveland Dam)

Bergler's use of adjectives, presented in her student-journal intra-actions, to describe the water aesthetics she observed, highlight the wide range of sound characteristics in water's creative

palette:

> ... wider sounds at the dam overflow capturing the loud[ness]...of the water flowing over-intense; close up sounds capturing a small stream that was flowing into a storm drain-quiet and mysterious; the steady flow of the river moving through the canyon -calming ...

Bergler's observations of water aesthetics, made possible through student-water-technology intra-actions, allowed water's agential qualities in artistic/knowledge co-production to be foregrounded. This decentering of human-centric ways of being/knowing, and co-constituting of both Bergler and water as knowers, thereby de-essentialising the identity of the student-as-knower and water as known, contribute to reconciliation. Bergler's aesthetic appreciation for water, made visible through Bergler's journal statement describing how she was "drawn to the light on the water ... [and] reflections in the water ...", rendered it possible for Bergler to lead by example in performing a valuing of water, by presenting these water aesthetics to film audiences, through the making of her video, _Reflection_ (2019).

Slow media: A material-discursive reframing of the world

Incorporating particular artistic approaches that can further deepen our attention and perception, for example _slow media_, can extend the potential of camera and sound prosthetic enhancements to expand the frequencies of water's ways of knowing/being that our receptors can detect.

Slow media is an artistic approach to videography, coined by Métis[10]/Cree filmmaker Gregory Coyes, where the camera is locked in a fixed position and where the videographer is positioned to focus his/her/their attention on the visual and auditory nonhuman performance that unfolds within the frame. The term 'slow' emphasises the disruption to conventional, contemporary media production which typically employs fast pacing achieved through editing numerous, short clips filmed at various shot sizes and angles to direct the viewer's gaze in a particular way (Coyes, 2019). By stepping back and letting water direct our gaze within the frame, focusing our attention onto the visual cues of water, students are able to learn not only _about_ but _with_ water. In this becoming-with water, hierarchies change as students change from controlling and capturing the performance of nonhumans to witnessing, listening to, and responding to non-humans' enactments unique to each meeting. Adding slow media to student-water-camera intra-actions better attunes us to water's hydro-logics of _archive_, particularly the stories that water carries revealing where it has been, who/what it has intra-acted with, and how it has been treated.

Student Shi, in the making of the video _Xwmélts'stn/ Xʷməϑkʷəẏ́ama?/Capilano_ (2019), used slow media to observe, document and, thereby, learn from the Capilano River. Initially, Shi recorded very aesthetically appealing clips of the river, dew, rain, plants, and reservoir, suggesting a pristine environment (see Image 8). These aesthetics clashed with the archive of the river, hinted at by the

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[10] Métis is an Indigenous group in Canada of multiple ancestries.

intra-action between the river and a human-made dam, and confirmed by Shi's Knowledge Keeper's emotional tone of anger and despair for the river. This enabled the student to reconfigure his view of the water as mistreated and to feel empathy for the water, as confirmed through his journal. The narrative Shi tells in his film, consequently, is about an ugly truth being hidden, where, "just beneath the surface lurks discrimination, abuse and contamination" (text on screen). Text presents the water as one of Vancouver residents' drinking sources, implying Shi also drinks this water, then expands to highlight an ineffective water management system. The silence of the river's past Indigenous inhabitants – also mistreated – emerged through student-Knowledge Keeper-water intra-actions. Shi confirmed, through his journal, how this inspired him to see/present the intersectionality of social/environmental issues and ongoing settler-colonialism, and for this to be performed in his video. Shi acknowledged his ethical entanglements with the river and Indigenous peoples by stating (using text – see Image 9): "we are selfish" ... "we neglect our Indigenous communities even to this day" ... "we treat our waterways with the same neglect" ... "environmental protection is not only about the preservation of species and ecosystems, it's also about how we treat each other." Shi's acknowledgement of these ethical entanglements was produced through Shi having engaged in boundary-making practices that de/re/constructed (and, thereby, de-essentialised the identity of) knower/known subject-positions. This decentering of human-centric ways of knowing, and co-constituting of more equal power relations between bodies (both human and nonhuman), creates openings for the possibility of reconciliation. Shi-film-audience intra-actions also contribute to reconciliation by rendering visible ongoing settler-colonialism.

(Image 8: Video still of *Xwmélts'stn/ Xʷməθkʷəy̓əma?/Capilano* (2019) by Xian Da Shi

featuring Capilano river and surrounding riverbanks)

(Image 9: Video still of *Xwmélts'stn/ Xʷməϑkʷəy̓əma?/Capilano* (2019) by Xian Da Shi

featuring salmon in Capilano river fish hatchery – salmon are culturally significant to local Indigenous communities)

Through the process of applying slow media, several students started to witness stories of the entanglement of water with other species who moved into, out of and through the fixed-position camera frame. This enabled a material reconfiguration of the world in which these nonhuman actors affect the content, composition, pacing, other aesthetics, and affectivity of the video thereby becoming-with students as collaborators in artistic/knowledge co-production. For example, student Khandan-Barani, who used slow media in her video, *Deer Lake* (2019), enacts a caravan of Canadian geese swimming in a line between lily pads (see Image 10). Another clip in her movie presents an intimate encounter with a Pacific Great Blue Heron (see Image 11) who remains in the frame long enough to reveal some personal hygiene behaviours. In a third clip, three Mallard ducks perform intra-actions with water (e.g. eating, cleaning, swimming) before exiting the camera frame (see Image 12).

(Image 10: Video still of *Deer Lake* (2019) by Atanaz Khandan-Barani showing Canadian Geese swimming through lily pads)
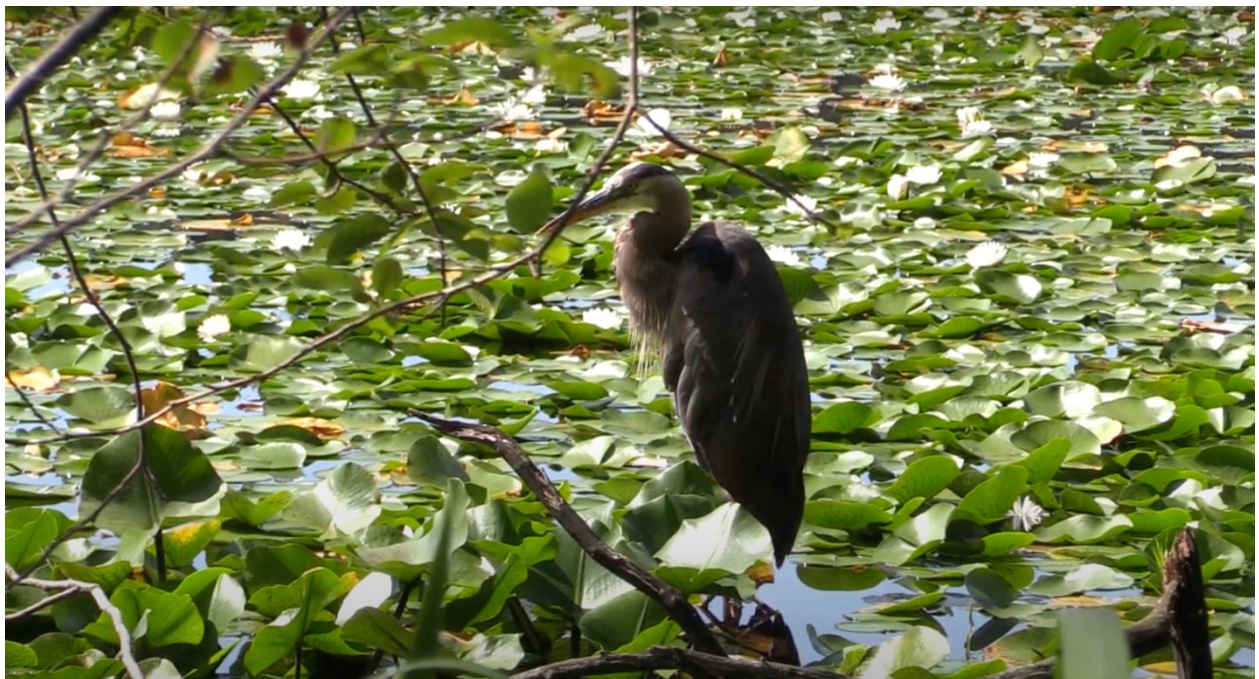
(Image 11: Video still of *Deer Lake* (2019) by Atanaz Khandan-Barani showing Pacific Great Blue Heron)

(Image 12: Video still of *Deer Lake* (2019) by **Atanaz Khandan-Barani** showing three Mallard ducks)

Witnessing the stories, in this analysis seen as water's archive, of animals-lake intra-actions, reinforced by stories her Squamish and Leq'á:mel[11] Knowledge Keeper, Preissl, shared (in student-water-Knowledge Keeper intra-actions) changed the way the student sees water and her ethical entanglements with it. While, at the start of the course, her journal presented water as for her drinking and recreation, the student's video enacts a reconfiguration of water in its expansive entanglements and becomings (e.g. habitat, sanitation, food provision, etc.). An assemblage of slow media style visuals bring the student into what they narrate as affective encounters with water aesthetics and animal-water intra-actions as interconnected pieces held together by Khandan-Barani's voice-over. In her narration, she explained: "I was reminded that the water I use isn't just mine. It's for the animals. It's for the plants. It's for the whole Earth." This shifting away from a humancentric consumption orientation towards a relational attunement, and where power hierarchies are levelled and identity is de-essentialised through seeing entanglements, can contribute to reconciliation.

Soundscape recording: Adjusting the frequency of affective relations

Soundscape recording is a creative approach where the sounds of a particular landscape are recorded and, thereby, translated into aesthetic materials which can further be listened to out of context or reworked into sound compositions. More specifically, these compositions equip composers with tools for communicating and educating around environmental issues reflected in the growing extinction of sounds largely unnoticed by a predominantly visual culture (Akiyama,

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[11] Squamish and Leq'á:mel are First Nations bands and herein refer to Preissl's ancestry.

2010). Renowned soundscape composer Hildegard Westerkamp (2001) has emphasised how a microphone and sound recorder enable us to listen 'unfiltered', bringing to our attention sounds that our brains are hardwired to filter out. As relational texts, these audio clips can change affective relations during recording, editing and listening intra-actions. Embracing the hydro-logics of a water body, revealed through soundscape recording, can enable water to contribute to knowledge and video/narrative co-creation.

An example can be seen in student Gao's film 亡灵岛 (*Deadman's Island* in Mandarin, 2019), which illustrates Gao's thinking with water through student-water-camera/microphone intra-actions. Gao's use of slow media in video mapping allowed a material reconfiguration of the world in which nonhuman agential qualities emerged. Gao's video is a highly emotive juxtaposition of images of plants, animals and waterscapes that form Lost Lagoon's ecosystem: plants oscillating between foreground/background; a dragonfly flying across the frame and returning to linger on screen; a seagull swimming into frame; a Canadian goose flying across the frame; and a Pacific Great Blue heron flying into the frame (see Images 13, 14, 15 and 16). Contributing to the content, style and affective power of the video in this way, renders it possible for these nonhumans to become collaborators with Gao in artistic/knowledge co-production.
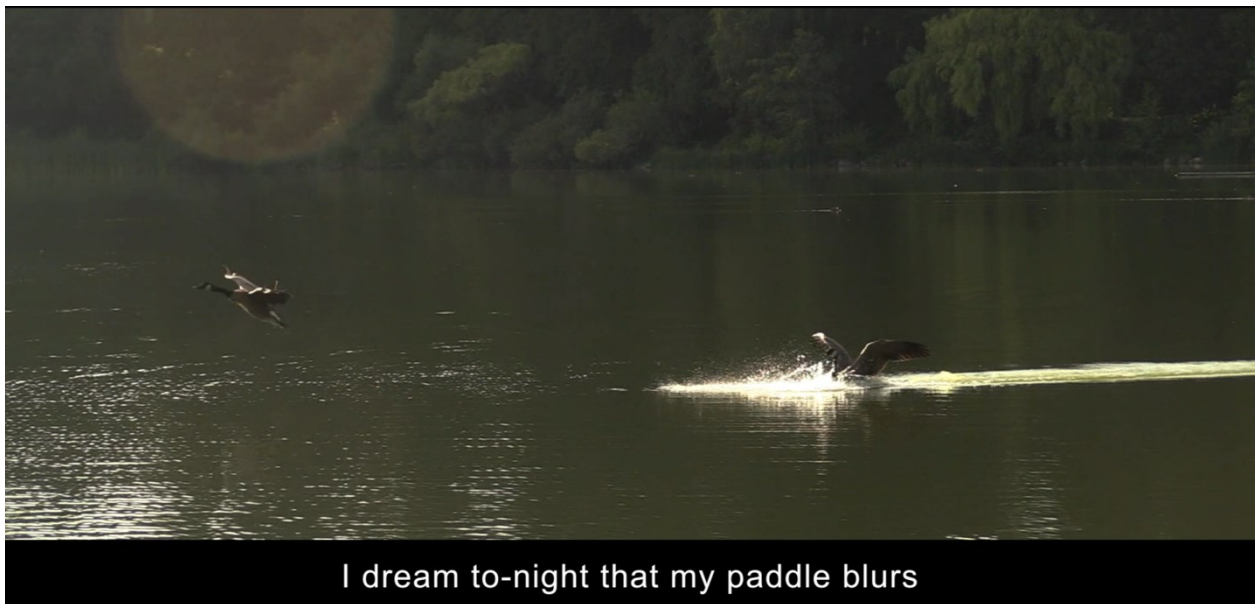

Beneath the drowse of an ending day

(Image 13: Video still from Andy H. Gao's 亡灵岛 (2019) featuring dragonfly flying into frame)
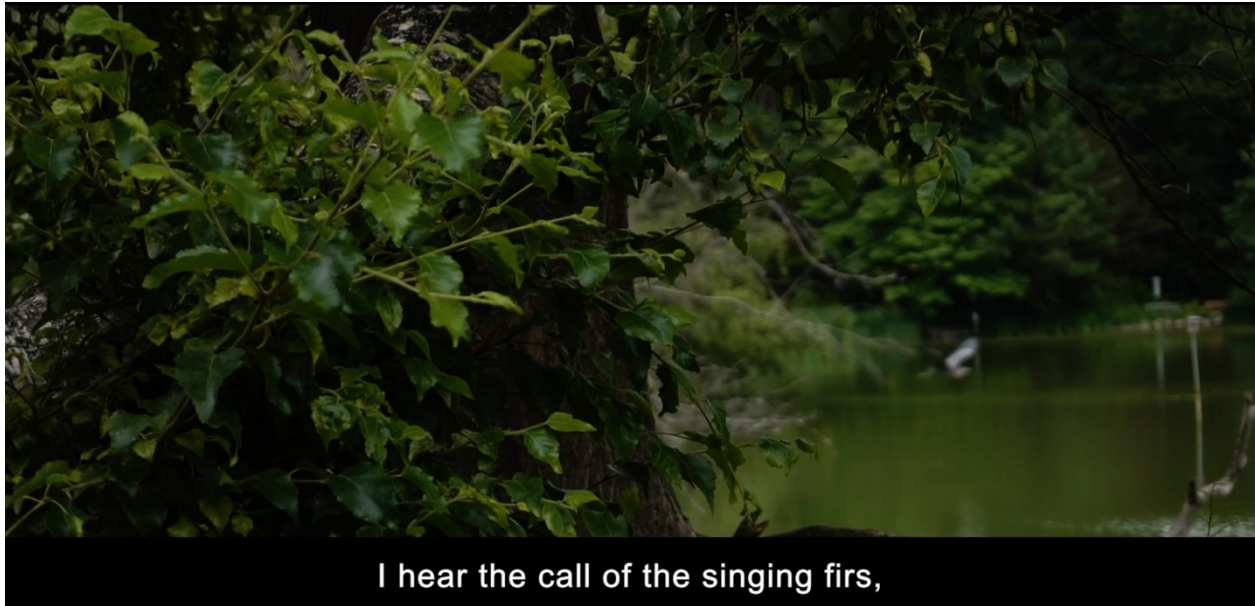
(Image 14: Video still from Andy H. Gao's *亡灵岛* (2019) featuring seagull swimming into frame)

(Image 15: Video still from Andy H. Gao's *亡灵岛* (2019) featuring Canadian goose flying into frame)

(Image 16: Video still from Andy H. Gao's 亡灵岛 (2019) featuring Pacific Great Blue heron flying into frame-

see blurred motion in background)

Gao's use of soundscape recording in audio mapping, which followed video mapping, provided his deepened material-discursive enactments with the wetland. In an interview, Gao described how his student-water-microphone intra-actions allowed for an amplified knowing-in-being: "Everything is so loud and clear, you realise, wow, there's so many things going on. There's a lot of small creatures and things in the shadow that you can't see." This expansive boundary-making practice enacting what defines the lagoon as a water 'body' and what (re)defines the knower/known encouraged Gao's choice to insert himself in his video by delivering an emotional narration in his native language of Mandarin. What appear as subtitles, due to their placement at the bottom and centre of the screen, are actually English verses of Mohawk[12]/English poet E. Pauline Johnson's poem, *Deadman's Island* (1911), which is where the name 'Lost Lagoon' originated. The narration is a version of the poem adapted by Gao into Mandarin, and influenced by his experiences with the lagoon. This was confirmed through his artist statement:

> Within my video, I documented my relationship with Lost Lagoon based on my personal experience and understanding of the place ... I tried to stand in [Johnson's] shoes first and experience what she might have seen, heard and felt at this location back in the day. Then I went back to the location and tried to experience the same place as her, but in my own perspective, at a different time period.

This decentering of human-centric ways of knowing/being changed the way Gao enacted his

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[12] Mohawk is an Indigenous tribe currently found in Canada and the United States of America.

response-abilities towards water – and potentially to others excluded from the notion of 'human' – which can contribute to reconciliation. He confirmed this in an interview by stating:

> Before I was taking this course, I don't (sic) really think about how precious water is ... I don't (sic) take actions or ... think really hard about it. But after I realised ... there's not only what I see and what I'm experiencing ... so that made me start taking actions and think about what's the right thing to do.

Gao's change in perspective, where he was seeing the entanglements of animals and plants with the wetland, allows for a de-essentialising of identity and for producing more equal power relations (between humans, animals, plants and water), which can contribute to reconciliation.

The potentialities rendered possible using soundscape recording were most evident in the development of student Snaden's video. What emerged was a way for water's hydro-logics of communication to participate directly in her video and creative process. In her video *Healing in Blue* (2019), Snaden composed and performed a song with water. This becomes the soundtrack, story and heart of the film. At the start of the video, Snaden appears on site at her water body with her keyboard (see Image 17). When she starts to play, visuals cut to a sequence of imagery mapping the surrounds. The music continues. Text on screen reveals that "this song was composed and recorded at Deer Lake". This intra-action makes possible new ways for the student and film viewers to see the lake as inspirational muse, composer, performer, performance hall and recording studio. The music and nature sounds (relational texts), featuring the sounds of water as lead 'vocalist,' intra-act throughout the piece in collaborative exchange. Snaden's description of her music composition process confirms the notion of water as part of artistic co-creation: "... as I was watching the people walk by and the water, it was very much just where my fingers went. And what the water was saying." The sonic inter-weaving of keyboard-lake-animals acts as a mirror to the artist's growing awareness of her entanglement with water, and of water's agential qualities, that are gradually revealed through the unfolding narrative. Text, which stamps the song like a lyrical gesture, shares how Snaden, "[grew] up being healed by the sound of water" and water emerges as healer with aural aesthetic values. Snaden's growing perception of water as becoming many things across her life and work allows her to feel gratitude towards water. This gratitude, presented as text in her video which reads: "to say thank you to the water for an endless cycle of healing, growth and love," enables Snaden to emerge as an advocate for water's well-being. Seeing water as artist-collaborator in these ways decentres human-centric ways of being/doing/knowing, de-essentialises identity, and creates more equal power relations between bodies (both human and nonhuman), which can contribute to reconciliation.

(Image 17: Video still of *Healing in Blue* (2019) by Tess Snaden showing Snaden composing/performing with Deer Lake)

Conclusion

In this paper, I applied a posthuman reading of empirical material enacted from a university course focused on student-water-technology intra-actions using relational texts (audio/video) to produce videos presenting local water bodies. The course aimed to contribute to reconciling diverse peoples and ecosystems in Canada. Using my posthuman analytical framework changed my reading of the empirical material whereby I noticed how the students changed in their reconciliation practices as emergences through intra-actions with water bodies. Rather than reading their change as changes in their cognitive understandings, I read these as emergences through material-discursive entanglements with water. This also changed my thinking and intra-actions, as teacher, in which my own subject-position, as teacher, was deconstructed through intra-actions embedded with processes of the students, and where I shifted away from hierarchical teacher-student relations and thinking of a pre-existing 'teacher' as having agency to 'teach', towards embracing educational processes as being produced between and across entangled bodies. This teaching practice takes an activist approach with a values-based/ideological offset which changes the students' perceptions, affective relations and response-abilities towards improving human-nonhuman-water relations while learning with water. My posthuman analysis emphasised students' perceptions changing through thinking with water. Students' perspectives changed to see the entanglements of water with other bodies produced by capitalism (e.g. oil tankers), animals, plants, and worlding practices that make original Indigenous inhabitants invisible. Perceiving the entanglements of race, class and ecology rendered it possible for students to observe the agential qualities of nonhumans amidst ongoing settler-colonialism while experiencing their own ethical entanglements with it. Students changed from approaching water with a hierarchical sense of control and capture (e.g. traditional filming approach) to witnessing,

listening to, and responding to nonhumans' enactments (intra-acting with the fixed slow media camera frame). As student-water-technology intra-actions, particularly those incorporating artistic approaches of slow media and soundscape recording, activated the senses and embodied ways of being, students' perceptions of water changed so that students noticed the non-verbal, affective communication of water aesthetics produced through water's performance in the world. Students' affective relations changed to experiencing deeper connections (entanglements) with water, aesthetic appreciation for water, and empathy and gratitude towards water. Students changed into response-able water protectors through the making of videos presenting narratives valuing water as important to animals, plants, and all peoples (including those marginalised by ongoing settler-colonialism), and for purposes beyond consumption.

This contributes to a reconciliation practice for higher education institutions by enabling relations that decentre humans and their ways of knowing/being/doing, de-essentialising identity, enabling more equal power relations between bodies (both human and nonhuman), and producing greater possibilities for shared-while-differentiated response-ability. A posthuman teaching practice can change students' perceptions of their learning processes to recognise, and value, the agential qualities of nonhumans in artistic/knowledge co-creation. This can shift students away from the anthropocentric logics of hierarchy and control over those perceived to be excluded from being 'human' (Ferrando, 2019), towards listening, witnessing and respecting. This can be further strengthened by continuing to embody an activist teaching approach rooted in a posthuman perspective, whereby one's teacher identity is de-essentialised through thinking-with and becoming-with various bodies entangled in intra-actions, particularly as this curriculum performs diverse material re/configurations across contexts. Haraway (2016) described "thinking-with" as "what beings evoke from and with each other that was truly not there before" (p. 7), and this rendering each other capable as "becoming-with" (p.16). This can have wider implications for global water equality, or other climate change issues, in terms of students' and educators' "responsibilities of intra-acting within and as part of the world" (Barad, 2007, p. 37).

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APPENDIX I: VIDEO MAPPING ASSIGNMENT

1) Explore your site through visual storytelling.

Be sure to visit with a video camera and video tripod (including charged camera batteries and SD card for recording). The size of sites may vary from one specific stream to an entire beach. Decide how far the "boundaries" of your site stretch. For example, consider choosing one section of a park that has particular appeal to you rather than the entire park.

2) Consider the visual aesthetics of water.

Look for water and water signifiers (i.e. empty ditch formed by water, water tap, etc.) at your site. Pay attention to the aesthetics of water. How do the characteristics of water (i.e. movement, cleanliness, access to light, size, shape, colour, texture, etc.) suggest different meanings and/or inspire different emotional effects? How many different kinds of visual aesthetics can you locate for which the source is water? How might you work with water as an artistic medium in your video?

3) Record a series of video clips to create a "map" of your site.

Apply concepts of slow media that you learned in class combined with a focus on water aesthetics to explore and document your site, as if your video clips will be the only way another person might learn about this place and how it relates to water. Please be selective when you record by pressing "start" and "stop" on your video camera with intention, and capturing only visuals that you want to include in this video map. Be specific with your choices of content and composition. How will you orient your viewer to the geography of the place in terms of how it is laid out spatially and how its various elements interact with one another?

Reflect on your own connection to this site. How do you interact with it? What impact does it have on you? What impact do you have on it? Anything in particular that stands out for you?

Does it seem like it might have changed over time? What can you imagine for its future?

Experiment with compositional elements of video documentation (i.e. wide shots, close ups, camera angles, etc.) that reflect your ideas and impressions about the place.

APPENDIX II: AUDIO MAPPING ASSIGNMENT

1. Explore your site through sound.

Visit your site with an audio recorder, shotgun microphone, headphones (including charged batteries and SD card for recording). Walk around the site with a spirit of adventure and discovery, listening with this amplified hearing. Observe your site aurally, hearing each sound and learning about each sound in its larger context.

2. Consider storytelling through sound.

Consider what the source of the sounds you hear are. Are they human-generated (anthrophony)?

Animal-generated (biophony)? Earth-generated (geophony)? Is there an interaction between the sound sources? Do any sounds dominate? Are any sounds surprising? Consider how and what sound can tell about: place, time, season, activity, state(s) of the environment. What can these sounds and the way(s) they interact tell us about the relationship(s) between humans, nonhumans and the environment? In other words, what (if any) social-ecological systems are present in this site?

3. Consider the aesthetics of the sound(s) of water.

In E. Pauline Johnson's written account of Chief Capilano's stories in *Legends of Vancouver* (1911), Johnson describes the Capilano river as "laughing," "restless," "sing[ing]" and "perpetually whispering." Listen for the sound of water at your site. Listen for the aesthetics of the sounds of water. How many different kinds of sounds can you locate for which the source is water? How would you describe these various sounds? For example, "dripping," "flowing," "roaring," "weeping," etc? Feel free to imagine them in languages other than English.

4. Record a series of audio clips to create a "map" of your site.

Please be selective when you record by pressing "start" and "stop" on your audio recorder with intention and capturing only sound clips that you want to include in this audio map. Apply concepts of soundscape recording that you learned in class to document your exploration of your site:

- Be specific with your choices of content, perspective and aesthetics (i.e. where you point the microphone).
- In the same way you might use a variety of wide shots and close-ups when photographing with a camera, consider recording some focused sounds and some ambient clips of a number of sounds in context with each other.

Apply at least one distinct "lens" through which to include a critical component to your perspective of the site. For example, your perspective could be that the site is very pristine so you may record sounds that suggest fresh, unspoiled nature. Point the microphone in the direction you want to focus your audience's attention so that this supports your critical perspective. You might even consider recording the same sound (source) from different perspectives to create a distinct effect for the listener. Can you document a water aesthetic that supports your perspective?