

**Managing tensions: Understanding experiences of climate change in Atlantic Canada
through a somatic artist-researcher practice**

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Abstract

We are living during what is considered Earth's sixth mass extinction event. Our knowledge of this evokes self-protective responses. Throughout this dissertation I explore how fifteen people in Atlantic Canada, including myself, experience the loss and threat of climate change. My work explores and observes the complexity of these experiences for fifteen people in Atlantic Canada, including the artist-researcher, in ways that include the lived body, and ways that apply the theories and practices of Somatic Experiencing (Levine, 1997, 2010; Payne, Levine, & Crane-Godreau, 2015) and heuristics of polyvagal theory (Porges, 2001, 2009, 2011). Thinking with Haraway (2016), I look for ways to stay with the trouble, acknowledging that the trouble is shared by human and more-than-human kin. I also explore how the work of climate change is intimately tangled with colonization. What has emerged from this (always) partial mapping of experience is knowledge about the embodied tendencies of humans, similar to our mammalian kin, to self-protect in the face of the great threat to our world of climate change.

In this dissertation I articulate an emergent methodology name *somatic artist-researcher practice* (SARP). Somatic artist-researcher practice is a flexible methodology for justice-seeking, somatically grounded, artistic/practice-based research. This methodology is suitable for inquiry into messy, unsettling, and dissonant experience phenomena. It does not offer neatness, a path of least resistance, nor a claim to truth, but honours polyvocality and multiple epistemologies. Somatic artist-researcher practice works towards the impossible, utopic values of being present with others while practicing awareness of orienting to internal and external environments, having one eye in and another out. Somatic artist-research practice follows curiosity and an autoethnographic impulse, embracing fragmentation and failure as part of knowledge production. In SARP, knowledge is gained when artist-researcher enters into relationships in which (s)he risks being transformed in the intercorporeal zone. Links to video documentation of performances are embedded in the text.

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1 Chapter 1– Context and Literature

1.1 Introduction

A couple of years ago I noticed an online trailer for a documentary on National Geographic Television featured an image of Bill Nye “The Science Guy” lying on a psychoanalyst's couch. Apparently, Bill Nye, and others, were “mourning a changing climate” and felt that it was important to acknowledge the lament so that it didn't grow into a larger, mental health crisis (*Bill Nye's Global Meltdown*, Castle Pictures, 2015). It was interesting that the questions about climate change I was ruminating on as an artist-researcher were increasingly showing up in mainstream media, though this was in no way comforting.

My project is in alignment with a growing concern regarding the impacts of climate change on mental health. *The American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change* (APA, 2010), defines climate change as “*the perceived threat and unfolding environmental impacts of climate change*, as it is these facts of the larger phenomenon that are of particular relevance to public understandings and responses, psychological and social impacts, and planned change” (Reser, Morrissey & Ellul, 2011, 20). This definition, though limited to Anthropocentric social relations – it does not mention more-than-human kin – allows for a certain amount of breadth and complexity.

In the face of the complex challenges, characterized as “super wicked problems” of our times (Levin, Cashore, Bernstein, & Auld, 2012), “building resilience” has been named as a core priority. Resiliency – a concept which is (de)constructed in various disciplinary terms (Balme, Gerada, & Page, 2015; Luthar, Cicchetti, & Becker, 2000; Ramsay & Manderson, 2011) – relates to the adaptive capacity and responsiveness of built environments, social infrastructures, individuals and families dealing with a range of stressors and perceived threats (Edwards & Wiseman, 2011). Anthropogenic climate change, itself, is a complex domain of perceived threat affecting resilience that is different than other realms of threat and sources of distress (Reser, Morrissey & Ellul, 2011). Rae Johnson, (2018), considering the critical issue of body-based resilience, reminds us that the term “resilience” can be problematic when it associates failure to recover from traumatic events with individual weakness. Johnson (2018) writes that “we are often (but not always) bigger than what happens to us, and that we can build muscle from adversity” (121).

As understandings of how *Homo sapiens* has affected Earth systems deepen, there is also a growing awareness of shared losses across continents, and in all demographics (Steffen et al., 2011; Northcott, 2011). Losses also call into awareness our interdependence across species. Van Dooren (2014) writes that “[t]he affective separation of human exceptionalism holds the more-than-human world at arm's length: human exceptionalism plays a central role in the active process of our learning *not* to be affected by nonhuman others” (141). During this moment, that is becoming more widely characterized as Earth’s sixth mass extinction episode (Ceballos, Ehrlich, & Dirzo, 2017); the ways humans have developed to disavow our interdependence with Earth systems are breaking down.

Losses related to climate change are more psychically complex, ambiguous, and difficult to recover from emotionally than recovery from losses wrought by “natural disaster” (Cunsolo, 2012a; Weissbecker, 2011), and efforts to deepen understandings of climate change loss experience are required. Thinking with Butler (2004) I am reminded that “prohibition on avowing grief in public is an effective mandate in favour of a generalized melancholia (and a derealization of loss)” (37). So far there have been few places (and little time) allocated to mourning losses of climate change such as shrinking biodiversity, melting permafrost, changes in the balance of atmospheric conditions, acidification of oceans and diminishing global freshwater (Burton-Christie, 2011; Jenkinson & Shaw, 2015; Randall, 2009; Randall & Brown, 2015).

Literature illustrates that adverse psychological and mental health impacts from climate change “will be widespread, profound, and cumulative” (Bourque & Cunsolo, 2014, 416), and that the capacity of individuals to cope and respond has implications for collective adaptation (Steffen et al., 2011; Lertzman, 2012). At the level of the individual, unresolving, chronic stressors affect persons as they bear witness to ongoing climate change-related losses. A messy, ambiguous zone of threat and uncertainty shapes affect, cognition, behaviour, and generates a heavy ambience for social and political relations.

It has been established that psychological well-being and mental health are impacted by climate change via *direct* and *indirect* or *mediated* pathways and researchers have called for further inquiry to develop better understandings of both pathways (Bourque and Cunsolo, 2014; Reser, Morrisey & Ellul, 2011; Weintrobe, 2013; Weissbecker, 2011). Collisions of the two pathways create interference patterns – neither is mutually exclusive even though it is said that indirect,

virtual and vicarious exposure characterizes the way most urban dwellers of the Global North¹ experience climate change (Reser, Morrisey & Ellul, 2011).

Mediated contact is widespread and not limited to documentary film, written articles increasing knowledge of climate change, shock media tied to corporate propaganda, social media action campaigns (such as SumOfUs and Avaaz), local and international community calls for action, and personal oral and Facebook accounts. Clickbait, video documentaries, radio coverage, and personal oral accounts of direct, sudden, cumulative and profound impacts are pervasive.

Mediated exposures to climate change certainly affect how people respond to their direct experiences, while direct losses and challenges of changing local environments also have a direct impact on mental health and well-being. People react to media exposures and to threats to local ecosystems both as conscious, socially-engaged agents, and as organisms responding to our environments with self-protective, survival impulses.

In this dissertation, I will refer to these two, integral aspects of human response to climate change as the responses of *persons and nervous systems*. I first heard this turn of phrase used by Somatic Experiencing Trauma Institute (SETI) faculty member, Berns Galloway, to distinguish between responses of the conscious person and the autonomic survival responses of the organism. This distinction is an important reminder of the mammalian kinship embodied in human neurophysiology, in the mechanisms that evolved so *homo sapiens* could survive threats in our environment, and to situate us, thinking with Haraway (2016), “as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings” (1).

¹ The term *Global North* marks beyond the division of North and South in terms of history, and geography, pointing to the disproportionate control of global resources, power, and privilege held by North America, Europe, and developed parts of East.

People respond to knowledge of climate change in various ways: with fear, anxiety, grief, a sense of powerlessness, rage, disavowal, numbness, depression, shut down, paralysis and a spectrum of adaptive behaviours (Cunsolo, 2012b; Doherty et al., 2011; Reser & Swim, 2011; Swim et al., 2011; Weintrobe, 2013; Weissbecker, 2011). These responses always manifest through the body and the senses, for example, as tightness in the chest, shallow breathing, changes in heart rate, tension in the jaw, teeth grinding, holding and tightness of shoulders, agitation in the extremities, “brain-fog,” lack of energy, or sometimes overwhelming and often uncomfortable sensations in the gut and chest. Responses to threat also show up as postures and gestures that express an underlying impulse to self-protect and other behaviours, conscious and unconscious, which attempt to create and maintain a sense of safety.

Through this project, my goal is the development of theory, through a deepening consideration of embodied experiences at the level of individual persons/nervous systems, always already nested in relation to communities, nations and the global context of climate change. Haraway (2016) writes that “we need stories (and theories) that are just big enough to gather up the complexities and keep the edges open and greedy for surprising new and old connections” (160). As an artist-researcher I am exploring a particular direction of emerging theory where eco-psychology and somatic psychology collide (Hollifield, 2013; Lertzmann, 2013; Weintrobe, 2013). Through an emerging, iterative methodology I bear witness to and co-construct the experiences of fifteen people in Atlantic Canada, including myself, who are living in this strange moment of systems transformation/collapse in the face of climate change.

1.2 (Eco) Psychology and the Death of Nature

Activists and scholars are, clearly, compelled to protect the earth and cultivate individual and collective resilience in the face of rapid changes to Earth systems (Cunsolo et al., 2015; Doherty & Clayton, 2011; Eaton, 2014; Klein, 2016; Lertzman, 2012; Liboiron, 2016; Suzuki, 2015). However, being compelled presumes the *capacity* of persons, nervous systems and communities to coherently respond in the *ambience* of threat and loss related to climate change.

Morton (2006) writes about notions of ambience. “Ambience denotes a sense of a circumambient, or surrounding, *world*. It suggests something material and physical, though somewhat intangible, as if space itself had a material aspect – an idea that should not, after Einstein, appear strange” (33-34). This thinking is helpful in articulating a more specific, threatening ambience relating to climate change, and experiences responding to it. Morton (2006) characterizes ambience as Aeolian– disembodied or from nowhere (41). Those organisms *experiencing* the timbral and other qualities of an ambience of threat, however, do so through its resonance in embodied tympanic structures including the ears, the arches of the feet, pelvic floor, diaphragm, larynx, and duramater.

Morton’s (2006) *Ecology without Nature* proposes that there are no theoretical grounds for ecological claims, and that humans simply cannot speak of “nature” without reifying various centrism. Other important philosophical thinking about the *death of nature* – now widely discussed across disciplines, popularly and academically – includes Merchant (1980) who first used that expression as the title of her ground-breaking eco-feminist analysis, Crutzen (2002) who coined the term “Anthropocene,” Chakrabarty (2009) who theorized the collapse of the distinction between natural history and human history (201), and Latour who proposes that more-

than-humans be included in the processes that govern political dynamics, and that democratic structures are compatible with the ecological restructuring of society.

Ecopsychology approaches have emerged from many directions of more subject-centred psychological theory, integrating Freudian (1915a, b, 1917) understandings of grief and melancholia, theories of development and attachment (Klein, 1936; Jacobson, 1946; Lindemann, 1944), phases of grieving (Parkes, 2002), and of anticipatory loss (Cunsolo, 2012; Randall, 2009; Weintrobe, 2013; Weissbecker, 2011). Psychological models more commonly applied in spiritual and pastoral care, and counselling settings – tasks of grieving (Worden, 1991), oscillating dual processes (Stroebe & Schut, 1999) and meaning reconstruction (Neimeyer, 2001) – may also inform conceptualizations of climate change loss.

Current syntheses of psychological and psychoanalytic theory inform heuristics for clinical practice with “eco-anxious” persons, working at the level of individual functioning, and focusing on cognitive and emotional adaptation (Randall, 2009; Reser, Morrissey & Ellul, 2011; Weintrobe, 2013). Psychological approaches also apply understandings of community resilience that encompass social, individual and family capacities to respond and recover from the direct stressors of climate change (Weissbecker, 2011).

Lertzmann (2013) is interested in why some people take action to mitigate the impact of climate change and others don't, and has written about the phenomenon of apathy in relation to climate change. Lertzmann (2013) demonstrates that it is not that people do not feel, but that they feel too much and become frozen in a state of environmental melancholia. Struck by the preponderance of loss narratives, Lertzmann (2013) noticed “an arrested mourning with regard to the places and ways of life, and earlier selves, that environmental issues seemed to evoke”(9). In Chapter 3– Freezing in the tension– I respond to Lertzmann’s observations, using examples from

my interviews and theorizing on the mechanisms of “becoming frozen,” towards an understanding of environmental melancholia as a neurophysiological self-protective response.

Dodds (2013) takes a non-linear approach comprised of eco-psychoanalysis – development of an object-related self, alongside an ecological self – and consideration of the neurophysiological substrates of social responses, overcoming the disciplinary limitations of a “mindless” neuroscience and a “brainless” psychotherapy (1). Drawing on Deleuze/Guattari he describes ways that “living systems attempt to balance themselves on the fractal border zone between stability and instability”(9), theorizing complex social, psychological and neurological feedback loops “among the interconnected life systems of the Earth” (11).

Thinking with Dodds (2013) in terms of non-linearity and inclusion of neurophysiology, but departing from his philosophical focus, I explore and respond to complexity through artistic practice. My artistic research is an iterative process integrating sound design, movement, performance, video, and writing. Corresponding with each chapter there are performance and sound pieces including sounds of the Anthropocene – recordings of Toads from the Codroy Valley, Newfoundland, the sounds of human voices from interviews, the voices of bees, ravens, river, and wind. The gestural vocabulary emerged in the space of interviews and the researcher’s response to the interviews through movement and choreographic practice. The dancing of mourning as artist-researcher cracks open specific, spatial and temporal embodiments, holding space for the conditions of disintegration and return. In the performance of new works, new knowledge of mourning climate change emerges between performer and audience.

Rosemary Randall, a leading psychotherapist in the UK dealing with climate change loss, is founder of *Carbon Conversations* (Randall & Brown, 2015) – a program in which participants gather to actively grieve losses related to climate change and to take specific, local actions.

Randall (2009) describes a phenomenon that she often witnesses in her *Carbon Conversations* group work – “a process where fear of loss leads to it being split off and projected into the future. The present continues to feel safe but at the expense of the future becoming terrifying” (119). This splitting protects people from facing and mourning the losses associated with climate change in the here and now.

Randall's group work as well as the work of Seed & Rosenhek (2012), and Macy & Brown (2014), are examples of efforts towards addressing climate change loss, and towards local action, healing and transformation. Randall (2009) applies Worden's four tasks of grieving² with the understanding that ecological debt is more complex than “simply mourning” and that “questions of guilt, reparation and the reframing of identity take a more powerful place” (90). Randall's research indicates that younger people are less likely to feel guilt, but need spaces for the safe witness of their anger. For both older and younger groups in Randall's research the experience of being exposed to a constant media stream of climate-related loss and trauma was difficult to manage (93).

Holifield (2013) is dedicated not only to finding ways to mitigate the effects of climate change on humans but in “discovering an eloquent relatedness that responsibly collaborates with the earth alive to a deeply immanent sense of the sacred” (59). Holifield associates loss and climate change to the anatomy of trauma and believes that we have “abstracted ourselves from our bigger body, the earth, we are unsituated and no longer have a *felt sense* of primal indwelling” (53). She describes how dissociating from the sensed feeling of hyper-arousal disconnects us

²Worden's (1991) four tasks are broadly applied in psychotherapy, nursing, hospice and palliative care. These four tasks of grieving are 1) accept the reality; 2) work through pain and grief; 3) adjust to a changed environment; 4) find enduring connections.

from our sources of creativity and “from the earth itself, because it is through our bodies that we sense our connection to earth” (53).

It is becoming increasingly clear that many persons find themselves enduring chronic cycles of anxiety and depression, or arousal, becoming overwhelmed and shutting down due to unresolving stressors of climate change. Reser, Morrissey, & Ellul (2011) referred to reports from frontline mental health practitioners who were seeing extraordinary numbers of clients for “eco-anxiety.” My interview sample includes activists in leadership roles, energy sector workers, as well as frontline mental health practitioners and youth whose experiences in climate action have led to unsettling reflections on our colonial history. I argue in Chapter 5—*Feeling nervous (systems) and the capacity to be compelled*, that to address climate change loss and threat one must recognize histories of colonialism, and ongoing colonization. Recognition of these ties can be unsettling to white settler identities and nervous systems, but is a necessary step in healing historical trauma in all bodies (Menakem, 2016).³

1.3 Critical Social Work and Mad Studies Perspectives

Poole & Ward (2015) write that with complex, unresolving loss and traumatization, it is essential “to start a conversation not about how to progress, recover, and ‘get over’ pain and loss, but how to ‘get under’ it, feel it, and claim it as it comes” (95). This may be applied to the profound losses of nature relating to climate change. Grieving losses of climate change is a dance of

³ In somatics, the word “settling” refers to the crucial capacity to become aware of sensations and tensions in the body, and staying present with sympathetic activation without going into fight, flight, or freeze. Menakem (2017) writes that “settling in your body is not the best response in every situation. There will be times when you need to activate your body and act constructively. In fact when settling is a reflexive response rather than a mindful one, it can be a form of avoiding or overriding an opportunity to serve or heal. Some people can become extremely – almost scarily – calm and low key under stress. Instead of settling their body in order to tolerate discomfort and fully engage in the situation, they use their body-settling skills to *disengage* and *disassociate*.” (34)

perceived threat and self-protection in social and political fields and physical – built and natural– environments. A dominant, death-phobic, and grief-avoidant cultural narrative both constructs and constricts culturally situated ways of dealing with loss (Jenkinson & Shaw, 2015; National Film Board of Canada, 2008; Rosenblatt, 2012). The threat to selves and identities in grief may dominate for some and not for others. Gendered, racialized and psychiatrized bodies are more often threatened bodies whose grief responses may, consequently, exist within a more complex constellation of self-protection.

Mad studies perspectives situate inquiry in a psychiatrized field (Poole and Ward, 2013; Burstow, LeFrançois & Shaindl, 2014) and ask important questions regarding who is considered grievable (Butler, 2004; Poole and Ward, 2013), how mourning is permitted or denied, and how traumatic stress responses are pathologized as individual biogenetic imbalances (Blackman, 2016; Wakefield, 2013; LeFrançois, Menzies, & Reaume, 2013). As grieving bodies are written by language, and marked by the vocabulary used by the helping professions, deconstructing bereavement language is one way to resist the recapitulation of various oppressions.

Critiques of sanism situate “grief work” and a growing “science of bereavement” within both modernism and an intersectionality of oppressions (Poole and Ward, 2013; Burstow, 2003). In consideration of the social and cultural complexity and heterogeneity of grief and mourning, the language of “normal” and “pathological” mourning must be deconstructed. The phrases “getting back to normal” and “finding a new normal” used broadly in the helping professions dealing with bereavement and trauma, promote an ever-narrowing range of ‘normalcy.’ Critical, anti-oppressive perspectives describe how those living on the economic, social and cultural margins are excluded by the dominant language of ‘normalcy’ (Burstow, 2003) Mills (2014) also

describes how this language feeds the agenda of corporations, increasing numbers of people who are characterized as ill “in an ever-expanding market in abnormality” (132).

Critical perspectives on trauma are also applicable to traumatic stress responses to climate change. Burstow (2003) attributes traumatization partly to the absence or destruction of authentic connection to others and potential to be witnessed by others and by internal selves (Burstow, 2003). Traumatic stress responses, however they are named, cannot be healed in isolation, nor through cognitive processes alone, but must be re-negotiated with the supportive, witnessing presence of other two-legged and four-legged bodies (Levine, 2010; Marlock et al, 2015; Payne, Levine, & Crane-Godreau, 2015).

There is a risk that those persons who are mourning losses of species, ecosystems and ways of life, who are deprived of authentic connection and supportive witness of community, may be exposed to the further loss of deepening isolation. Acknowledging the need to mourn and opening up culturally appropriate spaces for mourning bodies will be critical to resilience, for those directly and indirectly impacted by climate change loss, and particularly to activists, climate scientists, researchers in the social sciences, community health, and artists who are immersed in the details of climate change loss by the nature of their vocations. In grief, we display what Butler describes as “the thrall in which our relations with others hold us, in ways that we cannot always recount or explain, in ways that often interrupt the self-conscious account of ourselves we might try to provide, in ways that challenge the very notion of our selves as autonomous and in control” (23).

Climate change loss is in relation to constellations of poverty, colonial histories, ongoing colonization, chronic stressors and imbalances of political and economic power, dominant progress-based models rendering grieving bodies invisible, and removing opportunities for

meaningful witness. Many persons and communities don't have the outer resources, nor the time – also a privilege – to enter into reflexive processes of mourning when they are just trying to survive in a shattered world.

Lewis (2013) and others (Calhoun & Tedeschi, 2001; Holifield, 2013) understand that the painful process of leaning into grief may be the only choice, and may herald opportunities for healing and transformation, but that this requires a sense of safety. Butler (2004) posits: “Perhaps mourning has to do with agreeing to undergo a transformation (perhaps one should say, *submitting* to a transformation) the full result of which one cannot know in advance” (21). Not knowing, submitting or surrendering are impossible when what is lost is a sense of safety, or when there is an ongoing ambience of threat. Climate change loss, in this sense, bears some of the characteristics of traumatic loss due to homicide or suicide or losses at the intersection of various oppressions where the world is not safe and trust is not appropriate (Burstow, 2003; Sands & Tennant, 2010).

1.4 Embodiment Research: Somatics

The requirement of articulating the term *embodiment* can be approached from many positions, including feminist theory (Butler, 2004; Bordo, 1993; Campbell, Meynell, & Sherwin, 2009; Grosz, 1994; Price & Shildrick, 1999), developmental psychology (Bentzen, 2015) developmental movement (Cohen, 1993), Eastern philosophy (Yuasa, 1987), critical psychology (Blackman, 2015, 2016), ethology (Levine, 1997, 2010), affective neuroscience (Porges, 2011; Bowers & Yehuda, 2016), phenomenology (Lingis, 2009; Merleau Ponty, 1964) new materialism (Barad, 2003; Bennett, 2010; Coole & Frost, 2010; Connolly, 2010; Manning, 2011), embodied cognitive sciences (Robbins & Aydede, 2009), somatics and somatic

psychology (Hanna 1970, 1986-87; Marlock, Weiss, Young, & Soth, 2015; Johnson, 1997; Johnson & Grand, 1998) among others.

My perspective on embodiment integrates poststructural and materialist feminist theory (Blackman, 2016; Burstow, 2009; Butler, 1990, 1993, 2004), somatic psychology (Marlock, Weiss, Young, & Soth, 2015; Johnson, 1997; Johnson & Grand, 1998) and somatic approaches to trauma (Brom et al., 2017; Levine, 1997, 2010; Ogden, Minton & Pain, 2006; Payne, Levine, & Crane-Godreau, 2015; van der Kolk, 1994.) Somatic frameworks offer ways of observing the more-than cognitive layers of experience, tracking and articulating details of body experience, cultivating sensory awareness and somatic literacy (Linden, 1994). Somatic practitioners from various traditions⁴ are skilled at attending in detail to the complexities of body experience (Johnson, 1995, 1997). Somatic frameworks also attend to the intercorporeal zone where bodies are constantly orienting to each other, and the environment.

My understanding of the terms “embodiment” and “embodied response” situate knowledge and response-ability in relation to experiences of movement, posture and tissue state, and always emerging performances of culture and identity. I am indebted to my teachers Ian J. Grand, Judyth Weaver, Lee Saunders, Tina Stromsted, and Don Hanlon Johnson, who have always honoured somatic practices within traditions and lineages. Johnson (2018), in his most recent edited volume that shares culturally diverse somatic perspectives, is hopeful, “suggesting practices of

⁴ For more on the history and lineages of somatics, somatic psychology, and body psychotherapy see Marlock, G., Weiss, H., Young, C., & Soth, M. (2015). *The Handbook of Body Psychotherapy and Somatic Psychology*. North Atlantic Books, in particular, Chapter [] The Genealogy of Body Psychotherapy. Also see Johnson, D.H. (1995, 1997)

movement, touch, sensing, and feeling as methods for laying the bodily foundation for a more effective democratic way of life” (8).

Awareness of embodiment is acquired through attention to the senses and includes interoception (the sensing of internal structures of body from within), exteroception (responses from stimulation coming from outside the body, and orientation to the environment), proprioception (sense of where body is in space), and the kinaesthetic sense (sense of body position, movement, gravity/weight). Somatic theories and practices cultivate deepening body awareness and honour body experience as a source of knowledge. Efforts to include somatics perspectives in research and transdisciplinary dialogue on climate change can counter our failing efforts towards an (eco) just social order that, in the words of Johnson (2018) “keep foundering on the shoals of closed-off bodies, with dulled senses and weakened capacities”(16).

1.5 Persons and Nervous Systems in a Changing Climate

1 This dissertation project is unique in that it privileges both socially situated, constructed meanings and details of felt sense awareness by cultivating an approach informed by somatic practices, including Somatic Experiencing⁵. Somatic Experiencing (SE) – an applied psychobiological framework for dealing with the effects of traumatic stress on the nervous system – was developed by Peter Levine (Levine, 1997, 2010; Payne, Levine, & Crane-Godreau, 2015; Leitch, 2007; Leitch, Vanslyke, & Allen, 2009; Levine, 2010). There is an international community of

⁵ Somatic Experiencing® psychobiological trauma resolution is a potent method for resolving symptoms and relieving chronic stress. Somatic Experiencing® and SETM are trademarks owned by Peter A. Levine, PhD, or SE Trauma Institute.

SE practice spanning six continents comprised of more than twelve thousand practitioners. SE is grounded in current understandings of the neurophysiological mechanisms of threat response, including polyvagal theory – a neurophysiological theory developed by Porges (1995) which provides heuristics for several schools of body psychotherapy, and effective approaches to trauma resolution (Bentzen, 2015; Bhat, D, & Carleton, J., 2015; Porges, 2001, 2011; Levine, 1997, 2010). In this dissertation project, I am articulating observations of embodied responses to climate change threat and loss and theorizing the links between these responses and understandings of threat response according to polyvagal theory.

Somatic Experiencing – a unique and effective approach to dealing with the overwhelming effects of trauma on the nervous system, and on behavioural flexibility – was developed by Peter Levine. The seed of SE began to form in the 1970's when Levine, an ethologist, observed the ways that animals in the wild, whose lives are routinely threatened, are able to fully and efficiently recover. Levine wondered why humans, while we have extraordinary cognitive functions, didn't appear to exhibit some of the natural ways in which other animals self-regulate. He theorized that humans inhibit their self-regulatory capacity and that this comes at a cost – chronic traumatic stress responses which manifest in constellations of interrelating thoughts, feelings, tissue states, postures, pain and inexplicable syndromal patterns (Levine, 1997, 2010).

Using a Somatic Experiencing lens as a model for understanding trauma does not argue for the use of diagnostic trauma labelling relating to responses to climate change, nor simply for the application of a “trauma-informed” lens, but for a deepening understanding of how persons and nervous systems adapt to and embody chronic stressors, loss and threat. Payne, Levine, & Crane-Godreau, (2015) write that:

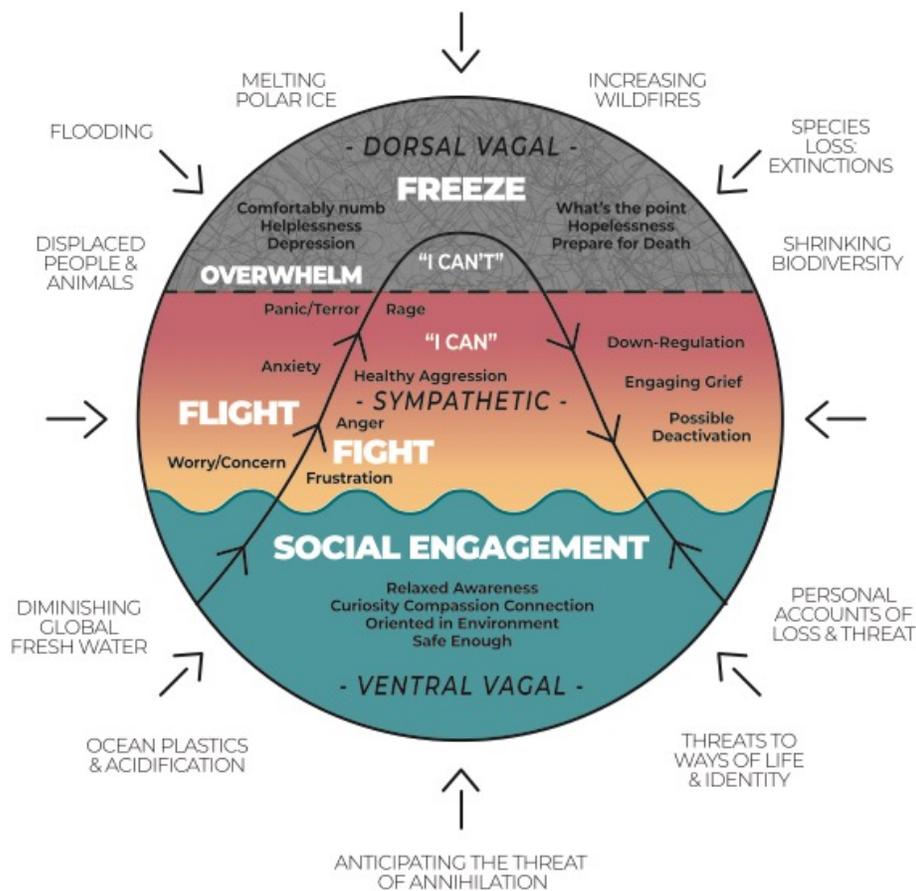
[a]t precisely what point the stress should be regarded as “traumatic” is less important than the understanding of the nature of the dysregulation of the nervous system; however the phenomenon of extreme co-activation of sympathetic and parasympathetic systems under life-threatening conditions offers a compelling model for the freeze, collapse and dissociation often observed... (5).

Freeze, collapse, and dissociation, projections, other-blaming, numbness, violent and addictive behaviours are adaptive responses to overwhelming threat. They can be understood as manifestations of self-protective reflexes that are triggered when a person is faced with threat that leads to rage or terror (Levine, 2010; Marlock et al., 2015; Payne, Levine, & Crane-Godreau, 2015). (See figure 1, below)

My position is that the pervasive, and heavily mediated, atmosphere of threat in relation to climate change, alongside increasing local incidence of environmental change, lowers the ceiling on human nervous system capacity, limiting resilience. Menakem (2017) writes that “resilience is not a thing or an attribute, but a flow. It moves *through* the body, and between multiple bodies when they are harmonized”(51). When our highly evolved social engagement systems fail to provide a sense of safety, the flow of resilience is disrupted. Phylogenetically earlier self-protective responses kick in – neurophysiological responses and corresponding psychological responses – that limit our access to higher cognitive functioning and, in so-doing, curtail the capacity to be compelled to act, behavioural flexibility, and agency. We want to do something but are caught up in a cycle of hyper-arousal and freeze/immobility. For animals in the wild, this death feigning is an effective strategy for survival. For humans, becoming frozen can be an effective way to survive a threat in the short term. Staying frozen in life, however, steals from the organism’s vital life force and capacity for healthy adaptation.

Figure 1 Three systems of threat response according to the polyvagal theory (Porges, 1995) and the impact of a pervasive threat of climate change. ⁶

Climate change knowledge, which is heavily mediated, is pervasive. The ambience of climate change threat and loss influences persons and nervous systems regardless of history, genetic makeup, attachment, environment, or trauma history. Mediated climate change knowledge creates an ambience that affects social engagement, the capacity for adaptive sympathetic response and behavioural flexibility, and creates conditions for the deepening and dominance of a freeze state.



⁶ I first encountered a rudimentary drawing of the polyvagal map of the neuroception of threat, drawn by Somatic Experiencing Trauma Institute faculty member Berns Galloway, during professional training. I have adapted this graphic from a chart published by Ruby Jo Walker which she credits to Somatic Experiencing teachers Cheryl Sanders, Steve Hoskinson, Anthony “Twig” Wheeler, and to Stephen Porges, the originator of the polyvagal theory. www.rubyjowalker.com/PVchart7HD.jpg

Humans who remain frozen in the face of climate change threat are contributing to our own annihilation. Curiously, though climate change deniers may think they are opting out of the conversation, they are not immune to the neurophysiological and psychological impacts of disavowal. Disavowal of a stressor causing anxious feelings does nothing to address underlying causes, leading to an escalation and a more widespread, unmanageable anxiousness (Weintrobe, 2013). Weintrobe (2013) writes that “[p]eople need genuine emotional support to bear their anxieties because when they do not, their thinking deteriorates, and irrationality, lack of proportionality, hatred and narcissism are more likely to prevail” (46). Disavowed aspects of ourselves – grief, rage, and fear – end up permeating bodies and social spaces like the discarded microplastics and toxic monomers now ubiquitous in ocean environments – we cannot always see them but they exist in a permanent web throughout the food chain (Liboiron, 2016).

1.6 Body-Body Politic: Communities and Nations

It is broadly recognized that ideological, cultural, and economic colonialism continues to impact negatively on earth environments, and that ecological exploitation and empire are entangled in all levels of complex systems. It is not possible to separate social justice and human rights issues from environmental issues (Eaton, 2014; Haraway, 2016; Tsing, 2016). In Canada, responses to climate change loss, including anxiety, despair and paralysis, are concurrent with growing awareness of our colonial history, its basis in control of land and resource extraction, and oppression and genocide of First Nations, Métis, and Inuit peoples (McKay & Chrisjohn, 2017; Todd, 2014; Simpson, 2014). With exchange of information through social media at high speed, more people are bearing witness to how melting arctic ice, shrinking biodiversity, and wars relating to controlling and protecting water, impact Indigenous peoples more directly, and there is an increasing awareness of how losses of “nature” are intimately bound with ongoing

colonization (Confino, 2014; McCarthy & Hunter, 2017; Rowe & Tuck, 2017; Tuck & Yang, 2012).

Thorpe (2012) challenges the “fiction of a culture-free nature” and makes it clear how ongoing colonial relations continue to be based on territorial appropriation. To understand experiences of loss due to climate change in Canada it is important to re-envision the social construction of iconic Canadian “wild” environments, and acknowledge “the dispossession of First Nations peoples, the preferential treatment of certain settler groups and the exploitation of the non-human world” in the creation of “nature” for Canadians (5).

As Canada celebrated its 150th birthday in 2017, some Canadians seemed to be beginning to wake up to the global ideological and economic hegemonies that undermine local democracies struggling to protect water and agency in a carbon-based economy (Klein, 2016). Reacting to the wicked crisis of climate change, some see the need, in the words of Butler (2004), to “do justice to passion and grief and rage, all of which tear us from ourselves, bind us to others, transport us, undo us, implicate us in lives that are not our own, irreversibly, if not fatally” (25).

Butler's (2004) choice of verbs— *tearing*, *binding* and *undoing* — name movements of bodies; hearts beating, rhythms of blood, breath, tissue, posture, reflexes, behaviours, and the difference patterns that form in various meetings of persons and nervous systems, the social collisions playing out in the crisis field. In bearing witness to the ways we co-constitute one another in loss, in “all our relations,” we face unsettling fears of losing livelihood, material wealth, status and identity.

In adapting to collective losses, and complicity in colonization, attending to embodied grief can be an affirmation of profound relationality. Butler (2004) wrote that mourning creates connection

and is “an ongoing normative dimension of our social and political lives, one in which we are compelled to take stock of our interdependence” (27). In-as-much as social and community connections are determinants of healthy communities (Hancock, 2015), the “tenuous we” created by shared loss, as named by Butler (2004), may open towards new (and old) potentials. However, one has to commit to entering into the unsettled *experience* of loss to be transformed, and to access new ways to transform systems.

1.7 Tenets for research into climate change loss

Bearing witness to embodied differentiation in the experience of climate change is one goal of this doctoral project. In particular, I am interested in teasing out some tangly patterns created by the collision of mediated influences, and changing, direct, local experiences. This project of witness involved conversations with fourteen people in Atlantic Canada, across several sectors, whose experience of climate change has, so far, been primarily indirect, or mediated. People in the Atlantic Canada region have not been immune to direct experiences: in Labrador changes to sea ice have had a major impact on people and communities (Cunsolo, 2012); in New Brunswick, PEI, and Nova Scotia, river flooding and sea level rise have demanded adaptation, particularly for First Nations communities (Davies et al 2016). In Newfoundland, more frequent extreme wind events are disrupting travel and transport (Mullaley, 2018). However, mediated experiences dominate for many people in the region, and my choice to focus on mediated experience in particular contrasts with the choice of other researchers whose focus is direct experience (Cunsolo, 2012).

In order to “get under” (Poole & Ward, 2015) these experiences, while mapping the situatedness of the inquiry in a transdisciplinary field, I find myself thinking with Weintrobe (2013) who has named four basic tenets common among researchers studying climate change experience:

1. a common interest in studying the felt experience of conflictual tensions;
2. wider engagement with issues of social justice;
3. a common underlying approach to theory “involving the search for deeper meaning and positing underlying structures not manifest at the surface level,” and importantly;
4. a shared assumption that *social* includes non-human others (4)

Weintrobe’s (2013) work, which I identify with as a white-settler scholar, comes out of psychoanalytic and interdisciplinary perspectives, but does not name or explore links to Indigenous Knowledge in the construction of theory. Million (2008) writes of how Indigenous knowledge and scholarship is kept buried by the colonial apparatus. She responds to the need “to make theory that honours and politicizes the work of IK scholars” (269). Million’s (2008) work recognizes the lineage of First Nation women’s knowledge and scholarship, and the persistence of counter-hegemonic embodied scholarship grounded in Indigenous epistemologies. Indigenous knowledge, such as ways of knowing embodied by Million’s Felt-Theory (2008), both precede and support the work of white-settler scholars, in particular those exploring experiences of climate change.

1.8 Wounds of Settler Colonialism

Greater awareness of how people embody felt experience, including experiences of loss and threat of climate change, opens onto a zone of possibility to heal the traumatic wounds of past relationships to each other and the land – the wounds of settler colonialism. Knowledge gained through mourning bodies entering intentionally into uncomfortable tissue states of grief, rage, and uncertainty, offer critical ways of coming into connection, and of acknowledging the intimate tangle of knowledge construction with colonization (ealom, 2018; Johnson, 2009; Kuhn, 2018; Reyes, 2018; Tuck and Yang, 2012). Tuck and Yang (2012) write that “[b]ecause settler colonialism is built upon an entangled triad structure of settler-native-slave, the decolonial desires of white, nonwhite, immigrant, postcolonial, and oppressed people, can similarly be entangled in resettlement, reoccupation, and reinhabitation that actually further settler colonialism” (1).

As a white settler artist-researcher in St. John's, Newfoundland, I cannot step outside of my situatedness, contending with various identities and embodiments rooted in European, white settler culture and privilege, the rhetorical bubbles of Newfoundland and Canadian nationalisms, and the institutionalized gender-based oppressions, racism and sanism which impact all bodies. This situatedness informs how I imagine, uncover, analyze, and create the always partial knowledge that results from research and research-creation.

The naming of the “Anthropocene” continues to imagine the human as the centre of a geological epoch. Though there is no doubt we are responsible for the current wicked crisis, perhaps it is more of what Haraway (2015) calls a boundary event than an epoch defined by human timelines. Haraway's invitation is for an extended kinship, creating places of refuge for and with human

and non-human others. It is a bid “to join forces to reconstitute refuges, to make possible partial and robust biological-cultural-political-technological recuperation and recomposition which must include *mourning irreversible losses*” (italics mine)(160). As persons and nervous systems, humans have evolved with fellow organisms that are becoming extinct at an alarming rate. Understanding that this more-than-human kinship lives in our neurophysiology, and in our responses to our environment and each other, is an entry point into deepening communion with each other and the natural world.

By naming species, ecosystems and ways of life as grievable (Butler, 2004; Cunsolo, 2012; Cunsolo & Landman, 2017; Todd, 2014) and by bearing witness to situated narratives and embodied, felt-sense responses to climate change loss and threat, the following chapters and corresponding audio-visual media, and performance, create spaces for readers and witnesses (audience) to enter into dialogue as persons/nervous systems, and in relation to the complexities of communion with other grieving beings of our changing Earth. I hope that the work will offer some unique entry points into knowledge of climate change experience.



Figure 7. Video Still, Feeling Nervous on the land, Aug 18, Maddox Cove

1.9 Embodied Research(er)-autoethnography

The restorative role of mourning has been, and continues to be critical for me in finding my voice(s) as a scholar amidst the tensions of climate change. Dine' (Navajo) elder, Pat McCabe, cited by Confino, says; “[e]xpressing grief has always been a cathartic experience and a rebalancing mechanism, and I believe it is a part of building the foundation for any new story we might want to tell” (Confino, 2014). When grieving is protracted, and arrested, and when there is isolation, there can be an unsettling lack of congruence between felt sense and worldview, between organism and person. What is lost is identity – a sense of self, coherence of thoughts, congruence of body and spirit. In experiences of ambiguous loss and chronic sorrow, when there are no cultural spaces to call out the name of the deceased, it is hard to find rest in the gut. Here, my (un)settled body attempts to grieve, through tissue, senses, posture and movement, and

through the symbolic. Each week I drag myself to the dance space at the Centre for Music, Media, and Place, where I mostly work alone, sometimes lying on the floor, frozen, listening to interviews and trying to get comfortable being uncomfortable and, when possible, dancing unsettledness.

Taking cues from Richardson (2000), I reach down to retrieve some of the writing that I had thrown to the footnotes, to bring it back up in the main body of the text. As a reader, I sometimes skip footnotes and endnotes when I feel they are optional, other times devouring each of them like scraps of fat. The resonances of bodies threatened by climate change and other results of colonization can't be contained by footnotes. The dam will not hold. The currents are wild, and shake my otherwise comfortable body sitting in an armchair with my laptop and mug of cold tea. This is where contemplating climate change has brought me, today.

There is a trembling in my legs as I write “all my relations.” I feel that these words do not belong to me – I choose to use this phrase, in English, which feels like a stolen invocation of connectedness, coming from white settler me. The phrase comes from ancient traditions and is expressed in many Indigenous languages. I have heard these words in several tongues – Mi'kmaq, Mohawk, Cree, Sioux. I believe there is a key in these words to healing what is broken in trauma – the “we,” the connection. When I hear this prayer I feel a presence fill my body like a surge of energy, down my legs, and my heart pounds strongly in the fleshy and bony container that holds and protects it.

In Newfoundland, growing up, if there were native kids in our school, everyone did their best to hide it. Here, real “Indians” were dead. They were the Beothuk who we learned about. We were taught how to build dioramas of what Beothuk life was like at the time of the “discovery” of Newfoundland by John Cabot. I was told that native blood in my maternal grandmother's family

was kept well hidden, was whispered, but I now recognize this as an attempt to erase my family's complicity as white settlers. In my body I feel a tightness in my chest and shallow breath. My jaw and lips are also tight.

I don't remember where I first heard "All my relations," but maybe it was in an undergraduate anthropology course in 1987 which introduced me to Sun Chief (Talyesva, 1942), and Black Elk Speaks (Neihardt, 1932). I remember hearing it in Montréal in the late-eighties around the time of the stand-off at Oka. White settler women and men at the time burned braided sweet grass and sage, and called the Four Directions while Mohawk, in an action to protect their land, entered into armed conflict with the Sûreté de Québec. We learned about the Medicine Wheel and other Indigenous traditions, like the sacred sweat lodge, and many white settler women and men were (in)appropriating bits and pieces for their New Age gatherings, some of which were at full moon.

Through its utterance in English – All My Relations – today my gut stirs, and this sensation (interoception) of heaviness and mild churning and tightness in my belly is coupled with feelings of grief, and thoughts– a mixture of memories and imaginings of colonial histories and knowledge of ongoing colonization in my province as many Mi'kmaq people have been denied First Nations status by the government, and while Land Protectors in Labrador fight for land rights and human rights in the face of the Muskrat Falls debacle, while the climate warms, changing life irreversibly for people, plants, and animals of the woods, sea and sky.

Burton-Christie (2013) writes "the ability to mourn for the loss of other species is, in this sense, an expression of our sense of participation in and responsibility for the whole fabric of life of which we are a part. Understood in this way, grief and mourning can be seen not simply as an expression of private and personal loss, but as part of a restorative spiritual practice that can

rekindle an awareness of the bonds that connect all life-forms to one another and to the larger ecological whole. (30)

I notice my breathing has tightened and my breath is even more shallow and up high in my chest. My lower ribcage, especially on the left side, aches. Right now I am irritated and nervous, angry and scared. I feel isolated and though there is so much to do, I don't know where to begin. I reach for my inhaler which helps relax the constriction of bronchial passages, but also increases adrenaline... that may not be helpful if I'm trying to calm down, but I'm afraid of not being able to breathe. If I breathe in my belly, lower, and make a low voo sound I can avoid mounting panic.

I'm blessed to have knowledge and skills and the time to do the work I need to enter into this part of my life's journey. My privilege gives me the choice to be here, writing and thinking, and praying however I choose. I contemplate the phrase "all my relations" some more. I understand "all my relations" to include the communion of two and four-leggeds, all kin who have come before and will follow, the mineral and plant kingdoms and the realms of the air and the water. I remember my friends of many faiths, friends, and kin who live in other places around the world, and who I sometimes imagine as tiny clusters of lights on a map as seen from a bird's eye. I also imagine the vast networks of underground roots, rocks, earth and fungi below. Here, I feel the tension between grief, rage, and belonging. I breathe and feel a tightness in my chest, more specifically around my heart, maybe the fascia surrounding it, holding it together.

2 Methodology and Methods



Beach rocks and thoughts on climate change, presentation at CCPA conference, 2017
iphoto LC

This chapter describes the qualitative research methodology that I have developed which integrates artist-researcher practices with somatic and critical psychology perspectives. This methodology emerged in the context of my investigation into experiences of climate change loss. Like the methodology it describes, this chapter is unapologetically polyvocal. I move between discussion of methodological concerns relating to artistic, practice-based research, to self-reflexive writing and performance, with linked video. I have explored something that has been missing from climate change psychology literature – a creative, embodied hermeneutics that includes and explores felt somatic rhythms, proprioceptions, interoceptions, their meanings and the felt relational resonances which constitute lived experience.

2.1 Introducing Somatic Artist Researcher Practice(s)

I am articulating a qualitative research methodology emerging from my investigation into embodied experiences of climate change. As an inquiry-driven artist-researcher and somatic psychotherapist, I require a flexible methodological scaffold in order to support the multiple methods, critical reflexivity, and creativity called for by practice, and to guide evaluation of my contribution to transdisciplinary discourse on psychological adaptation to climate change.

The dimensions of transdisciplinary research, named by Montuori (2012), are that it is inquiry-driven (rather than discipline centred), it is complex (rather than reductive), it includes and integrates the inquirer's experience, and is creative rather than reproductive. Montuori (2012) writes “[i]t is an altogether different way of thinking about knowledge, knowledge production, and inquiry” (3).

Crawley (2012) writes that methodology is “an earned, formulated theoretical position that is deeply informed by personal experience and body knowledge” (146). Each researcher brings life experiences with family, social and cultural histories, disciplinary studies, practices, and skills to inquiry. As an artist with years of experience in music and sound design, contemporary dance, performance, video and installation, all rooted in listening, and improvisation, and as a somatic psychotherapist, I arrive at my inquiry with multiple literacies, strengths, and biases which inform my approach. What has emerged is a flexible methodological scaffold to support multiple, emerging methods, critical reflexivity and creativity. I name this methodological approach *somatic artist-researcher practice* (SARP).

Climate change discourse has, until recently, ignored psychological responses to loss and threat in the face of losing our world (Cunsolo et al. 2015; Swim et al., 2011). The methodology discussed in this chapter emerged to investigate experiences of climate change in Atlantic

Canada, including the mediated and vicarious experiences that are widespread in the Global North (Reser, Morrisey & Ellul, 2011). Informed by somatics and critical perspectives, this methodology also cultivates inclusion of the more-than-cognitive knowledge of bodies, upholds values for social and ecological justice, and theories and practices of somatics and somatic psychology.

2.2 Artistic Research

Recently, critical psychologists have underscored the importance of creativity in research practice (Chamberlain, 2015; Friedman & Holzman, 2014). Of particular interest, performative methods (Friedman & Holzman, 2014) and autoethnographic methods (LeFrançois, 2014) are increasingly integrated in both practice-led, and arts-informed approaches (Denzin, 2003; Spry, 2016). This is particularly helpful for researchers whose intentions include interrogating what LeFrançois (2014) describes as one's "own shifting complicity within the relations of power" (108), which is not only a focus for critical psychologists (LeFrançois, 2013, 2014), but also for artists, whose work focuses on affecting cultural change and personal transformation by mapping embodied critical reflexivity (Hall, 2013; Spry, 2016).

In *arts-based* or *arts-informed* research, artistic methods are often applied (by artists and researchers from various disciplines) to enhance or inform research design, participant engagement, data analysis and/or knowledge translation in a particular disciplinary or interdisciplinary project or milieu (Chapman & Sawchuk, 2012; Hall, 2013; Knowles & Cole 2008; Leavy, 2009; Springgay, Irwin & Leggo, 2009). In many arts-based approaches, data is collected by researcher often via established methodologies such as the interview, and artistic representations share the *findings* of the research (Truman and Springgay, 2015).

What Hall (2013) calls *artistic research*, like all transdisciplinary research, is driven both by inquiry and inquirer (Montuori, 2012). Research-creation, practice-based, or practice-led research, and what I am calling *artist-researcher practice* is not always driven towards the representation of data, even though there may be performances, installations, video, sound work, written and other *objets d'art*, that emerge from the process. Artist-researchers may, for the purpose of exploring a particular collision of ideas and/or materials, integrate whichever methods fit the particular inquiry. Across and between artistic practices, humanities, science, or social science, artist-researchers engage in a process of thinking through the collisions of theory and practice. Through research-creation *praxis* the conditions are created for the emergence of new knowledge, beyond representational outcomes.

Truman and Springgay (2015) write against perpetuating the idea that art is somehow separate from thinking. In *research creation*, artistic, creative practices are integral to knowledge production, without the goal of framing performance as data, or production outcomes as the representation of “findings.” The performances in my artist-researcher practice are not some kind of ultimate goal, or completion of a process, but are durational sites for the collision of meaning-making with audiences, and for the ongoingness of the inquiry. The intercorporeal space of moving, sensing bodies is a key site of emergence in somatic artist-researcher practice. In this project, through a somatic artist-researcher practice, I have integrated interview methodology, and entered into thinking with bodies and data through an interdisciplinary, somatic, movement practice, thinking, inhabiting, and performing frozenness, eco-anxiety and rage. In this way, artist-researcher practice is less concerned with representing data, or applying artistic methods, but about deepening embodied reflexivity.

2.2.1 Rigour

In qualitative research, rigour is based on the quality of the process of the research, and through established criteria, including transparency and reflexivity, that lead to findings being trustworthy (Saumure & Given, 2008). My audit trail traces the overall process beginning with creation of the interview guide (honed through experimentation with colleagues), and includes transparent communications with advisors and consultants who assisted in sample sourcing, and a transparent accounting of relationships, networks and associations within and beyond institutions that are part of decision-making in all aspects of the research-creation process.

The transparent and reflexive accounting of the pre-interview, and of interview, transcription, analysis, interpretation, final consultation, and dissemination, and is one lens through which to establish the rigour of qualitative research (Creswell & Miller, 2001; Robinson, 2014). Another lens is reflexivity. Reflexivity is the foundation of rigour in qualitative and artistic methodologies, and is supported through somatic, feminist practices that value embodiment. As I have asked 14 people to share, with me, about their embodied experiences of climate change, is it not ethical that I, too, enter deeply into my own experience with them?

Rae Johnson (2018) writes that “[b]ecause the body can offer us direct access to the implicit dimensions of oppressive social interactions, it is a critical source of knowledge in the challenging process of owning social power and privilege” (121). Somatic reflexivity examines couplings of personal embodiments and social embeddedness, and includes reflection on how entering into the research process itself shows up in tissue, posture, and behaviour (see Furling and unfurling, p 200 of this document). It is through a movement practice, performances, and autoethnographic texts that reflexivity is practiced and woven throughout my research. It is my hope, thinking with Spry (2001) that this reflexivity will inspire readers and audiences “to reflect

critically upon their own life experience, their constructions of self, and their interactions with others within sociohistorical contexts” (711).

My studio and performance practices follow auto-ethnographic impulses, performing reflexivity and thereby rigour, through awareness of embodiment and movement, exploring the tensions between and within interview bodies, texts, sounds, and meanings. This exploration is grounded in somatic practices of movement improvisation, experiential anatomy, and Somatic Experiencing (Adler, 1987; Clarke, 1995, 2014; Cohen, 1993; Levine, 1997; Stromsted, 2007; Olsen, 1991).

Thinking with Spry (2001),

[t]he embodied autoethnographic text is a story reflecting the research artist’s collaboration with people, culture, and time. It is generated in the liminal spaces between experience and language, between the known and the unknown, between the somatic and semantic. The text and the body that generates it cannot be separated. Surely, they never have been. (726)

Even while texts, sounds, and movements are co-emergent, the process of interview, transcription, and analysis, is also iterative. Finlay (2005) advocates “a research process that involves engaging, reflexively with the participant’s lived body, the researcher’s own body, and the researcher’s embodied intersubjective relationship with the participant”(272). Reflexivity is the cultivation of awareness of embodied intersubjectivities, is messy and surprising, and responsive to relational currents and intercorporeal becoming.

2.3 Why Somatics?

To support the ways that persons, communities, and systems adapt to psychically complex climate change loss and threat requires deepening understandings of *how* persons and nervous systems experience such loss and threat. One of the contributions of this project is a creative,

embodied approach that explores the somatic experiences, rhythms, meanings and relational resonances which constitute lived experience relating to climate change.

Responding to Grand's (2012, 2016) call for an embodied hermeneutics, I have fleshed out a somatic artist-researcher practice methodology that engages with the theory and practice of Somatic Experiencing (SE) – an approach developed for resolving the effects of traumatic stress on the nervous system developed by Peter Levine (Payne, Levine, & Crane-Godreau, 2015; Leitch, 2007; Leitch, Vanslyke, & Allen, 2009; Levine, 1995, 2010). This work is grounded in polyvagal theory – a neurophysiological theory that has provided helpful heuristics for several schools of body psychotherapy, and approaches to trauma resolution (Bentzen, 2015; Bhat, D, & Carleton, J., 2015; Porges, 2001, 2011; Levine, 1997, 2010).

Soma-mapping– my emerging system of analyzing interviews that includes sensory experience and gesture supports the observation of the more-than cognitive layers, felt-sense rhythms, proprioceptions, interoceptions, affect, behaviour, personal and discursive meanings, and dynamic relational resonances which constitute the intercorporeal zone in interview research. One way of understanding sensation and gesture is as the language of the nervous system. Participants and researcher may be aware of sensations, for example, in the face, limbs, and viscera, and may notice movements of the arms, head, feet, eyes, and jaw. Some of these gestures are involuntary, some are conscious behaviours, some are mimetic, some emphatic, some emblematic. The interoception or sensory awareness of the inner landscape – heat, vibration, tension, or the felt sense⁷ – all contribute to somatic experience.

⁷ The term “felt-sense” was first used by somatics leader Eugene Gendlin who developed the work known as *Focusing*. (Gendlin, 1982)

To track these complex dynamics as part of somatic artist-researcher practice, I have adapted Levine's (2010) SIBAM model which is a structure for observing aspects of sensorimotor processing and the "different 'language' and brain systems, from the most primitive to the most complex; from physical sensations to feelings, perceptions and, finally, to thoughts" (139).

Figure 2 SIBAM (adapted from Levine, 2010, 133-154)

Sensation – felt senses, tension, heat, relaxation, movement and direction of sensed energy, relationship to gravity, interoception, proprioception, kinaesthetic sense

Image - internal (memory, dreams, metaphors, archetypes) or external (an object in the room or in environment), exteroception

Behaviour - posture, facial expressions, speech, movement, action, gestures (instrumental, deictic, iconic, metaphoric, mimetic, emblematic, emphatic, self-touching)

Affect - feelings and emotions, includes affective intercorporeity or the way affect moves through the space between bodies

Meaning - thoughts, analysis, beliefs, judgments (as expressed verbally)

The working diagrams (Figures 4 and 5) below are visual representations of how I am using Levine's (2010) SIBAM model to think about mediated experiences of climate change threat, and my *soma-mapping* method of thinking about embodied experience and tracking various layers of the interview.

Figure 3

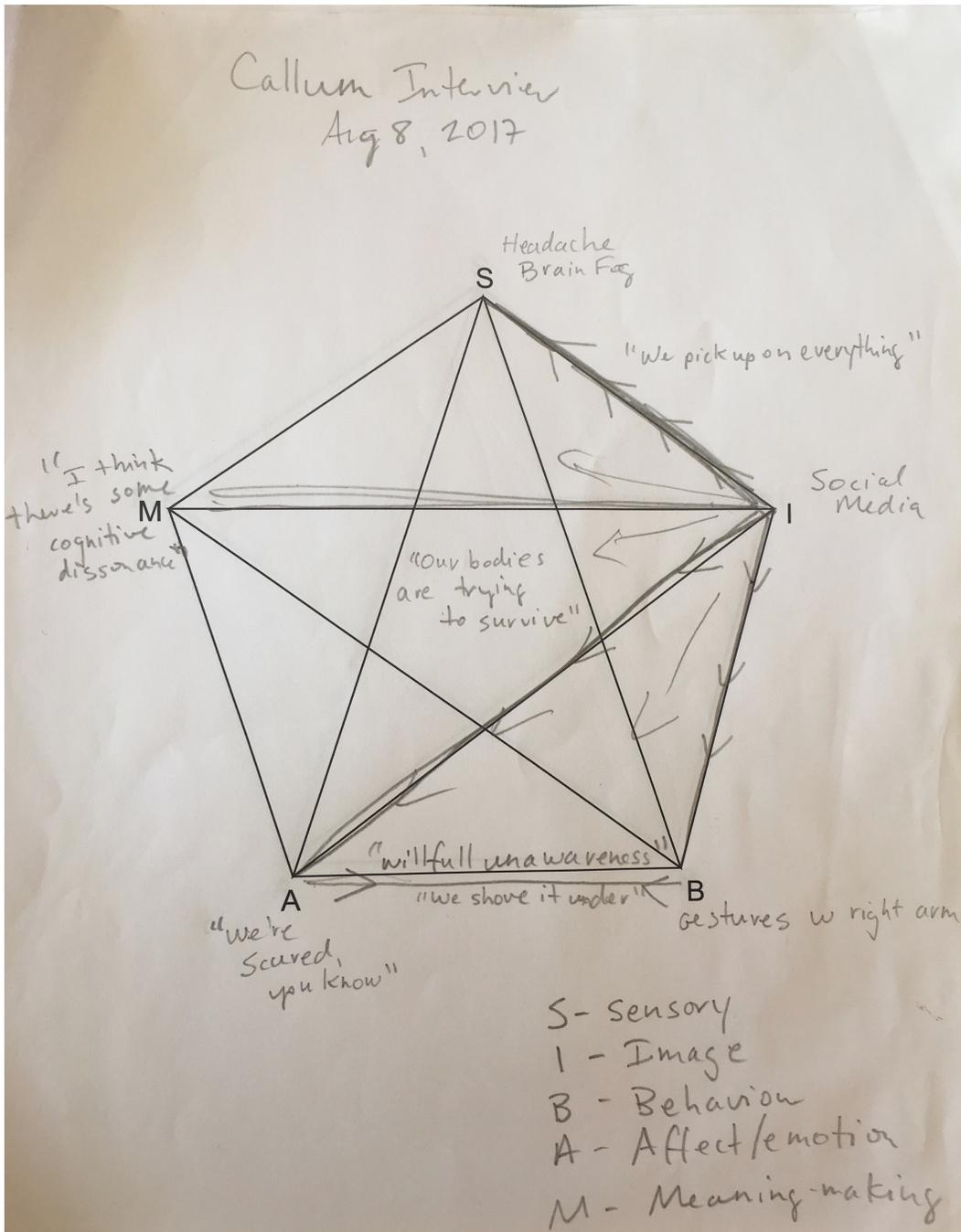
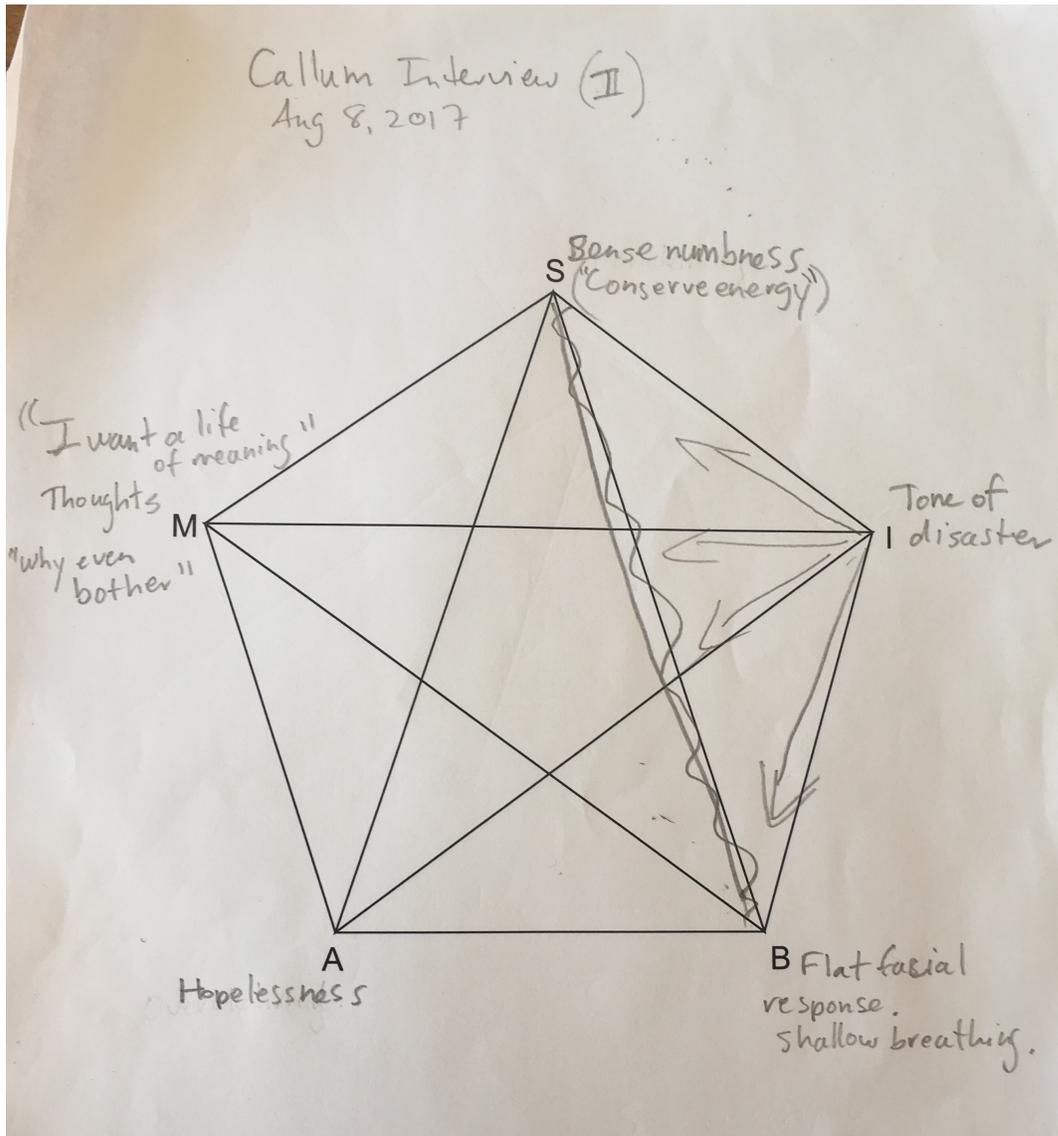


Figure 4



2.3.1 Embodied Artist-Researcher



Still

Figure 8. video still performance, Feeling nervous on the land, August 18, 2018

One of the challenges of articulating methodologies for artist-researchers working across disciplinary boundaries concerns not only how to integrate multiple literacies in knowledge translation, but also how to integrate multiple identities. Rooke (2009) unpacks single identity norms, illustrating how multiplicity of selves phenomena affect the researcher. She acknowledges the prominence of plurality and “a ‘theoretically manoeuvring’ self rather than a stable, coherent and impenetrable individual” (38). For the artist-researcher exploring bio-psycho-social terrains in academic research, inquiry requires sitting in a field of multiple voices and demands that fluidity of identities be taken both seriously and lightly (Clarke, 2016).

Integrating theories and practices of Somatic Experiencing, which support bearing witness to persons and nervous systems, my intention has been to include my own somatic experience in

the intercorporeal field as a source of knowledge. Grand (2012, 2016) spoke of the potential of integrating somatic approaches with research methods that engage in an embodied hermeneutics, tracking felt senses, rhythms, experiences of gravity, sympathetic impulses to fight/flight, and various configurations of parasympathetic freeze states that show up. For an in-depth knowledge of complex, socially embedded experience phenomena, an embodied hermeneutics is needed.

Somatic artist-researcher practice is a methodology informed by feminist and critical methodologies that look at knowledge as partial and all knowledge production as discursive. Centering and decentering, looking for the emergence of knowledge in the unsettled margins, the artist-researcher is (in)formed, empowered, rendered docile or made available to respond, by language, social, and institutional processes, and conditions. There is no neutral position of “modest witness” (Haraway, 1991), and reflexive interiors are always already dynamically responding, meeting and becoming intersubjectivities in the zones between bodies (Bordo, 2003; Grosz, 1994; Haraway, 1991; Rice, 2009). Methodologies which privilege social and cultural embeddedness *and* embodied experience blur epistemological boundaries, requiring the researcher to cultivate a capacity to sit in unsettled, liminal spaces. At more than one nodal point, the researcher may find herself part of a dance of unfurling meanings, directing and following, joining, merging and witnessing iterative cycles that engage and cultivate multiple literacies. (Link to video excerpt of performance “I am sitting in a chair” <https://vimeo.com/206580418>).

The relationship between structure and flexibility in this emerging methodology proposes the requirement to be open to an unfolding, iterative process. Interview transcripts become scripts for a video edit, that generate the soundscape supporting movement exploration. Written ideas intertwine with felt senses, tissue states, movement, sound, and breath. Meanings merge and emerge, as theory is dissolved and reformed at another nodal point where it becomes accessible

in a new way. This iterative process demands immersion in the somatic experience of researcher, and a field of potential meanings. Thinking ontology with Barad (2003) I read that “[m]eaning is not a property of individual words or groups of words but an ongoing performance of the world in its differential intelligibility” (821).

The artist-researcher marks epistemological collisions through a practice-led hermeneutics and – thinking with Spry (2001, 2016) – an autoethnographic stance of rupture and fragmentation. Through representing a spectrum of personal embodiment and cultural and social embeddedness, maps made in image, text, sound, video, trace reflexivity and patterns of diffraction in the intersubjective field. Rather than reflecting only *where* differences appear, a diffraction pattern may be represented that maps the *effects* of differences in the field (Haraway 1991; Spry, 2016). From a somatic perspective, these diffraction patterns play out in colliding nervous systems and in the spaces between bodies in communities, making the encounter between persons – between my nervous system and other nervous systems, in a material field – a place for becoming, co-performativity, and co-regulation.

Thinking with Speedy (2008) I become a diver “on the lookout for subjugated knowledge; ways of knowing that have been submerged beneath the dominant discourse”(p. 153). My intention is to plunge in to retrieve submerged, frozen, and sunken bodies, to pull details of subjective tissue states to the surface. Asking “whose body?” Butler (2004) writes that “constituted as a social phenomenon in the public sphere my body is and is not mine. Given over from the start to the world of others, it bears their imprint, is formed within the crucible of social life...”(26).

In interrogating my capacity to engage in transdisciplinary climate change research as a white settler, cisgender, Newfoundlander (not Labradorian), artist-researcher, I have a responsibility to attend to the ways that privilege exists in my body and the places I am settled in, and how this

allows me to be oriented as an organism, in my thinking, actions and relationships. Ahmed (2007) describes how “[a]ny project which aims to dismantle or challenge the categories that are made invisible through privilege is bound to participate in the object of its critique. We may even expect such projects to fail, and be prepared to witness this failure as productive” (149-50).

Investigating questions that enter into the realm of climate change loss I find myself pulling on threads in the tangly relational realm of the colonizer and the colonized. I ask: How does my inquiry recapitulate colonization through always already privileged ways of meaning-making as a white-settler scholar? Spry (2016) writes about ‘imagined specialness’ and the ethical responsibility to do the autoethnographic labor of reflexivity upon this trait “housed in and fed by racial and financial privilege, both personal and systemic” (53).

Climate change is inseparable from colonization (Eaton, 2014; Haraway, 2016; Tsing, 2016), and integrating critical, decolonizing values requires that methodology can sit with(in) unsettling, embodied intersubjectivities at the horizon of becoming, mapping resonances, interference patterns, and openly partial meanings. Even so, I continue to notice the challenges to stretching beyond Kvale's (1996) prospecting metaphor of passive informants or passive “vessels of reflections, opinions and other facts, traces of experience” (Gubrium & Holstein, 2012, 32).

2.3.2 Drones and Keys

I'm standing in the corridor outside the room in the Gender Studies wing of the Science Building, where a group of scholars meet to think autoethnography together. It is the week before the election in the US. I stand with two of my colleagues, reeling slightly in the intercorporeal field. I feel a strange sense of vertigo, like time is collapsing. I can picture us from a drone's eye view, as though we are part of a film sequence shot from above, which captures the awkward collision

of our unsettledness in this moment. Car keys clutched in hand, I am thankful for my wheels but am reminded of my complicity in the destruction of Earth systems and addiction to fossil fuels.

I feel my heart inside my chest cavity, beating in an odd rhythm as though I am out of phase with myself. My throat and ribcage feel tight and it's hard to take a full breath. In the same breath, I'm also moved and thankful to hear about the challenges my colleagues are sitting with, collaborating, committing to representing real lives, knowledge, power, and suffering. That I am even in the company of these wise, strong, and committed women brings me to my knees – my knees that seem to have curled up under my diaphragm, pushing against my lungs and my belly, making it even harder to breathe. The next time I see them will be after the US election. I flee from campus, to the woods.

And in my brokenness-

heart beating still-

I go upon the land and look,

finding- lying, hiding in the ground

the glistening very last cranberries

of the fall.

Many fruits lie shrivelled and dry on the plants.

Bow, crouch down nearer to the ground.

Sparse and glistening

small purple red yellow globes;

tiny planets hiding under leaves, below seeping bogs.

Pay attention under grass, under juniper;

in the little sky above worms and dirt.

Don't be afraid to walk even more slowly.

Tiny globe bursting crimson blood

under feet, resonating up through boots and bones

into my chest.

The edge of the cliff is not well marked.

It is not entirely clear.

Waves crashing and roaring below

a long way down

water plummets down the side

through any path it can find.

It is here that I find the greatest fruits.

2.3.3 Resonance of Somatic artist-researcher practices

Somatic artist-researcher practice applies something akin to Spry's (2001) autoethnographic stance, in which “text emerges from the researcher's bodily standpoint as she is continually recognizing and interpreting the residue traces of culture inscribed upon her hide from interacting with others in context” (711). Somatic artist-researcher practice integrates sound, music, dance, and visual and digital media, depending on the artist's scope of practice and the medium called for by research-creation and dissemination.

Embracing methodological untidiness, somatic artist-researcher practice engages the skill of the researcher to witness and make sense of complex, socially embedded experiences. For artist-researchers, the skills needed for this are more than a palette of media chops and multiple literacies. Somatic artist-researcher practice requires the cultivation of a situated, idiosyncratic capacity for creative witness, an ability to enter the messiness of relational becoming, of embracing the fact that the inquiry changes the researcher, and acknowledging the juicy complexity of inner and outer identities that collide and mix in the field.

I find Speedy's (2008) reflections on the messiness of data in narrative research helpful here, but more refreshing still is her acknowledgment of the antecedence of artistic research methods within the arts. In other words, these innovations are not new. Artists have been doing research-led creative work since long before it appeared in academic environments or as a category for research funding (Connors, 2017; Chapman & Sawchuk, 2012; Hall, 2013).

The narrative and autoethnographic texts, embedded video documenting performance, and sound work referenced in the following chapters are integral pieces of an iterative somatic artist-researcher practice approach. Through visual projections, sound, performance, multilayered and

polyvocal texts, I explore my own response to climate change knowledge and the balancing of life and research in this peculiar, nervous body, navigating academic environments, identity, failure, and self-doubt. The performance autoethnography in Appendix 2 and video (<https://vimeo.com/206580418>) represent part of the exercise of articulating somatic artist-researcher practice – an exploration of the methodology itself, and the polyvocality of the artist-researcher.

Whether in the context of an interview, through video and audio recording of the natural and built environments which help to recall the place-ness of the interviewee, in the transcribing of interviews, artistic performance representations of always partial knowledge, or representing performance-image-text – the performative actions of artist-researcher resonate inwards and outwards in multiple patterns, reflecting and diffracting with and in bodies. These dynamics are an expansion on what Gubrium and Holstein (2012) described as the constitutive properties of communication. Researcher, participants, readers – and in the case of artistic works, witnesses (or audience) – are each changed by the encounter; a dynamic meeting of bodies in a place, (re)created through written notes, analogue/digital recordings, cognitive and visceral memories.

Ellingson (2009) writes that researchers have a responsibility “so that their reader can perceive (in some way) multiple ways of knowing” (p. 11). Somatic artist-researcher practices present multiple literacies and openings into ways of knowing, towards an ethics of engagement and transformation beyond description. This generative (in)tension, however, is only realized if the reader/audience can engage with some kind of embodied, more-than cognitive meaning making. Embodied engagement can, and will, be unsettling as it resonates at the level of bodies. Spry (2001) writes that “when the body is erased in the process(ing) of scholarship, knowledge situated within the body is unavailable.” My goal in articulating somatic artist-researcher

practice is to create a flexible methodology for justice-seeking, somatically grounded, artistic/practice-based research. Somatic artist-researcher practice methodology does not offer neatness, a path of least resistance, nor a claim to Truth. It is messy, unsettling, dissonant and risky, but it does not allow for the erasure of bodies and the intercorporeal becoming that comes only through connection.

2.4 Methods

My emergent somatic artist-researcher practice methods are adapted to the needs of this project, and the requirement of 1- entering into in-depth unstructured interviews, dialogue, and relationship with a purposive sample of interview participants; and 2: integrating a palette of analytic and interpretive tools with artistic practice. I used video and sound recordings to document physical environments and situatedness of researcher and interviewees, representing the phenomenal place-ness and a spectrum of connection and disconnection with built landscapes and the natural world. This visual and audio material collected over the course of interviews and analysis contributed content to the performances and sound designs resulting from ongoing research-creation. Chapters 3 and 5 include links to video documentation of short performances and sound designs that may be presented as performance-lectures and which will later be integrated as a full-length performance work for various sites, including the stage.⁸ The audiovisual materials generated through interviews are used only with the consent of participants, as approved by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) of Memorial University.

⁸ Neighbourhood Danceworks, who have supported me in this work by awarding me the 2017 Roberta Thomas Legacy Award, have expressed interest in presenting a full-length work based on this research in 2020.

2.4.1 Interview Sampling Strategy

My choices to use a purposive sampling strategy and sample size of 14-16 interviewees, was based on feminist, post-structuralist epistemological concerns of seeking a high quality, depth, and richness of dialogue, in the pursuit of always situated, partial knowledge. The goal of this strategy was to achieve depth and richness rather than seeking generalizability (Beitin, 2012; Guest et al. 2006; Malterud, Siersma, & Guassora, 2016). This strategy allowed me to include individuals who were able to offer unique, differing and key perspectives on the phenomenon I am studying (Robinson, 2014) while providing reasonable assurance of achieving theoretical saturation (Beitin, 2012).

The sample universe for interviews in qualitative research is defined by specifying inclusion and exclusion criteria (Robinson, 2014). Interview participants in my study were each from several subgroups of the sample universe of Canadian adults living in Atlantic Canada who have the capacity and willingness to share their experience of climate change.

Figure 3. Subgroups of Canadian adults living in Atlantic Canada for inclusion
1 Mental health professionals
2 Energy sector workers
3 Artists
4 Indigenous Scholars
5 Young adults
6 Leaders (municipal, provincial)
7 Somatic Experiencing practitioners
8. Seniors in the community of social justice and ecology activists

I chose to work with people in Atlantic Canada, as this is the region in which I live and work and because this was one way to limit the project to an achievable scope for the purpose of my doctoral research. Narrowing the scope meant defining inclusion categories and thereby defining exclusion criteria. Excluded were people whose experience of climate change is primarily direct – for example, people from Northern communities whose lives are directly affected by changes in sea ice, or fishers whose livelihood is directly impacted by changes in marine ecosystems related to climate change (Cunsolo, 2014). Also excluded were non-English-speaking people, including Acadian and Francophone people in Eastern Canada, because, while I have reasonable skill in conversational French, I don't have the level of fluency needed to conduct research in French. Future exploratory research on experiences of climate change might focus on immigrants living in the Atlantic Region, and on Canadians from other provinces and territories who move to the region. This would be interesting and valuable, particularly in the context of the destabilizing population movements of human and more-than human kin that will increasingly transform the Global North, including Atlantic Canada.

My rationale for recruiting a stratified sample across multiple sectors cultivates the kind of transdisciplinary dialogue called for in research literature on climate change and mental health (Reser, Morrisey & Ellul, 2011). Secondly, including participants from various sites of knowledge translation and dissemination may offer opportunities for findings to reach community stakeholders in multiple sectors and disciplines. Thirdly, having a heterogeneous sample will help establish some general principles that are common across a broader sample universe, and contribute to knowledge about the complex experience phenomenon under investigation (Robinson, 2014). Hence, this purposive sampling strategy goes some way in establishing groundwork and initiating dialogue across contexts, while pointing to directions for future research.

2.4.2 Recruitment

To spread the word and recruit participants for the study I asked several key community stakeholders – individuals and organizations – to reach out to potential participants in their communities. I began by providing them with a recruitment email (as approved by the Interdisciplinary Committee on Ethics in Human Research (ICEHR), (See Appendix 3). Soon after beginning this process, to streamline the information sharing process, I designed and posted a Wordpress site that could be easily accessed by those seeking further information.⁹

Specific outreach requests went out to individuals and organizations including:

- artist colleagues with professional circles in the Atlantic Region;
- contacts through the Canadian Counselling and Psychotherapy Association;
- announcement in e-newsletter of the Somatic Experiencing Trauma Institute (SETI);
- staff at Iron and Earth¹⁰ posted the study link in their Facebook group, twitter, and targeted emails within that organization;
- direct emails went out to members of Provincial Governments responsible for

⁹ Incidentally, the Wordpress site, <https://understandingresponsestoclimatechangeinatlanticanada.wordpress.com/> received 540 views in 2017.

¹⁰ Iron and Earth East is the Eastern Canadian Chapter of Iron & Earth – a worker-led not-for-profit, committed to empowering oil and gas, coal and indigenous workers to build a renewable energy economy. <http://www.ironandearth.org/east>

environmental portfolios;¹¹

- a contact at The Labrador Institute shared my call for participants with specific Indigenous scholars in the region;
- a couple of key youth influencers shared my call for participants on Facebook;
- two of my advisory committee members shared my call for participants with specific potential participants– Indigenous scholars and community leaders.

Other, unplanned and fruitful recruitment occurred when a neighbour and East Coast Trail Association member shared the link to my study with hikers from Nova Scotia, and also when acquaintances noticed the link on Facebook, sharing it with friends and colleagues in the oil sector. Some expressions of interest from potential interviewees were screened out when they fell outside of specified sectoral categories, when their experiences of climate change were more direct (Labradorians in Rigolet), and due to the scheduling and travel limitations of the project.¹²

2.4.3 Finalizing the Sample

I received more inquiries and expressions of interest in participating than my project could accommodate, including two inquiries from people who did not fit within inclusion criteria for specific categories of participants – two climate activists from Newfoundland made inquiries, but

¹¹ I was in conversation with NL government civil servants who were interested in the study but uncomfortable “going on the record” and declined participation.

¹² My research, including travel, was self-funded. Interviews were scheduled during a 2 week period in August in which I flew to Halifax and drove to various Nova Scotia locations to hold interviews at the convenience of participants. Not all of those who expressed interest were available during this time period.

neither fit into the categories that I had established for inclusion. I also did my best within travel limitations to include people from different parts of the regions.

The 14 interview participants included artists, Somatic Experiencing practitioners, oil industry professionals, mental health counsellors, leaders, youth, and seniors in Newfoundland and Labrador, Nova Scotia, and New Brunswick. Coincidentally and unfortunately, there were no participants from PEI. By responding to my call for participation, interviewees self-assessed as having adequate time, interest and resources enabling them to take part – an already privileged position. Without exception, interviews were with Anglophone, cisgender folks. Eleven of fourteen participants had post-secondary education. One participant identified as queer and two identified as living with disabilities. I spoke with one Indigenous scholar and, without exception, all others were white settler participants.

There were many possible sub-samples within the broad sample universe of people living in Atlantic Canada that could have contributed valuable perspectives to knowledge of mediated experiences of climate change. Future inquiry could focus on youth, workers in the oil industry, new Canadians, climate scientists, or on hearing from a particular cultural cohort. Had my sample included people living with housing insecurity, for example, this would have increased the richness my findings. Acknowledging the limitations of my sampling strategy, I entered into the inquiry with curiosity about the experiences of a purposive sample of people living in Atlantic Canada with contrasting perspectives which support the study's exploratory aim – contributing to understandings of experiences of climate change in the region.

2.4.4 Holding Interviews

I travelled to hold interviews with people in Halifax, Dartmouth, Annapolis Valley, and St Margaret's Bay, Nova Scotia. I also held interviews with Newfoundland participants in and around St. John's. Eleven of the fourteen interviews were conducted in person. Eight interviews were video-recorded and six interviews were audio recorded. Three interviews were done through Skype, including one with a person in New Brunswick, and another living in Labrador, due to scheduling and travel limitations. The second-to-last interview was not video recorded for reasons of consent and anonymity, and after this I decided not to record the final interview because I had reached what I felt was saturation and had enough video material to work with. The audio recordings and accompanying notes provided plenty of detail for these interviews to contribute without recording video. All recordings supported the documentation and analysis of rich, non-verbal, gestural and somatic cues. Some of these recordings became the elements of a palette of media material for artistic exploration.

2.4.5 Ethics

Ethics in qualitative research, writes Josselson (2007), "is not a matter of abstractly correct behaviour, but of responsibility in human relationship" (538). All people who volunteer to participate in research require protection (McIntosh & Morse, 2009). I was aware, on entering the interview phase, of the potential risks and implications of emotional distress in unstructured interview and that upholding the principles of research ethics would be critical. The researcher must have a capacity to maintain these principles, as well as the dignity of participants, in tension with potential participant emotional distress which, according to McIntosh and Morse (2009) "is not a by-product of interview research, nor even an adverse side-effect or sequela of it. Rather, it

is a part of the phenomenon”(85). As a psychotherapist, I am aware of the risks of performing multiple roles, that the researcher may not perform the therapist's role, and that supports must be in place for participants who may be emotionally stirred by the research to access professional counselling services.

There are also risks for the researcher in entering into the intimate, interview dyad relationship followed by the representation of her interpretations in academic and public settings. This is further complicated when artist-researcher is engaging with text-based, audio and video recordings and performance representations of interview data. The ongoing negotiation of consent is a critical part of artistic research. Actively engaging participants as collaborators in assessing written and artistic interpretations before they are shared is more than simply member-checking. It is an ethical position that respects the dignity of interviewees and engages with the principles which assure free consent, confidentiality, privacy, and transparency regarding authorship (Denzin & Giardina 2009; Kvale, 1996; Richardson, 1990).

2.4.6 Consent Process

After participants were chosen they received information by email and that was revisited before beginning each interview, clearly describing research goals, possible forms of dissemination in research-creation, potential risks and issues relating to consent and authorship. A phone conversation with each interviewee, and in one case, the interviewee's staff representative, was before the first interview, and revisited key points of consent relating to video and audio recording. (See Appendix 4, Consent Documents)

3 out of 14 participants gave consent under the terms that personal identifiers be removed and that they be referred to by pseudonyms. All other participants gave consent for the use of their first names, and for the use of audio recordings of the interviews.

2.4.7 Developing the Interview Guide

With support from a group of colleagues that is part of the *For A New Earth* (FANE) initiative, I facilitated a brief group experiment exploring my research question, and follow-up interviews with members of the group to informally test the form and efficacy of my research guide. In attendance at the FANE retreat on March 5, 2017 were Dr. Sean McGrath, Dr. Barry Stephensen, Dr. Jens Soentgen, and doctoral students Michelle Mahoney and Tracy O'Brien. I facilitated an exploration of “embodied responses to climate change loss” and followed up with conversations about language and experience with three persons from the group – what worked for them, any insights or thoughts about how to approach the interview based on their experiences.

2.4.8 Interview Approach

In unstructured interviews, the researcher holds the intention for the participant’s response without imposing or leading with rigid structures. Similar to practices of collective improvisation in music and dance traditions, the dynamic relationship between structure and randomness in open-ended interview research *is* its inherent fidelity. Improvisation and interview both begin with deep listening (Oliveros, 2005, xxiv), privilege multiple ways of knowing and expression, and are characterized by the intentional entering into relationship in which the listener and the listened risk being transformed in the intercorporeal zone (Clarke, 2016). These principles of improvisation are at the core of my interview approach.

A collision of somatic and artistic methodologies integrate representations of both personal embodiment and cultural and social embeddedness while cultivating ways, as Speedy (2008) values, to be “on the lookout for subjugated knowledge; ways of knowing that have been submerged beneath the dominant discourse” (153). I use invitational language – a practice that is integral to somatic and other psychotherapies and suitable to unstructured interview methods. Invitational language encourages curiosity by the interviewee about her own experience, and when possible, privileges describing *felt-sense* dimensions of experience in detail before interpreting meaning.¹³ The invitation is to safely enter the more-than cognitive layers that are present in the gestural, intercorporeal space. My goals have been to record and honour these dimensions of experience for both interviewee and researcher.

2.4.8.1 Interviews

I began interviews in August 2017 and completed them by November 2017. At the outset of the interview, I took some time to allow the participant – person and nervous system – to get oriented to the setting (and my presence in it, and sometimes the presence of a camera) before proceeding. This was also time to re-confirm consent and time to set up camera, microphone and test levels. After getting established in the location for the interview – whether outside on a deck, in a living room, café, in a Skype setup, or in my office – I used an invitational statement based on the interview guide, below to initiate the formal interview process.

¹³ The term “felt-sense” was first used by somatics leader Eugene Gendlin who developed the work known as *Focusing*. (Gendlin, 1982).

2.4.8.2 Interview Guide

Climate change experience has to do with how we perceive the unfolding impacts of climate change. We perceive this in different ways in our bodies, in our thoughts, and feelings.

I am here because I'm interested in and curious about your embodied experience relating to climate change.

What do you want to share with me about your experience?

You name a feeling or experience as (Ex. "heaviness" "I carry that") Can you say some more about how that shows up for you in your day-to-day/how that relates to your feelings...

As you share with me about this/recount that story/ do you notice any sensations/movements/muscle tension in your body/gut/legs/hands that call your attention?

That's really interesting. I'm curious about that sensation. Can you tell me more/describe it in more detail?

When you describe that feeling of (sadness/frustration/anger/powerlessness)... is there any body sensation that you notice? Can you say some more about that?

My intention in developing and testing the interview guide was to cultivate trust and a relaxed state while encouraging the sharing of sensory experience, which is more familiar for some than others. I anticipated that there would be a range of styles of engagement, that some participants would be more aware of sensation, and others less. During the first interview, the words of Brian captured an ethics of embodied identity and connection with the natural world that permeate this project.

Whether we acknowledge those sensations that we have...

whether they have any impact for us or not,

that's a matter of conditioning

or it's a matter of choice.

But the more you CAN, then I think

the more you feel

again we come back to *this* [gestures to his own body and the garden environment]

Part of this:

feel the wind

feel the rain

feel the fog

feel the Sun

feel bits of gritty sand in your hair and in your mouth

and feel snow on your face

Hell, yeah!

Of course I mean if you're not doing that than you're missing something.

If you're not using it all...

And I think the more of it we experience then the more vibrant we are

the more alive we are and the more we acknowledge the humanity of others.¹⁴

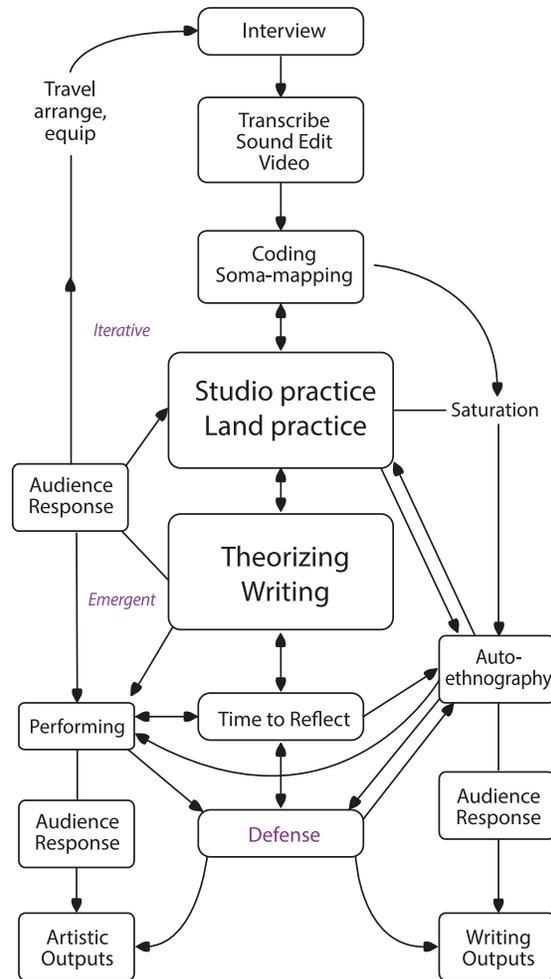
¹⁴ Brian is the real name of this participant. Participants had the option of their own first name being used, or of names being replaced by a pseudonym along with the removal of other personal identifiers to protect anonymity.

Brian's naming of conditioning and choice in the way we access and acknowledge how sensory experience is tracked and shared in the intercorporeal zone is a key challenge of embodiment research. In somatic artist-researcher practice the intentional tracking of the movements of eyes, limbs, trunk and breath in interview participant and researcher requires commitment to a somatic practice and a nuanced set of observational skills based in knowledge and practice of the lived body. As in a Somatic Experiencing therapeutic dyad, gestures, postures, sensations, feelings, and their meanings in interview research are not elicited from passive subjects but constructed and strategically assembled in and through analysis of the interview.

Brian's challenge to me as an embodiment researcher is met through radical reflexivity. If I required interview respondents to share and reflect on their embodied experiences of climate change with me, it was imperative for me to enter, deeply, into my own embodied and decentred experience. As an artist-researcher, this has led to exploring, and performing an emergent embodied ethics of frozenness, rage and mourning that (de)centre research.

Some participants gave consent for interview with an agreement that their names and identities would be protected, others gave consent to be identified, and real names used.

Figure 6: Flowchart visualizing somatic artist-researcher process



2.4.9 Analysis

Analysis is a through line of an iterative process. Chadwick (2012), writes that “[d]eveloping methods of qualitative analysis which facilitate a focus on embodiment is important, and challenging” (94). Embodied approaches to interview analysis begin during the interviews, and deepen during transcription. Transcribing is a kind of fermenting in the sound of conversations,

the cadences of voices, and resonances of bodies in various natural and built environments. Encouraged by Richardson (2000), and Speedy (2008), and grounded in my own artistic practices of listening, and sound design, I transcribed voices from videos and sound files into lines that reflect the rhythms and tempo of speech, the spaces of breath, and emphasis and meanings of gestures. Ellingson (2009) writes about “making choices that maximize the variety of epistemologies represented in a qualitative text” (11). Working with video recording of some of the interviews, and audio recordings of all the interviews, a poetic transcription approach was a fitting way to evoke, remember, construct, and honour the embodied knowledge emerging in the intercorporeal space of the interview.

2.4.9.1 Coding

Following transcribing, each transcript was printed, with line numbers, formatted in columns, leaving one narrow column for codes and a wider column for my notes and memos. Working my way through the transcriptions of fourteen interviews, I began breaking down the text, using brightly coloured highlighters to code for language of sensations, image, behaviours, affect and meaning (SIBAM)— a framework that I adapted from Peter Levine’s Somatic Experiencing (2010). I also used italics, bold, and grey highlights in the document to note when particular ideological reflection shows up directly, marking when participants reflected on spiritual beliefs or practices that relate to their understandings of nature, and the relationship of humans to more-than human kin and the natural world. I noted any references to media – media specific (MS), media reflection (MR)— naming the medium (film, radio, Facebook, Twitter, Instagram etc.) and when references to direct climate change appeared (DCC).

2.4.9.2 Text, Sound, and Movement

Memo writing teased out further details of cultural and social embeddedness that I pulled and sorted, naming themes and organizing into interrelated texts. During this process of coding and sorting, I engaged in the parallel process of editing the sounds of voices, pulling sound bites into Protools (sound editing software) listening and layering, juxtaposing voices and themes.

These sound files accompanied me in the studio where I listened again, remembering the gestural content and embodiment of interviews. Through the privileging of somatic experience and valuing gesture interoception and proprioception, I cultivated space for my own response as reflexive researcher. Spry (2001) writes that “[c]oaxing the body from the shadows of academe and consciously integrating it into the process and production of knowledge requires that we view knowledge in the context of the body from which it is generated (725). My own bodily experience and embodied ways of knowing, and the observation of sensation and affect in relation to interviews, are a means of analysis and knowledge production. These ways grow out of somatic practices of movement improvisation, Authentic Movement, Sensory Awareness, experiential anatomy, and Somatic Experiencing (Adler, 1987; Clarke, 1995; Cohen, 1993; Levine, 1997; Stromsted, 2007; Olsen, 1991).

Resonating with Behnke in many aspects of *matching* (1988):

[w]hen I do this, it not only helps me to become more aware of the ongoingness of somatic experience, but it also helps me to stay with the living now, rather than fantasizing about, predicting, hoping for, or trying produce certain future *results*. In *matching*, *not knowing* what will happen next is of the utmost importance, for it keeps me from limiting myself in advance to my repertoire of known possibilities – all of which may reinstate a pattern that might otherwise be free to shift spontaneously.”(326).

I generated a printed paper edit, Word documents, video edits, wav files and sound montages, as well as pages in a sketchbook with handwritten memos and scribbles. Occasionally, drives crashed, coffee was spilled, and notes were lost. A frozen shoulder defined restricted my movement for several months – I did less hand-writing and more typing. For several months, my movements had a limited range of motion on one side, accompanied by painful sensations, and there were ways that the rest of my body compensated to support completing the work with this physical challenge. Truman and Springgay (2015) write that “in thinking about movement as a proposition of research-creation it should not be construed as a criteria, but rather that which co-composes research-creation in the act of research creation” (152). In thinking *through* movement, and the gestural material from the interviews, my own leaky, vulnerable, porous body, moving became a place and way of knowing.

Choosing resonant sections of the interviews, and editing them into video and audio timelines, I was able to bring audio excerpts of the interviews back into the dance studio where I listened, thinking and responding through movement, and engaging in choreographic choices. It is important to note that these choices are not about representing data. Thinking with Neilsen (2008), the dance – a somatic language – “creates the possibility of a resonant, ethical, and engaged relationship between the knower and the known” (94). Studio work and performance in somatic artist-researcher practice are interoceptive, proprioceptive (spatial), and temporal, creating the conditions for disintegration and return. Knowledge, here, is always already emergent, and performance practice is generative. *Objets d’art* are not an end goal, but performance outputs create spaces for relationality and further emergence. This is to say that performance is a way of knowing that creates spaces for further construction of knowledge with audiences.

Working from body experience with ideas, moving through theories and into interviews, written and recorded words, paper, sound and movement is a somatic, artist-researcher practice (SARP). Analysis will continue well beyond the completion of this dissertation, as the data is rich and (very) messy, and the knowledge gained in its making scratches a surface that continues to yield further opportunities to know and not know.

2.5 Towards a somatic artist-researcher practice

A somatic artist-researcher practice intentionally (re)enters the zone of intercorporeity of researcher, participant and environment through an affective, (sym)poetic approach to interview transcriptions, video recordings, sound, other texts, and artistic practice. Tracking sensation as the language of the nervous system, the porous, quivering artist-researcher makes decisions, trusting the authority of her body as a source of knowledge. This approach, like Neilsen's *Lyric Inquiry* (2008) embraces aesthetic choices and interpretations as methods of inquiry. Somatic artist-researcher practice goes for immersion in sensorial, intercorporeal zones; the interpretation of felt rhythms and recursiveness of gestures and texts, trusting in the liminal as generative, privileging the ambiguous as space for “other” interpretations, and seeking beauty at the horizon of loss and unforeseen worldings of human and more-than-human kin.

Choreographic/movement choices highlight knowledge from four directions: 1- the gestural space and gestural material ignited between researcher and interviewee; 2- the process of mourning losses of climate change and inhabiting conflictual tensions as a critically reflexive researcher (autoethnography); 3- a somatic practice that trusts the knowledge emerging through experiences of rupture and disintegration in my own body and nervous system while pursuing

this inquiry; and 4- experiences of connection and support from land and moving through landscapes with audience, including more-than-human kin.

A somatic artist-researcher practice is an iterative, emergent, creative process involving sound design, writing, reflection, visual media, movement practice, performance, and audience. Chapters 3,4, and 5 include autoethnographic writing, and analysis of interviews from a more narrative, and somatic approach. Links to video documentation of performance point to durational objects, however, these digital documents of performance are glimpses of thinking through artistic practice. These videos are of emergent knowledge, and do not “capture” the work. Audiences also participate in the performance, and when performances are on the land, the audience engages in a kind of procession, walking together in, and through the work, and contributing to the *thinking* of the work while walking through a specific landscape, with more-than-human inhabitants of place. In being and thinking together in a specific time and intercorporeal configuration, performer and audience participate in the emergence of knowledge. Video does not convey this.

2.5.1 My Place-autoethnography



video still, performance Feeling nervous on the land, June, 2018

I worked on analysis and writing at my home in the woods in Maddox Cove, Newfoundland. I have lived here since 2011, where I am surrounded by woods, and find myself doing such things as tracking the comings and goings of cormorants. I call these shags “dirty shaggers” because of the fishy smell that is one indication of their return to their winter home, below in a nearby cliff. These are some of the toughest, most ancient birds, speculated as having first appeared more than 60 million years ago. They are incredibly adaptive. According to King (2013, “[e]volution has crafted an animal that can migrate the length of a continent, dive and hunt in the pitch dark beneath the water’s surface, perch comfortably on a branch or wire, walk on land, climb up cliff faces, feed on thousands of different prey species, and live beside both fresh and salt water in a vast global range of temperatures and altitudes, often in close vicinity to man” (2). I’ve seen them almost everywhere I’ve ever travelled where there is any kind of water – from

California, to Florida, to Arizona, from the English Channel to the tip of Northern Ireland and the North Sea. I have watched these big, ancient birds from a distance, from nearer through my window and also from up close, with binoculars, from the cliff where I can see their roost in winter. One year I brought my niece, the two of us bundled in our snow pants, to visit them with me. She was 7 or 8. She didn't like the smell. I don't guess humans have figured out a way to eat them. If we had, there would be far fewer of them or none.

In the Spring of 2017, an unusual wind event took out more than 25 trees near the house, thankfully sparing windows and other built structures. When I went out to assess the damage in the calm after the winds had died down, a trail of bright red caught my eye against the snow across the river. A bird of some size was lying dead beneath a tree. I went back to the house for my glasses and snowshoes and made my way across the river, where I learned that she was a cormorant and pieced together the narrative of her demise.

The wind gusts, which reached 160 km the day before, had slammed her into a tall spruce, snapping her neck. She fell, vomited up the contents of her stomach – bones and other undigested fish material – and stumbled to the spot where I found her at the foot of one of the older trees next to the river, neck broken. I have to admit that this individual cormorant's death didn't upset me that much. Cormorants are not at risk of extinction, and will very likely outlive homo sapiens.

Cormorants, and all animals live and die and I can accept this. I can even accept that I and everyone I know and love will eventually die– that this is a condition of being here at all. What is this tension, then? Van Dooren (2014) writes about “the kind of mourning that asks us – that perhaps demands of us, individually and collectively – to face up to the dead and to our role in the coming into being of a world of escalating suffering, loss and extinction” (143).

Though I will die one day, perhaps gladly, this doesn't mean I will not fight or run. A fierce, growling creature living in my body is there to protect me. As I bear witness to extreme weather events from the safety of my roost, I am confused, leaning into the tensions of my own complicity in the destruction of Earth from this privileged, white settler position. Thinking and becoming with Van Dooren (2013) and with shags and corvids, near and far, "if we manage to find our way into a space of grief at this time, we will be just one species mourning among many, just one of the many forms of life on this planet that are experiencing this time of incredible loss through a lens of sadness and grief" (143).

2.5.2 Studio process

A somatic artist-researcher practice holds space for what Neilsen (2008) as “the expressive, the poetic, and the phenomenological in our scholarship without returning to the false distinctions or choices our enterprises often invite: literary or academic, subjective or objective, science or art, humanities or social sciences” (3). Beginning in the Fall of 2017, during transcriptions and the beginning of interview analysis, I began an intentional outdoor movement practice in the woods and on the cliffs at Maddox Cove, and weekly studio practice, using the Dance Space at the Centre for Music, Media and Place (MMAPE) at Memorial University. Dancing with audio excerpts of interviews and exploring the gestural material of interviewees and my response to them, as part of an iterative process, created the conditions for the emergence of knowledge in a movement-based practice, and supported me in more sedentary writing and other thinking work. This immersive, more-than cognitive process honours embodied ways of knowing.

2.5.3 Dissemination

Dissemination of arts-informed and artistic research occurs through multiple channels and a range of media, and through which there exist many possibilities for adapting knowledge to contexts, reaching audiences and engaging with readers/viewers/listeners in various reconstructions of meaning. Inside of the academy, this may include journal articles, conferences and lectures relating emerging methodology, interview methods, analysis methods, and on the emerging knowledge from my investigation of climate change and how it shows up in responses of persons and nervous systems. Beyond the academy, my research will reach various audiences through performances, public workshops and lectures, and through digital media.

The first public performance iterations of the work began before I started interviewing participants. Performance of *I am sitting in a chair*, which reflects on methodology and embodiment, took place in December, 2016 (<https://vimeo.com/home/myvideos>, Appendix 2) As part of Performative Inquiry Group (PIG), St. John's, a performance of *Freezing in the tension* took place March 2, 2017. On March 10, 2018 I presented a paper based on Chapter *Feeling nervous (systems) and the capacity to be compelled* at a Memorial University Department of Philosophy conference *Politics, Bodies and the Earth*. On April 19, I performed an autoethnography relating to Chapter 5 – *Furling and Unfurling* – as part of the mun/auto/ethnography group event, Poking the (Academic) Bear Again. On June 21, and August 18, I performed iterations of the new work, on the land in Maddox Cove as part of a series of new works in development presented by Performative Inquiry Group (PIG) and Neighbourhood Danceworks (NDW).

These performances have been a core means of thinking while inviting audiences to engage with me in this thinking through movement, in spaces outside of academia – spaces for emergent knowledge in which somatic experience is valued. My artistic colleague Lois Brown, and I, initiated Performative Inquiry Group (PIG) in St. John’s in 2015. PIG creates comfortable (safe enough) spaces to share emerging works, forms, and research, and for thinking performance, theory, identity, and process, together with local and international peers. PIG creates an important context for sharing more-than-cognitive, emergent, artistic research, and creating the conditions for generative potentials in community.

Sharing knowledge of grieving climate change, like grief itself, is emergent. So, too, it emerges in specific places. These performances and knowledge of how persons and nervous systems adapt to climate change, are not fixed positions. The performances are in places, are durational, and are ways to ferment in interview data and follow the autoethnographic impulse. Spry (2001) writes that “[a] fine autoethnographic performance reveals a substantive sophisticated weave of a performer’s textual analysis, her contextual analysis, and her somatic acumen, thereby presenting critical self-reflexive analysis of her own experiences of dissonance and discovery with others”(726).

Reser et al (2011), write about the need for a “transdisciplinary conceptual and paradigmatic scaffolding necessary to put psychological adaptation and the mental health impacts of climate change on the radar of governments, funding bodies, and climate change science” (34). As an artist-researcher producing a more conventional dissertation *and* performing artistic work that thinks and emerges – sound works and performances – I am initiating dialogue that puts experiences of climate change on the radar of audiences, inside and outside of the academy, inside and across disciplines. Each connection with audience represents the potential to influence

movement in the transdisciplinary field. Each connection also has the potential to support bodies co-regulating in the crisis field.

2.6 Meta-themes, themes, and sub-themes

Connections are not made easily when bodies are experiencing traumatic stress responses, and these responses were present for many of my interview participants. The meta-theme of a pervasive ambience of loss and threat is named in Chapter 3 – Freezing in the Tension– in which I share and analyze excerpts of interviews and reflect on my own embodiment of self-protection as part of scholarship. Themes and subthemes in Chapter 3 include:

- Freezing (numbness/shutdown and depressive states)
- Ecoanxiety
 - worry about the future
 - worry about next generations
 - feeling complicity
 - dissonance/incongruity in tension between mediated knowledge and direct experience

Chapter 4 looks at the meta-theme of strategies that support greater regulation, or how flourishing in the tension is possible. Excerpts from interviews look at what participants do to support their own capacity to “carry the weight” of climate change and live with the incongruencies inherent in this time. Subthemes include:

- managing media streams of climate change information;
- directly connecting through senses in local natural environments;

- creative engagement and participating in cultural production of knowledge;
- mourning losses; and
- engaging anger in social action.

Chapter 4 also begins to look at the meta theme of colonization and climate change, which is developed further in Chapter 5 – Feeling nervous (systems) and the capacity to be compelled.

Chapter five is a tying together of meta-themes, thinking towards a justice-seeking somatics in times of crisis, challenges of navigating contradiction as a white-settler artist-researcher, implications for theory and practice, and future directions of inquiry.

3 Chapter 3 Freezing in the tension



video still, LC 2018

I think that even if you
are totally negligent and even if you are totally um...
willfully unaware of what's going on in the world right now,
there's still an emotional impact and, you know,
as a species we're social.

We pick up on *everything* from other people

You know. And we...

we respond to our environment.

So when our environment is in crisis then,
even if we shove it under, you know –
shove it away and try to... try to live a happy life –
without thinking about climate change or thinking about our survival –

I think instinctually, biologically,

our bodies are...

are trying to survive.

We're scared you know.

Callum, 26, Nova Scotia

3.1 The weight of a heavy ambience

In this chapter, using excerpts from interviews, I illustrate how the meta-theme of a heavy ambience of threat is named by interviewees and how it shows up in nervous systems. I ask: how do people name and manage conflictual tensions, and how do these dynamics manifest in bodies, affect, and behaviour? This chapter looks at two of the themes that emerged from interviews, exploring experiences of conflictual tensions between mediated and direct experiences of climate change.

The first, and dominating theme is freezing (numbness/shutdown and depressive states) which corresponds with a physiology of hypo-arousal. The second theme is ecoanxiety which, for my participants, is related to the subthemes of worry about the next generations, feeling complicity, and dissonance/incongruity in tension between mediated knowledge and direct experience. I look at how knowledge about climate change contributes to anxiety and hyper-arousal for some and also exerts a strong pull towards self-protective freeze states. This chapter describes the conflict between living well and exploitation of earth's resources, and how defensive orienting is adaptive and necessary to manage and interact with mediated sources of climate change knowledge in order to maintain both a sense of safety and agency.

3.2 Defensive Orienting- autoethnography

Am I safe? My eyes focus in a familiar, narrow way that feels like readiness. I look around, listening carefully, orienting to my environment, looking for danger. I'm in the woods, near my home and it is a beautiful evening, and this is a relatively familiar and safe environment. What is going on? I've become so deeply unsettled by this immersion in the research and

experiences of climate change. There is a sense of chaos in my head. There is an always heaviness inside and I interpret this through my body and senses, as ongoing threat. I scan my environment but there is no predator nor is there any obvious way to safety. I “know” better, but small things, sounds become irritating or startling. My jaw clenches, muscles of my shoulders and neck contracting. My right shoulder is frozen. Where did this come from...

Today I am inside a stone tower and the threat seems to be getting closer. Memories of kinsfolk scattering to the hills. Where did this come from...

if we scatter, some will survive the attack, hiding in the woods, in caves, at mountains and rivers

hiding being

behind, in, under

stay here, furred

heart beating still.

3.3 Defensive Orienting- Polyvagal theory

Similar to mammalian kin and distinct from our reptilian ancestors, humans have three possible systems through which we respond to threat in our environment (Porges, 2009). The most advanced responses involve social engagement, and embodied cognitive capacities, including curiosity, creativity, and connection. However, when threat is perceived to be great, or pervasive, and when the social engagement system fails to provide a sense of safety, two phylogenetically

older systems are recruited in the order of most to least complex. These older systems are the mobilizing sympathetic (fight/flight) system, and the freeze/immobility response which is the protective system of last resort. These three systems are not mutually exclusive, but one of the three is always dominant. When freeze/immobility is dominant, the social engagement system either does not function optimally or is offline. The more advanced social engagement system is sometimes dominated by unconscious, neurophysiological reflexes to self-protect which are enacted in bodies (Porges, 2001, 2009, 2011; Porges & Furman, 2011). These show up as repetitive patterns, appearing, for example, as unhealthy aggression, impotent rage, obsessive distraction, and addiction. These and older, shut-down patterns that render bodies frozen into complacency, shield the self from disturbing truths.

Responses to climate change threat and loss happen in and between minds, hearts, bodies, and communities. Bearing witness at the individual subject level is not an exercise in applied psychopathology, nor an effort to decouple persons and nervous systems from social fields. My goals through this witnessing are to explore the ways people are experiencing climate change, to theorize the ways that human nervous systems are adapting in the face of climate change, and to consider the possible implications of this for relationships, and our place among the interconnected systems of the Earth.

3.4 Tensions between direct and indirect experience

In Atlantic Canada, perceptions and experience of climate change are informed by media images and the social construction of climate events in distant locations, but also by direct, local experience. Participants in my study have all witnessed changes to local environments, noticing signs in the migrations of birds and fish, changes in pollination and blooming cycles, water

levels, and adaptation to changing weather patterns. Residents of New Brunswick have been dealing with dramatic flooding while on the Avalon Peninsula in Newfoundland the issue has been increasingly high winds. At the same time, we are all managing exposure, through media, to the knowledge of climate change in other parts of the world, near and far, and impacts on humans migrating and adapting to fire, mudslide, flood, drought and various conflicts over resources. In the following section I look at some of the tensions between mediated and direct experiences of climate change and how these tensions are embodied in nervous systems, affecting behaviour and sometimes contributing to mental health challenges.

3.5 Managing dissonance by freezing

It was pouring rain on the August day I visited Callum, a twenty-four year-old white settler, cisgender male, in his family home near St. Margaret's Bay, Nova Scotia. During our conversation Callum shared details of his perceptions of climate change, emotional responses, sensations, actions, and challenges to his capacity. During the interview I observed Callum as we engaged in conversation, tracking his movement and the sensation in my own body as interviewer, *matching* Callum in the moment of the interview (and later in the studio, remembering the interview as it “shows up” in my own body). Behnke (1988) writes “[m]atching presupposes that there is something there to match, some feature of my own bodily experience – such as a shape, a feeling, or a movement – of which I am aware. This seems obvious, but deserves mention due to the widespread impoverishment of the experience of one’s own body in our culture” (319). Matching requires somatic literacy (Linden, 1994) and acumen.

I first asked Callum what he noticed in response to social media exposure.

Callum: I think that when I see images of really extreme sort of climate change or human pollution in other parts of the world,

even I experience that sort of wanting to push it away a little bit,

[Callum gestures with his right arm, pushing out through the space on the right side of his body, looking away from that direction, averting his face and gaze from whatever is there, it is as though there is something he is keeping at bay]

that sort of like...

well you know I see that and it scares me.

But I feel like there's nothing I can do about it from here, you know.

I sort of have to stay engaged *here*

and I've had my own battles to deal with

you know, personally and socially here so it's, it's...

it can be scary but we have a bit of cognitive dissonance when it comes to social media because it's not right in front of us, you know?

Callum has the capacity to act locally, managing adequately within this tension for the time being. However, once fear raises a charge in his system – a threat response – it can influence social engagement, affecting “personal and social battles,” appearing as defensiveness, misplaced anger, fearfulness, overwhelm and, sometimes, shut down. Callum describes how media exposure stimulates his nervous system, and how “it sets the tone,” raising the level of sympathetic arousal, overwhelming his capacity, and sometimes tipping him into depression.

Callum: I think it affects my habits, umm. You know, generally I like to conserve energy. I think about permaculture, and food and energy.

Lori: umhmm

Callum: But it definitely sets the tone too because, I think growing up with a feeling... like the world is in a very disastrous state, umm...

has left me with some depression you know, and
and, sort of often, feelings of hopelessness.

Because as a young person, you want to pick a path that makes sense for you, that enriches your life, that brings meaning to you.

But then there's this sort of overwhelming feeling sometimes,
this feeling of, well, well, what's the point,
like why are we even, why even bother...

Callum describes “overwhelming feeling” that leads to “why even bother.” This language and Callum’s sometimes flat affect during parts of our conversation, indicate that there is some amount of protective freeze/shut down going on in his system. Statements such as “what’s the point,” or those that begin with “I can’t” are operative phrases that indicate the dominance of the dorsal vagal complex of the parasympathetic system- the freeze/immobility response. When this system is dominant our social engagement capacity is narrowed (Levine, 2010). [See figure 1, p 27]

Callum: Yeah, you can kind of get bombarded and

I think you need to learn how to filter too you know, uh

because I think our attention can get too divided by paying too much attention to social media,

or taking it too seriously.

I think we obviously need to take it seriously,

but if we're just on social media having our attention divided over and over again,

between causes and challenges that we face,

then I don't think we're capable of action anymore.

For Callum, and other participants in the project, the experience of “media bombardment” corresponds directly to a loss of agency. Callum relates a loss of capacity for action to being on social media having his attention fragmented, and identifies his need to adopt behaviour to protect himself from becoming overwhelmed. Callum identifies the correlation between sensory and cognitive overwhelm and reduced capacity for action. There are a range of conscious and unconscious behaviours that manage this tension in Callum’s nervous system, ranging from “shoving it aside,” becoming overwhelmed and fragmented (freezing or shutting down), or filtering/turning off the stream and putting down the phone.

Callum: sometimes I'm on social media and then

I just have to put my phone down, you know [behaviour]

It's, it's too much [sense of overwhelm]

there's too much going on and

I find myself sort of feeling kind of negative

umm or irate and I just realize, okay [feeling irate is sympathetic arousal- fight response]

it's the phone, I've just gotta put it down

Lori: when you feel that negative, anger

how does it manifest in your body and nervous system?

Callum: umm I mostly feel it in my brain.

You know it's a brain kind of thing

Lori: so more up here, like in the brain organ? [*gestures with hands around head*]

Callum: yah, in my forehead, I feel it in my forehead.

As described in Chapter 2, one way of understanding sensation and gesture is that they are the language of the nervous system. Callum is aware of sensations, in his gut, head, and heart, and movements of his arms, head, neck, and throat. Callum’s interoception, or sensory awareness of his inner landscape – heat, vibration, tension, or his felt sense – all contribute to his embodied experience and sense of knowing.

There is nothing Callum can do about what is happening worlds away. Feelings and thoughts show up in posture, gesture, and behaviour. He is compelled to engage locally while feeling something in the space on the right side of his body (sensory) that he pushes away (behaviour). Callum names the cognitive dissonance (interpretation of meaning) that emerges in the tension between direct, local experience (image, behaviour, affect) and holding (sensory) the knowledge of climate change events (affect, meaning). He sees something (image), it scares him (sensory and affect), and he wants “to push it away” (gesture/behaviour) – a coherent, adaptive response arising from the impulse to self-protect.

3.5.1 Noticing and Naming Complicity

Debra, a white settler, cisgender activist in her early sixties with a grown family, is now working as a seminary teacher after retiring from her first career. She lives in the Halifax area, supports the Nature Conservancy and considers herself “an eco-kind of person” living in a region where effects of climate change are not always visible, and not as dramatic as in some other places.

Debra is selective about which media she takes in, looking to deepen her knowledge through documentary films, books, articles and online media.

Debra: I don't think we've been touched very much here directly yet.

And, umm, I don't also think that we hear enough truth

about things like, umm you know weather,

the effect of climate change on crops and agricultures,

how that's contributing to some of the unrest in the Middle East and in Africa.

I don't think we're hearing the Western press talk about that as much as we need to.

Debra's nuanced analysis feeds her awareness of tensions between her own direct and mediated experiences of climate change.

Debra: This part of the world is, at least initially,

going to do okay in terms of climate change.

The sea levels are rising, there will be, you know, coastal implications,

but you know...manageable

compared to other parts of the world.

Cause we don't lie that low and, you know,

agriculturally, we're going to lose some crops and gain others.

I see the changes in the landscape already

and have actually...[]

you know we're not gonna come out of it all that badly.

You know compared to other parts of the world, so that

that... is a tension

You know, the recent predictions of heat deaths in Europe...
really going crazy.

And I often wonder what would ever happen if they lost the air conditioning in Houston—
these summers, you know?

LC: mm hmmm

Debra: As close as that and the pressure that it'll put on water—
of which Canada sits on a great deal.

You know, let alone the really low lying countries
that aren't prepared at all.

And droughts, and fires, so
these are terrible locations...

And yet our little piece of it here,
where I'm going to live out the rest of MY days almost certainly
is probably not gonna do too bad.

Some might even say that it's improved by climate change.

I don't quite know what to do with that.

Debra doesn't know what to do with this tension. She counts herself among Atlantic Canadians who struggle to reconcile the enjoyment of travel with the knowledge of how that very activity increases one's carbon footprint. It was in light of a particular documentary film that Debra questioned her pursuit of one of the highlights of her lifetime outdoors – a snowmobiling excursion on an Iceland glacier.¹⁵

¹⁵ The film that Debra refers is the documentary *Chasing Ice*, about the Extreme Ice Survey and the work of photographer, James Balog.

Debra: When I saw that film it just landed on me very heavily,
how our activities in getting me that gorgeous experience
were contributing to the same sorts of pollutants and things that were, ummm
causing the damages that I was seeing in the Greenland film.

I kind of knew this at the time.

I can remember thinking about it

but it wasn't an item because of the joy of the snowmobiling

and also because I was terrified! The drive up on the edge of the chasm was...

oooh it was scary...[]

My brain and my heart were just too full during the experience,

but when I saw this film it really came to me that there is this tension between..

you know I would consider myself, you know, an eco kind of person

and... and I love these experiences.

But to gain these experiences I had to add to the world's carbon burden

in a way that, um...

now really troubles me.

Debra's example illustrates how media raises awareness of climate change and how this awareness leads to a tension for those who travel for employment, or who are privileged to have

Orlowski, J., Aronson, J., DuPré, P. P., Monroe, M., Balog, J., Svavar, J., LeWinter, A., ... Cinedigm (Firm),. (2013). *Chasing ice*.

a lifestyle that includes travel, and whose travel behaviour leaves a significant carbon footprint. When Debra makes choices about travel, she now considers the world's carbon burden. She holds a tension born in knowledge—travelling is one way that I am complicit in the destruction of the Earth.

Debra: I come home and I really have started to ask myself

have I been blessed, have I grown, have I changed have I matured

have I, you know in any meaningful way that could not have happened if I had

just got on my bike and, you know, gone out to Lawrencetown and

umm lay on the rocks out there...

really qualitatively did I NEED to go?

In what way did I need to go there?

Debra, like each of the fourteen people I interviewed, finds that being physically engaged in natural environments is critical to her sense of well-being and agency. Whether by gardening, hiking on local trails, travelling to walk, swim or surf at nearby beaches, or exploring landscapes in other parts of the region or abroad, it is by slowing down and connecting to the land, sky and water that feeds resiliency. More than simply recreational activities, interviewees described these experiences as meaningful and as integral to balance in their lives.

However, even with the kind of access and connection to natural environments that many people in Atlantic Canada feel, the people I interviewed still experience shutting down in the face of climate change. Debra describes this option or temptation, and names that there is something “hovering” that pulls her towards a switching off.

LC: So you can notice that possibility of shutdown or switching off?

Debra: Yes, it's an option and it's an option I could take, I'm capable of that.

I can feel it.

I feel it as a temptation, and I think that, yes I could do that.

I can't tell about myself whether I could stay in that sort of "whatever" state,

but I know that I could go there and I feel it working.

LC: Right, yeah.

Debra: Definitely feel it *hovering* out there

and it is a state of... it's not hopelessness

but it's basically saying, you know "not my party"

LC: umhmm

Debra: somebody else's problem.

LC: so there are some things that you are DOING

that enable you to manage that tension in yourself..

Debra: yes, I'm getting better at that, yeah

and it's like learning uh uhhhhhhhh...

When I go hiking umm sometimes it's all about the distance

and seeing if my body still can do it, you know?

But mostly it's just about getting far enough out that I can,

that I'll be presented with some really neat rock

or pile of moss,
 and it's really important to just stop there and sit and lie down, or whatever
 and just absorb whatever is being given
 and that umm...

I mean there's no overt connection to me
 between that and what's gonna happen to the people of umm Bangladesh
 and you know, really low lying areas. But umm,
 it's just helping me to hold all that together, cause I...
 I think I would be quite capable of just switching off.

Cause the news gets worse and worse.

I think I could just say
 "somebody else's problem, you know I only need another 15 years of liveable world
 thanks..." you know I think I have that in me.

Debra names the edge in her experience where she could slip into numbness, though she manages pretty well with her knowledge that climate change is real. She has seen evidence of climate change in her travels, on the Iceland glacier (direct experience), and has increased her knowledge by watching documentary films and by reading (mediated experience). Nonetheless, Debra is tempted to switch off and protect herself from this difficult knowledge as "the news gets worse and worse."

"Switching off" is a conscious choice for some, and remains unconscious for others. Whether conscious or not, this is a survival tactic that keeps the organism's embodied response to

disturbing truths and disconcerting feelings at bay, or at a manageable level. Switching off is a kind of disavowal that makes continued consumer behaviours feel less incongruous. It makes it possible to continue buying and driving cars and travelling to distant destinations.

Debra recognizes that part of her can and must switch off sometimes in order to continue “holding that all together” and is able to make real connections to rocks, moss, and natural environments to help support her staying present with difficult tensions. Physical experiences in the natural world are critical to Debra and others in this process.

Debra: I would like to think that lots of people, given the chance to find the way that the natural world speaks to them and reaches them, would value it more.

I think it's about valuing.

And we value forests for pulp and fibre and board,

but I think I think that if you're in the forest

and you have experiences of the other values of the forest

that that is more of a change agent than reading about the forest.

I don't think the film about Greenland would have reached me in the same way if I had not had the prior experience including my experience of my own delight

and remembering that,

cause that sort of worked interestingly with the guilt in...

had I, in my tiny little way,

was like contributing my pile of soot

LC: um hmm

Debra: I do have a hope

ummm that ahh

This is why I support the Nature Conservancy and the Nature Trust as strongly as I can. That if we don't any more have protected natural areas umm

than we will be less and less able to offer to ourselves and to the next generation

these elemental experiences of the value of the thing in caring for us in a deep way

as opposed to just providing us with products that we need.

And umm I'm not, I don't have good language to put around this

but I do think that there are things that happen when you're actually there

that don't happen through mediated images.

But that mediated images come along later and deepen and give meaning to.

That's been my journey to it

and so in one way it's good to go and experience these places

if, through some way you reflect on it afterwards.

But in going and experiencing these places you possibly

have contributed to their decline

and, that sucks right (laughs)

LC: That totally sucks.

BD: That totally sucks.

Media contributes directly to Debra's aspirations towards change, and to a deepening or conscientizing of her response to knowledge of climate change. However, media also contributes

to felt-anxiousness, numbness, ambivalence, and other feelings and sensations which characterize responses to climate change for people and communities. Debra deals with parsing her complicity and contributing her “pile of soot” through a kind of pragmatic analysis. However, her body carries the tension of complicity, and this falls under the general theme named at the end of Chapter 2 – eco-anxiety. As in other regions of the industrialized Global North, Debra, in Atlantic Canada, is aware of losses that may be catastrophic, but they are still remote. My observations with Debra and others align with the research of Randall (2009) who writes that “fear of loss leads to it being split off and projected into the future. The present continues to feel safe but at the expense of the future becoming terrifying”(119). As long as climate change is “remote enough,” either geographically, or in time, we continue on, feeling “safe enough”, for now.

3.5.2 Oil and anxiety

There is little recognition of the anxiety and grief that individuals and communities face in the frozen tensions of these wicked times. When knowledge feels too incongruous, disavowal is a way to temporarily not feel the trouble. However there are neurophysiological and psychological impacts of this disavowal. Disavowal of a stressor causing anxious feelings, for example, does nothing to address underlying causes, leading to an escalation and a more widespread, unmanageable anxiousness (Weintrobe, 2013).

Because he travels internationally in the oil and gas sector, Bill (46, white settler, cisgender) experiences complex tensions between his values for protecting the natural world, and the contrasting values of many in his field, while witnessing the impacts of extreme weather events in his travels, and integrating knowledge gained through media relating to climate change.

Bill: I follow a lot of politics which gives me anxiety too.

In the US— and you know I don't believe that umm

what you hear in the US, which is the driving force—

that “we don't believe in climate change.”

They all know it's real. [*Bill's face is animated and there is a lot of energy and tension around his mouth and jaw- he is angry*]

It's a political thing. But everybody is positioning themselves,

realizing that a lot of bad things are gonna happen...

I don't think they're quite honest in terms of, you know, accepting this.

And I think there's a lot of things going on in the background —

preparing, recognizing that they're allowing things to get worse,

and positioning themselves.

And the people who are likely most impacted are going to suffer because of that.

So it's all just a general anxiety that this is rolling along [...]

Well, I was never naïve and I never did think that I'll have faith and things will figure itself out there'll be something to save us at the last minute.

Uh, but there has been a bit of, comfort in that...

I don't need to really worry about the big picture.

Now I'm starting to see that there is no big solution that's gonna happen.

People are going to be taken advantage of as things fall to shit.

And so that general anxiety does kind of bother me,

worrying about, you know, what's it going to be like when my children are out on their own trying to raise a family?

What sort of things are they gonna have to deal with?

Bill names the theme of (eco)anxiety, about the subthemes of fear of future losses and worry for the future of his children. He feels that the safety of his family and the lifestyle they are accustomed to are threatened. Until recently he has had faith that "people in power" would be able to turn things around but now, having witnessed the results of recent violent storms in North America, realizes that we are past the climate change tipping point. Bill has also noticed that he is increasingly anxious in situations that didn't previously bother him, such as flying.

Bill: [flying] and, you know going through this, this cycle that we just had... [severe weather events]

And maybe its timely that you're asking these questions after this period of time where we've had so many storms in North America that are, you know, way out of the norm.

It, to me that's a sign that, you know, things are starting to change now beyond... you know stuff that I can't see.

The ozone or the radiation levels or blablabla whatever, where we're starting to *see* this stuff.

And you now I'm driving through [Houston] and seeing it myself.

Umm that there's a feeling that, okay it's happening!

And any thoughts you have that someone's gonna fix it uhhhhh

no. [] [*Bill's gaze has narrowed and eyes are darting around – a sympathetic response – and he has an increasingly faraway look, a sign that a freeze/immobility response is showing up*]

It's going to be a place where things get really bad

and reality is, in some places in the world now...

But meanwhile the rest of us are here worryin about what we're gonna have for supper and you know, all this sorta thing.

So It's kinda... you know I don't know how to articulate it really.

Bill doesn't know how to articulate it. As he sits with me, the tension that resonates, and that he is naming is neither cognitive nor verbal, which explains why it is difficult to put into words. The tension of knowledge, and both direct and indirect witness to climate change events, calls for a self-protective response that is dominated by parts of the brain and nervous system that are not about thinking, but about scrambling for safety. His eyes dart around. Bearing witness to the aftermath of extreme weather events both directly, and through media is radically unsettling for Bill. Avoiding uncomfortable feelings and embodied responses to loss and threat (which are, in part, sensory perceptions of neurophysiological impulses and patterns), takes some effort.

Bill: you just don't talk about it, you *never* have any meaningful discussions about things like that. I'll never talk about politics really with professional colleagues especially when I'm visiting the US.

LC: So you have to kind of take that part of yourself and kind of put it [*gestures to the side*].

Bill: Oh yeah for sure, particularly if you're out socializing, drinking, having fun and you know something might come up that you're quite knowledgeable on, or someone might make a statement that you could quickly refute, and say "no 'by."

But you just go mmmmm... you know maybe I'll convince this guy... but no ahhhh, so you

LC: You pick your battles?

Bill: yeah exactly

LC: and you kind of have to just smile and grin and bear it?

Bill: yes, and that takes its toll sometimes.

Bracketing or denying or containing the impulse to act of knowledge may be effective for short-term self-protection. However, chronic disavowal leads to an overwhelm of the social engagement system, and the phylogenetically earlier freeze/immobility protective response kicks in and begins to dominate experience. When jaws clench to not speak, when the breath becomes shallow and muscles around the ribcage tighten in order to control rising, uncomfortable emotions, a lot of effort goes into managing the discomfort. “It takes its toll,” and when Bill gets worked up about “it,” about climate change and the future of the Earth, it shows up in his body. His face flushes red, his heartrate increases. His tone of voice transforms. He shares that he can become irritable and short with colleagues or clients. He also notices that he has contrasting self-regulatory strategies to help him deal with the conflict– some ways are intentional and life affirming, others are addictive and numbing.

Bill: Yeah and then there's another side of that too.

You know going out for a run or for a hike is the great thing.

But going home and sittin down and drinkin 4 beer? Uhhh...

which is you know is a fun thing to do you know when you're laughing

and having fun with friends.

But if you're just [*pffffff* exhale and gesture of lifting a glass to his mouth] drinking...

That's not a fun thing to do or not a good thing to do.

LC: so I guess that's like

Bill: deadening

LC: a way to go from being overwhelmed to not feeling that?

Bill: yes, ya

In this excerpt, Bill is becoming aware of how important it is to become proactive in managing stress in the face of climate change and the tensions he experiences in his body as an employee of big oil. Bill's experience correlates with the meta-theme of strategies that support greater regulation. These strategies exist on a spectrum of adaptive behaviours, some of which work in the short term, but which may or may not lead to long-term success. Bill notices that he can become compulsive about checking his social media feed and the pull towards addictive, numbing behaviour.

Bill: why am I reading this... this crap

when I should be turning it off and, you know, going for a walk,

or playing Legos with the kids or whatever...

LC: mmhmm

Bill: But it gets to a point then where you keep going back, checking,

just hoping to see something that is changing towards the good in general in the world

...maybe it's the same sorta addictive thing lately.

I think physically, it's given me headaches[laughs] umm and maybe

I can be a bit cranky sometimes about it,

but apart from that just general anxiety [...]

Bill, like other interviewees in my sample, names the pull towards compulsive social media checking and other addictive behaviours. For Bill, and others, somatic layers of this response may include changes in breathing (more shallow), increases in heartrate, sensations of tightness in neck, shoulders, and ribcage, tensions in jaw, a sense of urgency and inability to easily access a state of relaxed awareness. These embodiments and behaviours to manage hyper-arousal are a feature of eco-anxiousness, a theme that is pervasive in the interviews.

3.6 Ambience of threat

Bill names “just general anxiety.” Brian describes “that feeling that shadows us sometimes...”

Other participants described a “sense of heaviness,” a “depersonalization” or a “you know, not my party.” There is a phenomenological, multi-dimensional field; a shadow, a cloud cover.

There is an ambience that is generated by and affecting how people experience and respond to the super wicked problem of climate change. In this field, tissue states, sensations, affect, gesture and more complex behaviour can be tracked.

Bill, the oil executive from St. John’s has seen some of the aftermath of violent storms in the Southern United States. This has made the direct losses of climate change that are remote to many people in Atlantic Canada very real to him. Bill’s experience of threat is also amplified because his livelihood, wealth, status, and identity are all tied to working for a major player in the oil industry. The conflicts he experiences in his profession are exacerbated when mediated exposure to climate change adds to an already existing “stress cloud,” making it heavier.

Bill: If I have normal work anxieties and stresses it just kind of adds a layer onto that really.

LC: mmhmm

Bill: You know, it paints a darker cloud.

LC: uhhuh

Bill: I think that's maybe the way to put it– it adds to a big cloud.

You know sometimes when you have that stress cloud

that you normally have about worrying, about you know

work, money, whatever family

uhmm you have that.

And then there's things accumulate on that

it makes all of it heavier.

LC: yeah?

Bill: So I find that's what it does.

It makes it all heavier so when you wake up in the middle of the night

Sometimes you start thinking about something... it's

[large inhalation] it's just not good for your psyche.

Bill, in the excerpt above, names both the meta-theme of a heavy ambience of threat, and something about the way he experiences embodiment in the context of this ambience. He identifies that “the cloud” is the setting for other life challenges, and creates the conditions for greater cumulative stress making “all of it heavier.” Bill may not be focused on climate change

worries, or experiencing eco-anxiety directly, but he has no doubt that the threat of climate change creates a heavy ambience that could be characterized as a chronic stressor.

3.6.1 Oil and water

Mike, 50, living the Bonavista Peninsula in Newfoundland, is also a white settler, cisgender professional in the energy sector. Like Bill and many other Newfoundlanders and others in Atlantic Canada employed by big oil, Mike travels frequently and is often away from home and family – a choice he makes in order to have what he considers a decent standard of living in his home province of Newfoundland.

Mike: Seeing the dichotomy does weigh on me.

I've been known to say “yeah I'm part of the problem.”

I work for some of the people that are the worst polluters.

When I asked how he deals with this weight, Mike held up a glass of beer and laughed. He named alcohol as a way he deals with it all. It was around 10:30 a.m. The tone of his response became more serious as he reflecting the profound challenge inherent in managing this tension.

Mike: I don't follow it [*media*]

it hurts me to follow it too closely cause I start to lose hope.

Yeah I mean I see all these signs of things happening.

I read about you know the amount of CO₂ going into the atmosphere and the effects that has the amount of pollution we have all over our planet.

Everywhere.

I try to make sure...my batteries—

I use batteries at work, my headlamps, whatever—

I try to make sure that they get disposed of properly.

And then I'll just watch people just toss them in the garbage

with no thought that a single battery can pollute a very large amount of water.

Water's a limited resource.

fresh water's a limited resource...

In Canada we're super lucky.

In Newfoundland we're extremely lucky—

we have a lot of water.

We've been blindly going through our water resources with no worry.

We have more but there's many parts of the world where they have none,

and they're losing it,

and I mean there's a really good chance that the next wars we see are gonna be fought over water.

Mike, Bill, Debra, and other interview participants, clearly name the theme of complicity experienced living in Atlantic Canada where water and land resources are often taken for granted, and where provinces partner with corporations to exploit oil, mineral, and water resources in ways that bring great harm to local and global systems. Media images of drought and conflict over land and water resources near and abroad are particularly difficult to parse for people who are employed by the energy sector and who have to live with a deep sense of

incongruity – we are all beneficiaries of Big Oil and Water. Opting to look away from media “because it hurts to follow it too closely,” is a management strategy and way to retain agency in small ways while holding an awareness of growing global conflicts around water resources.

The theme of loss and fear of future loss is dominant for Mike and others with knowledge of what is happening to our planet. People sense the profound incongruity of loss and threat as glaciers and corrals disappear, as microplastics accumulate in rising oceans and in the food chain, and as stories are shared of water shortage, drought, and impending resource wars. In the tensions, people find ways to manage the arousal of primitive self-protective reflexes, sometimes through disavowal, sometimes with addiction, but also through small acts of resistance such as disposing of batteries carefully, refusing the use of plastic bags, planting bee balm, conserving energy. Small actions are nested in a complex web of relationship, incongruous feelings and knowledge.

3.6.2 Social media; becoming part of a voice

Online engagement is now a major part of the social sphere and the experience of “becoming part of a growing voice” is one of the features of social media engagement around climate change. Brian, the eldest person in my interview sample, is in his seventies. He is a white settler cisgender artist from St. John’s living in the Halifax area. As an actor, writer, and professional contributor to media content, Brian has no problem articulating his strong opinions about engaging with media and social action.

Brian: Thank God in a way for social media.

There's no great impact that each one of us can have. There's nothing that any one of us does that's going to change everything.

But if we become part of a voice...

If we can lend, if we can add our voice to the growing voice, the same voice,
then we can mitigate some of the terrible decisions and some of the willful blindness
that exists out there.

Brian suggests that our relationship to media is complex, and that we are not only passive consumers of information, but participants in the construction of knowledge. In the case of climate change, our participation in social media is also the construction of threat and has the potential to increase of stress and anxiety (Weissbecker, 2011). I asked Brian if this understanding of social media brought Brian hope, and he quickly set me straight.

Brian: Hope is not the end. It's hope for action.

What really matters is the action itself.

Hoping that something will happen is...is

good and you have to keep striving toward, encouraging something to happen

and I guess you have to put hope aside in a way

and you have to be determined.

You're not hoping to get to that end,

you're determined to get to that end.

There's nothing to do with hope— it has to do with determination.

To say you hope somebody's going to change their mind,

that's not good enough.

You have to actively get that person to change their life.

You can't hope they will do it, you have to insist they will do it.

You have to insist that politicians will pay attention to what's going on globally.

You have to insist that that's gonna happen.

You could say “well I told him, I really hope he listens to me”

NO, NO! Shout loud enough that he can't possibly not hear you...

which is what social media, I think, is.

That's why I think it doesn't give me hope

It, well great then the voices can be a bit louder now

you know?

[]let's make this a louder megaphone we're

not gonna hope that they're gonna listen,

we're gonna insist that they have no choice but to listen.

Unlike Bill, in this moment Brian is neither frozen nor overwhelmed. He is engaged creatively and socially, writing, acting and living a rich, vital existence. Brian is a passionate person and thrives with a high level of sympathetic arousal. During parts of our interview, Brian's face reminded me of a fox. He embodied a remarkable aliveness, sometimes snarling and gnashing, especially in relation to disaster capitalists— people and corporations who exploit others in the face of climate change for their own benefit. This demonstration of embodied agency is connected to what Peter Levine (2010) calls healthy aggression, and it co-exists with Brian's values for non-violence. Brian's access to this type of embodied agency also exists in the context of his privilege as a white, cisgender man. Two of the three older men in my sample shared a

sense of assertiveness, agency and engaged action when it comes to experiences of climate change.

Not everyone has access to a capacity to deal with the threat of climate change knowledge or to take assertive action. For other participants, access to higher sympathetic arousal was sometimes thwarted by an adaptive nervous system response – a response to social distress. Trauma history, cumulative stress, and relationship to privilege and oppression contribute to these dynamics. Whatever the reasons, when the sympathetic nervous system fails to provide a sense of safety, bodies become frozen into complacency– a state that makes them unavailable to listen and respond. When a person’s nervous system is on the verge of being overwhelmed (intense sympathetic arousal) or has slipped past overwhelm into shut down (dorsal vagal dominance) a louder megaphone and more aggressive messaging is less likely to be heard, instead contributing to the existing, numbing ambience.

Brian speaks about the importance of knowing your limits in engaging in media technology and staying connected through the senses to the natural world– two critical self-regulating behavioural strategies and themes named by all participants.

Brian: You put the fucking phone down.

Turn the computer off.

Go outside and take a few breaths.

Look at a flower -don't pick it just look at it.

Try to figure out, you know, what color it is.

Talk about it.

The more you do that, the more connected you will be and the better your brain becomes. The more... the better you are problem solving.

Using your thumbs on a device does not solve a problem.

That will never solve the problem.

It will communicate, then something,

most of that communication is never gonna solve a problem.

You can teach yourself that

you can teach yourself how a computer works,

but only if you do something else.

You have to have another kind of information

and all of this is information all of it is information. [*gestures around at the garden, the sky*]

Brian knows something about how our brains and nervous systems work better when we are interacting directly with our natural environments, and not only with technology and media. He is passionate that we are part of our environments, and angry that people don't get it. He also ties human and corporate greed together with ongoing destruction and a destructive trajectory out of control – a sub-theme of frustration/anger with corrupt corporate-government entanglements emerged across several interviews. (In Chapter 4 I explore experiences of anger, hand ow they are embodied.)

3.6.3 Social Media, Pseudo Community and generation gap(s)

Swimming in the tensions between direct experiences of connection in changing local ecosystems, and mediated images and knowledge of environmental degradation and destruction requires navigating fragmentation, contingency and complexity. For the four youth I interviewed, and some of the older interviewees, participation in online (pseudo) communities is a major part of life. Sitting together in our rooms, standing or in chairs, we scroll on phones and screens. To do so without drowning requires strategies.

Amber, 27, living in Halifax, spoke about her experience dealing with filtering her climate change media exposure and her awareness of how behaviour around social media consumption influences her sense of agency.

Amber: I respond more emotionally and physically to visual media than audio media.

Because things are so bad I listen to the radio a lot.

That's how I take it in every day without bogging myself down.

But then other things come to me through things like Facebook.

I probably check in once a day.

And that's where I sort of see the more image-based things.

Like my partner, he clicks on the links and reads these things.

When I told him I was doing this he sent me, like four articles.

He gets quite deep into it and I think he holds it in a way that can be negative and might accumulate a little bit.

And I don't want to jeopardize my agency...

but at the same time I feel like I should be more aware
and I should be, you know,
consuming these things more.

But I want to have productive days and
think about how I can actually make something happen,
as opposed to just internalizing something that is...is
that bogs you down or is difficult to move forward with (gestures).

While Amber speaks of getting bogged down, Maggie speaks about a “crushing sense of impending doom.” The heaviness of the ambience of climate change threat is palpable, changing the body’s relationship to gravity as we reach towards our phones.

Maggie: myself and my partner spend a lot of time looking at Twitter on our phones simultaneously, and see the main stories and talk about them together.

So you know obviously... the other night I was reading something about the um
you know various climate change...

the Paris Accord and things like that,

that the Trump administration is just getting rid of systematically.

And it seems so unsurprising,

but still, yeah, that crushing sense of impending doom

seems way more real than it did

before that, right?

Maggie's interview was not the only one in which the Trump administration came up in relation to climate change, and in relation to feelings of collapsing under the heaviness. Callum, the youngest participant, Brian, the eldest, and everyone in between named how corporate interests are in conflict with eco-justice, and how social media— designed by corporations— though increasing the agency of some people and communities, functions as an anaesthetic to many.

Callum: well I think social media is a...
 can be a useful tool, umm
 but I think that we have to keep in mind that it wasn't necessarily designed for us.
 That it was designed with the interests of large corporations in mind.
 Umm, and so we've turned it into a useful tool, you know,
 to spread messages about actions near us or events in the world.
 But I think that umm,
 social media addiction is a real problem...
 and I think that it can numb us,
 because if your brain receives all that information at once...
 umm it sort of desensitizes you to the information or the content.

Lorna, 58, a white settler, cisgender family physician with a mental health and addictions practice, living near the Bay of Fundy, finds that engaging in small local actions makes most sense to her. She connects with like-minded friends through social media, and feels positive when she participates in community actions that connect through small-scale, local print media.

Lorna: I find for me what works best is a little piece at a time-
 a little manageable piece.

So there's that community connection, and talking with some other friends who don't live close by but who have similar concerns, and then getting further info from them about this, umm red squirrel conservancy you know.

Sort of other groups of people who are looking at, umm, land management and woodlot management that's sustainable.

So that was really good, so getting some more things together to realize that I don't have to do it all myself.

Yeah and that these other organizations that are, umm concerned and are banding together and uniting in their voice so that sort of feels good too.

Lorna sometimes feels overwhelmed by the urgency of local, “on-the-ground” challenges but when she engages, in small ways, with concrete community actions, this “sort of feels good.” The connection she feels in engaging with her neighbours, towards actions to protect local ecosystems and demand sustainable practices from community stakeholders, also help her feel less overwhelmed. She doesn't have to carry the burden alone. As she shares, Lorna is able to tune in to her body and name two competing impulses present in her nervous system. She spoke to me about a community action to stop clear-cutting in a nearby forest.

Lorna: well I think there's two pieces.

One is there's...

I'm aware of you know fear around “is this gonna go ahead?” [*a specific forest is in danger of being destroyed*]

but also there is- let me just check [*she focuses on sensations, attuning to her body experience*]

a sense of urgency I think is there [*she notices a threat response that she feels as an sensation in her chest, gesturing around her sternum*]

and also a feeling of inertia within me in a way [*this is a pull towards freeze*]

cause I feel like... you know what can I do?

you know?

What can she do? Lorna feels a sense of urgency, and though she is not in a leadership role like Maggie and David, she can write letters and show up at local meetings with her municipal and provincial representatives. Lorna, in her late fifties, has chosen not to be involved in Facebook, Twitter, or Instagram, because these streams of information seem distracting and overwhelming to her, and don't contribute to her sense of agency. However, Lorna signs AVAAZ petitions that she receives by email. These actions are easy to take, and some are not all that removed from her local experience.

Lorna: So I think the last one I remember was around this umm...

the marine conservation area in the Gulf of St. Lawrence, and around Newfoundland and the Strait, umm, for marine mammals, and...

what was our opinion around allowing oil exploration to go on in that conservation area.

Umm so I remember that piece.

So with that particular piece I thought, oh great, wouldn't that be wonderful

to have this conservation area?

And how ridiculous to think that oil exploration could happen

in an area that was supposed to be for marine conservation.

Why is there even a question about it? right?

In Atlantic Canada, many people have questions when media reports on oil exploration in conservation areas, or when there are reports of oil spills or of the decimation of marine mammals and fish stocks. Lorna values conservation and can't reconcile the existence of oil exploration in a marine conservation area while holding the tension of complicity in her thoughts and in her nervous system. We are all beneficiaries of Big Oil. Oil exploration has been linked to prosperity and our dependence on fossil fuels is not over yet. I asked Mike, who is employed by oil companies, whose interests are sometimes in conflict with the protection of marine ecosystems, how he manages knowing what he knows.

Mike: umm I try to like, on a personal level,

I try to be what I consider to be a reasonable person

in terms of how much waste I create,

umm how much impact do I personally have on the environment.

Obviously I have a lot, cause I go on planes a lot

and if you look at, I dunno, carbon credits and that kind of thing

umm... I try to be a decent person.

I pick up garbage off my beach regularly.

[...] It's not a lot

but it's a little bit, tryin' to organize cleaning up areas around me.

And what I do to make myself feel better-

go surfing, get out in the water...

being on the water surfing.

You know you're sitting you're bobbing around in the ocean,

you're connected to the power of the ocean,

you're lookin', you're just off the beach

where you're spending time when you're not in the water.

It gives you a pretty close view and relationship to that on a primeval level.

You're surfing, you're trying to harness the power of the wave that comes through

well not harness, you're trying to get on it and appreciate it

and you can't bend it

it bends you.

Mike intentionally shifts his language away from “harnessing the power of the wave” to appreciating and feeling this power and knowing that “you can’t bend it, it bends you.” Mike’s experience of his unfolding in relation to the awesome power of the ocean is healing for him. His experience of a sense of being part of nature nourishes his capacity to manage the tensions and losses he witnesses working in the oil field. Mike’s shift in language may seem like a small and insignificant action from an oil industry worker who is aware of being “part of the problem.” However, this transformation of the language of mining and harnessing into relational, embodied becoming (bending) marks a significant shift in awareness for Mike.

However, this hopeful shift in language and experience is part of a conundrum raised by climate change. As a white settler scholar analyzing this interview with a white settler oil industry professional, I find myself parsing tensions of privilege and complicity in the destruction of Earth systems. Mike, and many others in the region, are able to arrive at a more relational language and access experiences of being and becoming with water, sky, and forest without significantly changing our behaviours that continue pollute and add significantly to carbon emissions.

Shifting to an expanded, non-anthropocentric relationality feels urgent for white settlers of the Global North whose privilege and location, so far, has mostly protected us from the direct impacts of climate change. Along with this growing urgency there is awareness of the tangle of connections between climate change and colonization (Cunsolo, 2017; Simpson, 2005, 2014; Simpson & Smith 2014). Part of the challenge to white settler nervous systems is to sit with a contradiction – our privilege, and the economic and social systems we participate in to sustain that privilege, provide a sense of safety and access to experiences of connection in the natural world, while simultaneously destroying Earth systems. Awareness of the need to protect more-than-human kin, and Earth's systems has *always* been the foundation of Indigenous Knowledge, and becoming aware means facing how bearers of that knowledge have and continue to be undermined (Braun, 2017; Million, 2008; Nadeau & Young, 2006; Reyes, 2018; Simpson, 2005, 2014; Simpson & Smith 2014; Todd, 2014). The inability to navigate these contradictions, coupled with the intensity of the survival impulses at play in the body, can lead to nervous systems being overwhelmed and frozen.

3.7 Managing tensions in an ambience of threat

In this chapter I named the meta-theme of an ambience of loss and threat in relation to mediated climate change characterized by interview participants as “that feeling that shadows us sometimes,” as a “sense of heaviness,” “a crushing sense of impending doom,” or as “the cloud.” In the context of this pervasive ambience, some people shared about being scared and frozen, experiencing hypo-arousal, depressed feelings, and a sense of hopelessness. Levine (2010) writes, “the response to threat involves an initial mobilization to fight or flee. It is only when that response fails that it “defaults” to one’s freezing or being ‘scared stiff’ or collapsing helplessly” (85).

Influenced by dominant, phylogenetically early neurological reflexes that manifest as freeze and collapse, we try to *think* our way out, but cannot (Porges, 2009, 2011). This is the frozen place of playing dead, where the dazed and distracted dream of battle or of running away, while aching hearts, wired and tired muscles, and oppressive fatigue keep bodies disorganized and in a perpetual state of “I can’t.”

A seductive numbness feels like comfort, and is often preferable to feelings of unsettledness and hyper-arousal, though the theme of hyper-arousal and experiences of anxiousness were also reported across interviews by Sally, Maggie, Bill, Amber, and others. In order not to feel anxious and overwhelmed – as described by Mike and Bill –bodies will find ways of numbing through compulsive and addictive behaviours, some related to media consumption. Sometimes, when we are overwhelmed, as described by Bill the knowledge and practices, including practices of moving our bodies, that might prevent us from slipping deeper into shut down are elusive. This describes a state of dorsal vagal dominance (Levine, 2010; Porges 2011) where bodies don’t have a lot of behavioural flexibility.

3.8 Performing Frozenness – *Freezing in the Tension*

The performance, *Freezing in the tension*, along with other performances and artistic process, has been an integral way of knowing in this project. *Freezing in the tension* explores connections between and across interviews, and connects themes of living with and freezing in tensions and complicities, exploring painful feelings, and destabilizations of identity that are part of staying with the trouble of climate change. Through movement, sound, light, video, and the process and performance of this work, I embody the tensions present in navigating economic and social privilege, and experiences of climate change as a threat to an embodied colonial identity.

To conclude this chapter, I include the following video link to a digital ghost capturing layers of an embodied, durational, relational process. The performance – a sharing of and reflecting on research in process – happened at the Space on Harbour Drive, St. John’s, Newfoundland, on March 2, 2018. The evening was a shared program hosted by Performative Inquiry Group (PIG), featuring the work of Andrea Cooper, Lois Brown, Sarah Joy Stoker and myself. The performance – *Freezing in the tension* – integrates critical autoethnography, interview analysis, somatic practice, and dance. [Video link: <https://vimeo.com/266527587> password Clarke]

In somatic work we often use the term “settling” to denote a shift from hyper-arousal towards more relaxed awareness, but in the context of interrogating white settler identity, the word represents a conundrum. Who has access to feeling settled or safe enough to really be available to flourish? Integrating gestures that emerged in interviews with Callum, Brian, Sally, and Debra, in this work I explored the resonance between and across participants, and with my own experience as artist-researcher.

I worked at the Dance Space at MMAP (Centre for Music Media and Place). Some days I would lie on the floor, listening to and being moved by the recordings of interview voices. I worked with somatic practices, akin to Behnke's (1988) classic description of *matching*, entering into a deepening sensory awareness, with no agenda, and following the tissue as it shifts into shapes, directions, and movement, in response to sounds, and orienting to interior and exterior environments. I also moved, with an awareness of primitive reflexes and developmental movement (Cohen, Nelson, & Smith, 2012; Kain & Terrell, 2018), and Somatic Experiencing strategies to support my wired, tired, and frozen body, in improvisations on frozenness, and in ways that would permit me to move *through* frozenness to a (hopefully) more comfortable state with less tension and more awareness.

I lay on the floor, listening to a recording of Debra's voice and her description of the black soot left on glaciers – deposits of carbon from the atmosphere – and how even in remote parts of our planet, Anthropos has left traces and deeper scars. Brian's voice reflected on the ways humans always leave their mark on our world, and how no two footprints are exactly the same.

Reflecting on footprints and movements of four-leggeds that inhabit me and the land where I live, and exploring primitive reflexes, I integrated four-legged movement and defensive orienting into a section of the work. This practice of listening, resonance, reflection, sensing, and movement is more than a source of the gestural material for *Freezing in the tension*, it is a pathway of emergent knowledge – a process that leans on and into the following principles of improvisation and touchstones of somatic artist-researcher practice¹⁶:

¹⁶ I am indebted to many teachers, colleagues, and several lineages in somatics and improvisation traditions, towards the articulation of this set of principles. Among these are Ian Grand, Lois Brown, Pauline Oliveros, Don Wherry, Kathy Ferri, Lisle Ellis, Christopher Cauley, John Heward, Elizabeth Langley, Malcolm Goldstein, Simone Forti, Lois Brown, Judyth Weaver, Tina Stromsted, Lee Saunders, Bonnie Bainbridge-Cohen, Emily Conrad, Don Hanlon Johnson, Peter Levine, Berns Galloway, and Sage Hayes.

- Cultivate deep listening with the whole organism;
- Practice returning to sensation (again and again);
- One eye/ear in, another out – interoception and exteroception;
- Cultivate trust/risk being transformed by another/by the environment/by the practice;
- Embrace not knowing as the potential of the emergent unknown;
- Challenge fear through curiosity;
- Remember that the nervous body is always (co)regulating (sometimes co-dysregulating);
- Fragmentation and failure are inevitable and seen as productive (Ahmed, 2007; Brown, 2000; Spry, 2011).

Other gestures that are visible in the work come directly from observation of movement and posture in interviews. For example, Sally introduced specific embodiments of her *interoception* of threat – internal sensations such as tensions and movement in the gut, bracing in the arms and torso, and the freeze/collapse response to feeling overwhelmed. Callum, who names “mourning our colonial attitudes” also made direct gestures of “pushing away to the side” and referred to his interoception of things “in my gut.” Exploring and inhabiting the gestures and resonance of the intercorporeal space of the interviews cultivates more-than-cognitive practices, and emergence of knowledge through movement and performance. This is an example of the somatically grounded ways of knowing cultivated by somatic artist-researcher practice.

My sound design includes field recordings of winter ambience, processed bells, loops of walking in snow, and voices from interview participants.¹⁷ During several weeks leading up to this performance, moving my body was limited by the painful restriction of a frozen shoulder – the embodiment of my grief and frozenness while listening to the voices of interviewees, for emerging knowledge around climate change experience. Of course my shoulder was frozen! I had entered into the frozen territory of grief, loss, and my own privileged, stuck, complicit body. Following the creative impulse, I enlisted help to make a video of my vulnerable, naked body leaving footprints in the snow. This was part of an exploration of walking in winter at night when it is more possible to see the tracks of other creatures in the snow, while also tracking sensations of threat response, sympathetic activation, frozenness, and settling.

In introducing the performance on March 2, I shared another experience of fragmentation concerning my evening meal. My partner had picked up some lamb shank – a mass produced, marinated lamb product that was packaged in an impossible amount of plastic. I was painfully aware of our participation in the over-the-top consumption of fossil fuels that had gone into the production, packaging, and shipping of a product that we thoroughly enjoyed. I shared this experience with the audience as I digested the meal in my gut, and navigated complicity in my heart (and nervous system). It turned out to be funny and was a way to connect with my audience in humour, inviting their trust through sharing part of my personal story.

Following the introduction, I read an excerpt from Chapter 3, a reflection on polyvagal theory and the three possible systems through which we respond to threat in our environment (Porges, 2009). Then the performance moves into an exploration of orienting in movement. Orienting is a

¹⁷ These voices are included with full permission from participants whose voices are included, and with approval from the Interdisciplinary Committee on Ethics in Human Research (ICEHR) who found my project to be in compliance with Memorial University's ethics policy.

practice of being present and tracking sensation. During the process of making a performance, tracking sensation is the basis of my movement practice, and sensation is always already in relation to movement, image, affect, and meaning. In performance, while practicing orienting, eyes are seeing the environment, ears are hearing. Proprioception is on as the body moves, interoception informs gesture and knowing towards choreographic decision-making. I am aware of the other bodies in the performance space, who generously participate in the emergence of knowledge in the intercorporeal space, co-regulating with me. Sometimes I am able to succeed in connecting with audience in this practice. Sometimes I freeze in the tension. When I do, I try to remember the principles of somatic artist-researcher practice, and the lineage of practitioners in somatics and improvisation to which I have come to belong.

4 Flourishing in the tension



Brain returns to woods
Mixed media overgrown with moss, LC, photo Dec 2016

4.1 Ravens in Spring- autoethnography

Living on the Eastern edge of the North Atlantic I live in the boreal forest among balsam fir, alder, dogberry, chuckley pear, choke cherry, mountain holly and spruce. This past few seasons, many fir trees near my house have been sheared off or tipped up by increasingly frequent and powerful winds. When the winds are high at night I haul myself and my blanket to the sofa, head resting away from the windows in case of airborne debris. In the morning, when the winds have lessened, trees in various stages of their life cycle give me tasks to do; limbing and moving tree branches and “managing” the forest around my house. I notice my compulsion to impose an aesthetic order on certain areas, exposing rocks and trees, tidying leaves, exposing certain rocks and thinning the fir to make more light for birch saplings. My relationships with trees are great sources of comfort, movement, shelter, beauty, and heat. I wander among them. I lean on them and lie in their roots. I cut and gather branches from the fallen, and carry and heave and push, the impulses in my grieving body moving through gut, arms, hands, legs, jaw and voice.

So-called bipolar depression is rampant in my paternal lineage though nobody talks about it. One of my paternal grandmother’s sisters was hospitalized several times and underwent god-knows what kinds of assaults at the hands of a particular era’s psychiatric establishment. Other family members have never been officially diagnosed. I grew up dogpaddling through the choppy waters of unpredictable highs and lows, developing adaptations that live in my body as chronic tensions, influencing breath and posture. I too have experienced dark periods since adolescence

but managed pretty well by throwing myself, passionately, into artistic pursuits and loves. It is only in retrospect that I can name art – music, dance, somatics, and practices of improvisation – and being connected in the natural world, as my medicines.

I remember one Christmas day when I was about 14, fleeing the family living room for the woods at the end of our street where I found companionship among ravens, crying out and weeping at the incongruity of my privilege as a middle class consumer,, and the suffering of people and creatures all around me in the world. Raging, making sounds and breathing in a grove of trees, with corvids, made it possible to feel more grounded and connected to myself, and to return to my family with the possibility of being and becoming with others.

In recent years, anticipatory loss takes up a lot of space in my psyche. In relation to losses of climate change, Dodds (2013) writes “we may engage in a premature anticipatory mourning falling into a despair preventing the very action which might avoid the feared loss, while there is still time” (4). I’m not sure about this analysis and wonder, who decides what is premature?

Grief does not follow a schedule, nor ultimately lead to an abyss of despair. Engaging in active grieving in a titrated way– a little at a time, in accordance with what the system can handle – supports neuro physiological impulses to self-protect in the face of loss. Avoiding the feared loss, and especially avoiding the felt sense of dread in the gut (the perception of a neurophysiological response) is leaving an unresolved or incomplete sympathetic arousal locked in a pattern of recapitulation.

Anticipatory loss is always present as my body/organism orients to the unpredictability and wildness of winds, to narratives of lost species and habitat near and far, and to losses of beloved people with whom I share my lifeworld. When recently going through a particularly sticky period of depression, a close friend said “you comes by it honestly.” This loaded expression may

be intended to provide comfort, but it warrants critical unpacking. It suggests that someone with intergenerational mental illness or trauma is different than someone having arrived at their suffering solely by making poor choices, and who can be blamed for their failures. It somehow infers that one gets to choose the type of organism s/he becomes through birth, family, school, and the loss and injury of gender oppression and racialization. We become who we need to become to survive.

I look out the window. It is March and the way the snow spirals downwards through the air, mesmerizes, forcing me to break from my thoughts. I wonder from one moment to the next if it will accumulate or melt as it touches down; the direction of the winds and of the waves, barometric pressure, and temperature, can all change on a dime. On a warm, sunny and otherwise calm day in March with little wind, the sea can be as big as during the most violent of winter storms. The Ravens living here, whose blood courses with Spring hormones once again, mob a bald eagle yearling. They are clear that this is their place, intermittently dancing and playing on air currents, even on days when everything human made is shaken and tossed about by the powerful onshore winds.

Being here with the Ravens makes a lot of things more okay for me in my grieving body. The Raven pair have lived here longer than I and have established their nesting territory with the nest in the cliff face near the house. The first time I found their nest it was by following the sounds of four hungry nestlings and the comings and goings of parents to a built-up opening in the cliff below.

I huddle on the cliff, sometimes with my mug of hot tea, sometimes with binoculars. One day I saw a flash of red and fuschia and recognized the breeding plumage of a purple finch who had become a meal for the raven chicks. P. Finch, a little bird that I love and enjoy watching, had likely been an easy target for the Ravens who sometimes hunt near the feeder.

Caring for and feeding the young ravens is a full-time job for the mated pair, but not for long. Once the young have fledged, they stay nearby in the territory for several weeks, first being brought fish, small rodents and birds, by parents and then learning the hunt with siblings. I have the privilege and honour of living in Raven's territory while in 5-7 weeks the young ravens will be independent and will be chased off to find their own place.

4.2 Freeze and thaw

It is through bodies and senses that we connect to the land, to Earth environments and co-inhabitants. As described in Chapter 3– Freezing in the Tension– many people are experiencing freeze and a kind of dissociation that comes with the difficult knowledge of climate change. There is a pervasive ambience of threat that is the context for all of life's other challenges pulling nervous systems into self-protective responses to experiences of overwhelm. Overwhelmed bodies become disconnected from our sources of creativity and connection, losing resilience and behavioural flexibility.

The tendency to become frozen when overwhelmed by the threat of climate change can be understood using the framework of polyvagal theory: when experiencing freeze/immobility, the phylogenetically older dorsal vagal complex of the parasympathetic nervous system is dominant (Porges, 2010). This means that the two, more advanced systems of self-protection – sympathetic (fight and flight), and the social engagement system – are not as available, and there is a narrowed window of tolerance for sympathetic arousal of all kinds, and disconnection from our life force (Levine, 2010; Porges, 2009, 2011). Constantly feeling threatened challenges the capacity to establish and maintain connections with others, to be curious, creative and connected. Flourishing – the resilient capacity for a wide range of response in the face of threat – is related

to a flexible autonomic nervous system. To flourish requires refuge – safe enough spaces where bodies can stay present with a range of challenges, orienting and responding appropriately to threat, through social engagement, fight and flight and freeze/immobility when it is adaptive. Perception of safety, real connections to other (friendly enough) bodies, the comfort of two and four-legged companionship, and being present in real and safe-enough places all support flourishing as the body rhythms of two and four-leggeds entrain together, supporting greater coherence in each other (Levine, 2010).

This chapter looks at accounts, shared by interview participants, of ways they manage living with knowledge of climate change without resorting to shutting down amidst the onslaught of information during what is now characterized as Earth’s sixth mass extinction event (Ceballos, Ehrlich, & Dirzo, 2017). The themes in this chapter relate to ways of cultivating coherence – ways of flourishing. These themes include:

- managing media streams of climate change information;
- directly connecting through senses in local natural environments;
- creative engagement and participating in cultural production of knowledge;
- mourning losses; and
- engaging anger in action.

In this chapter I also look at how participants worry for future generations, and how responding to climate change threat and loss is by no means rageless. Finally, using examples from interviews I look at the ways participants acknowledge, and embody the tensions between colonization and climate change.

4.3 And there is a place in the forest

And there is a place in the forest
 that has a mossy floor that I really love..
 that's a real grounding place,
 a beautiful place I love to be.

Lorna

You can't say "Oh I love pine trees"

Well is it the idea of pine trees, is it pine trees in a painting, it's a pine tree in the background and some movies and you think "well that's nice."

Well unless you actually, you know, are in the presence of the pine tree you have no idea. You really don't.

You're not really informed.

Brian

The importance of accessing experiences in natural environments, being "in-formed" by them, was named consistently throughout interviews with 14 participants. As illustrated by Maggie's need for daily walks on trails in St. John's, to Brian's relationship with the trees, plants, and bees in his Halifax garden, to Sally's summer swimming in the ocean near Lunenburg, in Atlantic Canada, many people have access to experiences of relationship in and as part of natural environments. Embodied identities in Atlantic Canada are based, at least partly, on a sense of connection in specific places. This is not generalizable for people living in Atlantic Canada, as

not all residents have access to, interest in, or time for being with plants, the ocean, lakes, trails, bogs, tundra and boreal forest. Flourishing requires safe-enough refuge and, in this region as in others, poverty and a confluence of oppressions and trauma histories mean that not everyone has the privilege of feeling safe enough. There are children living in urban areas in Atlantic Canada, for example, who have never been to the beach, the woods, or even downtown, but only to school and to the Mall. Increasingly, life in Atlantic Canada, like elsewhere, is lived virtually by way of cellphones and computers.

For the fourteen people who participated in my study, spending time in natural environments was named as the number one critical means of reconnecting to the community of life. This appeared to be true no matter where on a spectrum of climate change knowledge they were, from “yes maybe humans have something to do with climate change,” to “humans are the cause of rapid mass extinction and it is only a matter of time before we, too are gone.”

Lorna, (a pseudonym) a family physician with an addictions and mental health psychotherapy practice in rural Nova Scotia, describes how she “brings herself back” from a state of functional freeze, or state in which she is going through the motions with tasks and demands of life, but is not really engaged, nor flourishing.

Lorna: I've been realizing how sometimes I override, of course,

what's going on, because you still have to work.

And also how sometimes things impact me

and there's a level of shut down that happens,

and at the time you're functioning,

and I don't know it until I get back here... [*to the land*]

I need to kind of deactivate from that so it can be okay.

I just need to walk around the garden

and just be present to the outside.

uhhhmm and sometimes if...

It's actually interesting now that I'm actually thinking about it.

I didn't connect it–

if there's something really emotional it's usually the moss [*deeper, natural breath*]

If there's some big, umm emotional piece that I'm working with

It's usually the moss, for some reason, that calls to me.

LC: It's somehow absorbent it's got that kind of [*gestures with hands*]

yielding and absorbent feeling underneath you.

Lorna: That makes sense– like spongy...

able to hold it in some way, umm [*gestures with hands*]

It's neat how you know where you need to go.

Lorna has a strong sense of knowing where to go on the land, to feel supported and connected, to “just be present to the outside.” Her spiritual practice is of attending to body and land and her relationship with moss supports her emotionally. As she names these supportive connections, I notice that her breath deepens, and her relationship to gravity shifts – her body drops deeper into the chair and her chest opens, shoulders relaxing into a subtle, external rotation.

LC: Can you speak a little bit more about what happens when you're connecting to the land?

Lorna: hmm

You know I think it's sort of daily rituals when I'm here.

Walking the land when I can.

Barefoot, umm and using all my senses.

What I'm smelling, what I'm seeing, what I'm feeling.

And enjoying the beauty, seeing the beauty,

being appreciative.

Ummm, and I guess there's just different aspects.

Our more cultivated area and garden,

and maybe just having a walk around and enjoying it,

or noticing things that might need to be done— a bit of weeding.

And then it may be when I come back here [*the back field and grassy area where we are having our interview*] which is more solitary time

and more connected so, umm...

Sometimes the mind can be busy but a lot of it is just bringing my presence and mindfulness here,

and ahhh we have a big old red maple at the end there [*gestures towards distant maple*] and

—she looks kinda scraggy [*laughs*]—

but it was one of the only big trees that were left after the clear cut here.

LC: Okay

Lorna: that ummm

about 9-10 years ago...

I just see her seeding the land up here and I see, uh

some of her offspring.

So that's sort of like a spiritual place.

Lorna describes that it is being in her garden and being with moss, trees, and rocks that “brings her back.” “Knowing where to go” she identifies being present and “using all my senses” including an aesthetic sense of beauty, and also enjoying the ordinariness of noticing where a bit of weeding is needed and other tasks in the cultivated garden. Lorna has a relationship with the big old red maple, one of the last of the old growth forest that was there long before her. These relationships with moss and trees engage exteroception (sensing the environment through vision, hearing, touch, and olfaction), interoception (somatic sensing of the internal experience of the body, breath, gut and nervous system) and proprioception (the sense of where the body is in space).

4.3.1 Becoming With

Walking out onto the land at my house in Maddox Cove doesn't stop the banter of my mind right away. It's late June and I'm writing revisions. I've been sitting at the computer, except for a few breaks to stretch and to eat, since around 8:30 and it is now 2:09. I put on my coat to head out into the cold day, looking for support from the land, yearning to feel more connected. Breathing and listening. I hear squirrels, juncos, and the ravens who have been gone off for a few days

with fledglings. It is a very dry year and I have been a little worried, not seeing them for a while and knowing of a forest fire nearby.

I hear hikers calling to one another and the heavy equipment across the cove. I follow my feet towards the river along the path. My arms need to move and I reach out, mirroring branches, windmill arms, moving and stretching and getting blood flowing through upper extremities. My breath deepens. I allow my eyes to wander and find where they want to land— a Somatic Experiencing practice. Trees have patches of lichen and moss, blues, pinks and greens, grey and brown. My eyes and shoulders soften and as I walk and allow my body to sigh I begin to see more of the beauty around me. I remember the movement of minke whales diving and I move with this memory in my body.

I make some low voo sounds, another practice of Somatic Experiencing. Opening my jaw the “voo” becomes an “aah,” breath deepening again and I become aware of how I am holding tension in my left lower ribcage and around my kidneys/adrenals. Wandering just for a few minutes with no agenda, except to allow, to play and to move is just what I need to let go some of this holding. There is no prescription for doing this, except for listening with all senses, being curious and following the impulse to move. There are many ways of being here and the land, trees, plants and critters call me into presence in counterpoint with those thoughts and mediated images that can sometimes dominate. This is becoming with.

4.4 Goodness in the Bog

The privilege to access experiences in natural environments is shared by some people living in Atlantic Canada. Debra’s access to the land and to cultivating a nuanced relationship through

experience, contemplation, and study also requires the privileges of economic and social security that are more available to those with homes, cars, and pension plans. Debra reflects on what this access to being on the land means.

Debra: I would like to think that lots of people, given the chance to find the way that the natural world speaks to them and reaches them, would value it more.

I think it's about valuing.

And we value forests for pulp and fibre and board...

but I think I think that if you're in the forest,

and you have experiences of the other values of the forest

that that is more of a change agent than reading about the forest.

For Debra, the “values of the forest” are more than the value of what the forest has to offer humans. Delight feeds her, becoming in connection. Being in the forest feeds Debra's fortitude that is required as she considers her complicity in the destruction of ecosystems. Debra also parses reflections on climate change through the lens of a contemplative Christian theology.

Debra: If I could come at this from my theology side for just a minute

cause it's been helpful to me, that in the creation stories and the Christian scriptures, umm there's this sort of sequence to creation represented by days.

There's like an order in which stuff happens.

Each sort of bout of creating is punctuated by an editorial comment from God-

It was good.

And so each piece of it is good.

And then humans are created last, and God says it was very good.

So apparently we get a little bit of a, an uptick there, but...

But the thing that, you know, occurred to me,

and that I've been trying to pass on to my students

is that all the other sort of layers of creating—

the rocks, the sky, the waters, the plants, the animals—

that Scripture declares that all of them are good even before humans are created.

So there's an inherent goodness in all of these things.

[]

I got to go on a helicopter flight over Nova Scotia with the Nature Conservancy last year...

But my favourite one of all was,

was just a bog.

A giant bog in the middle of nowhere.

And when we got to that I was just so thrilled,

that the Nature Conservancy is setting aside a bog in the middle of nowhere.

It's of no use to anybody.

It's just about as inaccessible as you can get in this province but

its good.

LC: And it was good.

Debra: Yeah and it was good.

And you know it serves a function in the land.

The bog is good,

not because we can get peat or cranberries or go in and shoot hunt there but

you know there's a goodness in the bog.

LC: The goodness that you speak about, cause when you first were speaking I had a sense of, I guess, prayerfulness,

that I experienced in my own body...

Debra: yeaaaah

LC: which happens in a certain way when I kind of feel like I drop in and umm tttt

I guess feel like part of something, umm a communion.

Debra: yeah

LC: Umm and so the feeling of goodness... do you feel it in your body? and that connection to that bog?

Debra: yeah I, I do, I mean I know you're talking about mediated experiences

but I was in Labrador last Spring []

And I found that within walking distance of where I was staying

there was a coastline just covered with reindeer mosses and lichens and those fantastic springy plants that grow in northern exposed sea cliffs.

And great expanses of it and there were whales doing things offshore

and I couldn't see them because they were below the cliff.

But you could hear them [large, natural inhalation and exhalation].

And for me its umm,

the physicality of it is extremely important.

And so my best moments of it I think of the whole week or ten days in Labrador,

memories of lying down in that springy reindeer moss

and to be able to reach out and feel the different textures of it.

I think I took about twenty, umm [chuckles]

selfies basically

just trying, try to express, you know in some kind of picture

just the joy of umm...

That I would remember later, the context of this land

and the plants.

For me there's a very physical element

which is why it's a value to me to actually *physically* be in places.

And I don't hike fast.

I need to be able to just flop down on the reindeer moss

and just be there,

long enough to absorb something of what it's giving.

Cause I do feel that creation gives to us.

I know we want to care for it but I KNOW that the creation is also caring for us

in ways that we won't get, I don't think we can get unless we immerse and slow down.

Which, you know, just brings the tension back all over again.

Cause if it has to be exotic, then you're gonna damage by going, so my own personal movement now is to try and take deeper pleasure in local systems.

Debra's relationships to land, her notions of stewardship versus ownership and to each place and each creature being inherently good, are influenced by her theology. Each part of creation is good, not for what it has to offer by way of lumber, fruit or even beauty, but simply by its presence. Debra finds a theological position helpful, even though other Christian theological arguments have been made throughout history to establish the rule of *Anthropos* among creatures, leading to the destruction of habitats and extinction of species.¹⁸ Debra's trinitarian theology is concerned not with domination, but with participation. Debra's experience is of the connections between justice, body and communion with earth. Debra has an experience of her body and senses as a means of knowing creation.

Moltmann (2001) writes, that “[w]e acquire most of our experiences neither through our consciousness, nor through our reason, nor as the result of any deliberate intention. We perceive the happenings that affect us by way of our senses. They affect our bodies. They penetrate the unconscious levels of our psyche” (20). Paying attention to embodied, leaky, sensuous, more-

¹⁸ In the Presentation of Pope Francis' (2015) Encyclical “Laudato Si, Be praised: on the care of our common home” Eastern Orthodox Metropolitan John Zizioulas spoke of the ecological crisis as a spiritual problem in which rampant individualism and human greed have led to the rupture of the proper relationship with nature and others. Zizioulas spoke of the social dimension of ecology and stated that the ecological crisis goes hand in hand with the spread of social injustice. “Presentation of the Encyclical ‘Be Praised: On the Care of Our Common Home’ 2015.06.18 - YouTube,” accessed June 18, 2015, <https://www.youtube.com/watch?v=bYibHoWrKXo>.

than-cognitive layers upsets dominant dualisms of mind and body, and hierarchies of human, plant, and animal critters, inviting copresence and potential communion.

4.4.1 Being Part of Evolution

Brian, an artist raised in the white settler colony of Newfoundland, is an atheist. Like Debra, and other interview participants, Brian thinks not only about his own direct descendants, but also about evolutionary relations between humans and interconnected species of Earth.

Brian: The Earth grew to be what we experience today.

But what we're doing now...

That was all a process of growth and decay-very natural.

It was evolution.

The world would not be as we know it today,

and the materials of coal and oil would not be in the ground had that not happened.

It has benefitted us.

However, what's happening now in terms of global warming has no benefit for us at all.

There is no benefit.

And its umm it's important for us to know that.

One of the ways we CAN know that, one of the ways we can FEEL it is to remember what we see around us NOW.

Watch where we live, LOOK at where we live and recognize that we're a part of this.

Connecting to senses, looking, smelling, listening, here and now, in real contact with trees and sky feeds Brian's sense of being 'part of.' Like Debra, Maggie, Catherine, and others, Brian knows through experience that his nervous system works better when he is interacting directly with natural environments, and not only with technology and media. He is passionate that we are part of our environments, and angry that people don't get it. Brian's understanding, and interpretation of his connection experience is parsed through ideologies rooted in reading across scientific disciplines, including evolutionary theory and astrophysics, and knowledge gained through engaging with media—radio, video documentary, and internet media. However, it is Brian's experiences and practices in the garden, observing plants and critters and the changing of seasons, hands in the soil, that support him more directly as he parses knowledge of climate change.

There are many cultural frameworks and ideologies that support bodies in our mediated experiences of climate change, and through which people and nervous systems respond to the threat, fear, and loss. Debra looks for support for her experience in the science of conservation, as well as in Scripture. Tim, a psychotherapist and Buddhist meditation teacher, responds to mediated knowledge of climate change through the ancient Buddhist practice of Tonglen.

Tim: So Tonglen is sending and receiving
and it's simply just visualizing and feeling, in your heart,
the suffering of others and yourself – starting with yourself.

And drawing that in and recognizing that you have this vast storehouse
of wisdom and compassion that can, like I say,

can eat anything, can swallow...

so you come like this cosmic vacuum cleaner

and you suck in the psychic pain and suffering,

and breathe out love and healing and loving kindness

and a vision for a brighter world and a vision for happiness and harmony

between humanity and nature.

So actually, that's interesting,

cause it's something I've been wanting to do for ages

is put it on YouTube— a guided meditation

where I teach this practice of sending and receiving,

which is ancient Buddhist practice,

and do it with images of climate change,

and pollution, and people suffering

refugees etc.

And draw that in [*inhales and gestures*]

and then breathe out a vision, or an image of a better world.

That which is healing and that people loving each other and being connected,

and smiling and laughing and hugging.

And people in nature and in solitude,

and appreciating their senses and being connected

and so that kind of back and forth [*gestures with hands and arms*]

And somehow on a kind of psychic, meditative level

it's acknowledging that we can take responsibility,

and we can be part of the solution, or cure and healing.

And that we have set our intention on that

and you set your intention with every breath.

And so there's a lot of things going on there.

There's a fearlessness – a willingness to face whatever suffering is out there.

Like Bernie Glassman and Zen Peacekeepers, they call that bearing witness.

And a fearless ability to penetrate the unknown and penetrate the suffering.

He leads retreats in, you know Auschwitz.

Willingness to face catastrophe, and suffering, and pain

and not flinch or ignore it or turn away, but just acknowledge.

And then to see in it – I often say that in the illness is the cure –

that it's in true making a connection with the problem that the solution is found

because it just needs to be unwound.

It's like rope or fishing tackle that's gotten all tangled up.

it just needs the reverse process.

Contrasting with Debra, whose trinitarian Christian theology is concerned with relational dynamics, and original blessing, or the “goodness in the bog,” for Tim, a Buddhist, the sufferings and soul wounds of history are bound with all suffering, including the catastrophic destruction of Earth ecosystems and climate change. Tim’s Tonglen practice is one of body and breath, and though he is most interested in being present with other living beings, in the here and now, he also talks about sharing Tonglen through social media. In this way social media becomes a tool to share and to join with others in a practice of bearing witness. Media, for Tim, Lorna, Debra, and Brian, has to be a way to support solutions – responsible action – in the knotted complexity of pain and suffering, and not only a source of bad news.

4.4.2 Polar bears and community

In the context of this project, a Skype interview with an Indigenous scholar from Labrador broadened my thinking about the tensions between mediated and direct experiences of climate change and colonization. Kerri (a pseudonym) is a cisgender Inuk scholar. Kerri described her deep sense of connection to place – her home in Labrador– and how relationships with polar bears and the land are primary. Kerri feels grounded in this connection to the land and community which helps her to parse mediated experience.

Kerri: We have a very, very high number of Polar bears, and we always have.

But I have a very particular relationship with polar bears.

Very important animal to me,

for a number of reasons, actually–

some spiritual, and others... just a part of life.

But what I see- images, global warming and climate change images—

that average thing that you see- the polar bear on the ice pans...

and you know, these conversations.

I don't think they're on the endangered list yet,

but conversations around that.

It always captures a, you know

an emotive part of my sensibility.

And thinking around climate change,

that I think about the significance of their existence in my life

and their relationship with people in my community.

And I think about that in the context of

“oh my god what could happen to them”

like you know you see those...

yeah those images are really powerful.

It makes me think about how, in a global society

our actions and our societal action,

our community actions, have such large implications

for every part of the environment.

Not just humans but the animals and the land

and that we're all a part of shaping everyone's existence.

And I guess the polar bear I guess brings
a particular response and curiosity in me.

Kerri names “an emotive part” of herself – an experience of being moved– and a curiosity about relationships with polar bears. Being moved is an emotional and sensory experience. Curiosity is a manifestation of an embodied sense of agency that wonders. Kerri described to me her sense of connection to land, polar bear, and community. Kerri’s analysis of mediated knowledge contrasted with other interview participants, in that she is equally concerned with how media shapes agency for the polar bear, not just how it affects humans. Kerri’s further analysis also points out that the corporate perspectives often represented by global media, and corporate agendas at play are so far removed from body and land that they are irrelevant to her.

What was unique and clear in the interview with Kerri, was that she had a different understanding of and experience of agency in relation to climate change agendas than the white settler participants. For Kerri, agency is about community grounded in cultural knowledge and, most importantly, that community and agency always already include more-than human kin.

Kerri: So yeah I mean there's so much community knowledge, right?

I mean there's particular leaders in the community,
so when the polar bears come into the community they work to move the polar bear out,
and children are ... (laughs)... very aware.

And one thing you were aware growing up there –
you didn't have to worry about humans,
you just had to watch out when you're... (laughs)

Cause there's a lot of freedom of how to navigate and understand, you know,
what would happen if you came upon a polar bear,
or certain things like that.

I think it would change a big piece of our identity
if we didn't have polar bear.

It's a huge piece I think of who we are as a community[...]

I think a lot of the media images I sometimes see of a polar bear,
what kind of upsets me a little is when I see this over romanticization?
and so, it's kind of two fold, right?

It's like just seeing the potential of the endangered bear, ahhh
but then sometimes its portrayed, I think,
to the extent *so that the bear loses agency*.

And that it's a very like, I don't know...
this commercialized understanding of
of you know "ten things that one has to do"
to make sure that that bear, umm
doesn't go on an endangered list, you know?

It's ... I get that.

But it doesn't resonate with me cause, uh,

when I grew up we all lived together. (Laughs)

So the polar bears, us,

you know, caribou, all of, you know

there was this interrelationship.

So it's not just about individual actions.

It's like when I think about the media

I think about how it sorta trains you,

or trying to impress upon you that you have to do x y and z perhaps.

Or that there has to, you know, be this group set up

to protect endangered species.

Inside of those endangered species [there are] relationships

with particular communities and environments,

and perhaps their natural environments.

For Kerri, media representations of the polar bear appeal to an individualistic sense of self and are tied to a colonial understanding of land, and its inhabitants. These images of a polar bear have little relationship to real polar bears. Kerri said these internet images of the polar bear as an icon don't affect her so much, and don't cause her to feel overwhelmed. These images are irrelevant, disconnected, and stem from a settler colonialism that erases Indigeneity.

Kerri: and what gets lost for me in that

is, is the relationship and interdependency and codependency

that some people have in, are invested in.

And that is sort of monopolized by more privileged, commercialized agendas in the pursuit of, you know “let’s protect the earth.”

It makes me think about some things that I haven't thought about actually...

Because I’ve been trying to understand why I'm not on this

HUGE global climate change bandwagon.

I mean I consider myself to be an environmentally conscious person,

and I umm you know, I’m opposed to development.

I’m all about living in respect and balance.

But I don't see myself as part of a national or global

climate change agenda, and I think because

in that agenda, people and relationships between people and animals are removed.

We see it with the seal right?

LC: ya

Kerri: The seal hunt has become so controversial

and it’s alienating Inuit and other Indigenous people, from their relationships.

And I would be one of those people.

Seals are very, very important.

Part of my history and community today and ...

So when I hear all of these conversations about what is it PETA?

the horrors of the seal hunt...

It's just so far removed from a realistic understanding
and about how some people live and exist in balance and subsist, still
with their environment.

It's an alien concept I guess.[...]

So when there's this national story or global agenda

around the seal hunt, for example

and how this is illegal, how they shouldn't be doing this...

they're stigmatizing people that are feeding and clothing themselves in seal

and have a relationship that's beyond going to hunt this for something to eat,

but is essentially part of a way you live.

It's such a distraction.

So yeah I think that's more of what I see.

Those media images don't really evoke much from me,

cause I feel so alienated from the discussion, the global discussion,

that I have fundamentally so many conflicting values and principles around it.

That's why polar bear images strike me a bit more,

because of my personal connection with that particular animal.

Yeah this global, global strategies of saving the earth and humans and animals-

that confounds me.

I don't really support those.

I don't support an initiative or acts like that in such a context.

I think there's more grounded and meaningful ways of having a discussion engaging people.

LC: engaging people rather than umm
amplifying and spreading fear...

Kerri: yeah, fear mongering.

Kerri's perspective is grounded in Inuk knowledge and community and real relations with the land and more-than humans that are together, with a history, a present relationship and a future. Media images mostly don't include representations of her home, and certainly don't reflect the interests of her community.

Kerri: I understand that there are other interests at play
with these types of media, and images are uh
are shown and disseminated.

It's actually one of those things that has perplexed me a little bit,
these past couple of years with my daughter, where she just thinks that I don't care.

Or she thinks there's something wrong with me,
so I've kind of reflected on that to myself a little bit,
thinking, so am I really that disconnected that I don't really care?

And that's why these conversations are not bothering me?

I think it's the opposite.

I think particularly in Labrador, with the exception of some development going on and particularly in my community,

we still remain alienated from the implications of all this conversation anyway.

And so, still largely and fairly untouched environment

in the community where I'm from,

people still largely subsist on the land to have food in their freezer.

And those relationships— I mean they've altered some of course—

they still look similar to how I grew up.

I think until I start seeing some dramatic changes that impact me—

maybe this is where the “direct” comes into play— [direct vs indirect]

I don't really feel overwhelmed by these conversations.

And I also get to see that various levels of government,

whether that be Indigenous governments or not,

umm...Indigenous governments in particular are having opportunities

to impact and mitigate upon some of these things.

So as I see those things happening as well,

it sort of consoles you a little bit, right?

It'll be like okay, we'll be, our communities will be a part of the monitoring.

We'll be part of the mitigating, and all those things.

So I think in some ways umm

we're still largely untouched.

[]

I think I would be overwhelmed if

people in my community started slaughtering polar bears,

or if there was such a drastic change in the ice conditions

that they no longer came to the region at all, that would...

That would be really overwhelming.

But again when I think about the fact that I operate from such a grounded,

or try to operate from such a grounded context.

I'm not really overwhelmed by all of these larger global narratives.

They just have no place in my life.

Kerri's experience of media images being so far removed from her life is an example of the erasure of Indigenous experiences and ways of knowing by and from settler colonial media and culture. Thankfully, there has been a persistence of Indigenous ways of knowing, and resilience supported by a lineage of Indigenous authors of foundational theories about human relations with the Earth. Arvin, Tuck and Morrill (2013) write that "[w]ithin Indigenous contexts land is not property, as in settler colonialism, but rather land is knowing and knowledge" (21). Simpson (2014) writes about how Indigenous knowing and knowledge is grounded in the land and how this knowledge comes from land and body. She names how:

“theory” is generated and regenerated continually through embodied practice and within each family, community and generation of people. “Theory” isn't just an intellectual pursuit – it is woven within kinetics, spiritual presence and emotion, it is contextual and relational. It is intimate and personal, with individuals themselves holding the responsibilities for finding and generating meaning within their own lives. (7)

In my interview with Kerri, she spoke to the tension between embodied Indigenous ways of knowing through relationship with the land, and the colonizing discourse of media that erases human and more-than-human kin living on that land. Kerri’s words resonate with Todd (2014), along with Indigenous scholars that have come before them, imploring scholars “to acknowledge Indigenous relationships to “other-than-humans” as concrete sites of political and legal exchange that can inform a narrative that de-anthropocentrizes current Indigenous-State discourses” (222).

4.5 Mourning, White Settler Fragility and Facing Reconciliation

White settlers in Atlantic Canada are beginning to become aware that the actions of Labrador Land Protectors, and other water and land protectors in the region, resist what Obed (2017) names as “Canada’s social engineering project meant to eliminate Indigeneity” (1). Inuit, Innu and Métis people of Nunatsiavut and Nunatukavut are routinely threatened by Canadian policies that continue to place corporate wealth, and white settler bodies, above the lives, land, and more-than-human kin of Indigenous people. While Indigenous people are (still) fighting for their lives in this country, the re-emergence of Indigenous Knowledge has much to offer in this time of climate change. This re-emergence, however, comes with the risk of recapitulating violence.

Arvin, Tuck, and Morrill (2013) write that “[t]he non-Indigenous desire to “play Indian” may seem like a passing trend, but it is actually a fundamental condition of life within settler colonialism, as settlers continuously seek to capitalize on what they understand as their country’s own “native” resources, which include Indigenous cultures and peoples themselves” (19). As Obed (2017) writes, “[b]ecause Indigenous sense of place and land-based knowledge supports a sense of sufficiency, equanimity, and sustainability, it’s re-emergence is increasingly needed to arrest today’s extreme climate change concerns” (20). Arvin, Tuck and Morrill (2013) articulate the challenge to recognize Indigenous ways of knowing. They insist

that it is most important to acknowledge Indigenous concepts and epistemologies as complex, knowledgeable, and full of both history and desire. Engaging Indigenous epistemologies, without appropriating them or viewing them merely as a mystical metaphor, is a method of decolonization that could play a significant role in creating a future for Indigenous peoples and Indigenous ways of knowing.(25)

During each interview I looked for opportunities to flesh out perceptions of the connection between climate change and colonization, inviting elaboration when these themes arose. Out of 14 interviews, it was the three youngest participants in their twenties who had thought more about the connections between climate change and colonization, and who were more accustomed to acknowledging and beginning to deconstruct their own white settler privilege.

LC: so you identify those two things [climate change and colonization] as interconnected

Maggie: yes, yeah we don't umm...

Water protectors are becoming, you know...

I think they're becoming more stigmatized than they were when they first started out.

There's a big effort to reduce their efforts to make it seem like an afterthought,
as opposed to a thing is intimately linked a project umm

You know I saw a headline yesterday about

umm tttt I don't even remember which pipeline it is now [chuckle]

Whichever one that said that there would be difficulties with it because of Indigenous land
claims, and that was being passed around on Twitter as a small victory, right?

So we are, you know, in Canada,

constantly doing things to land that doesn't belong to us.

And I am a white settler.

I live with that every day, we all do, right?

And I feel like it IS our responsibility to try to make

even small degrees of reparation towards an effort of reconciliation.

I mean the environment is related to the reconciliation requests that are out there.

They said we want the environment to be considered in your reconciliation efforts

and what are we doing?

Huron (2017) asks, “[w]hat if healing the wounds that colonialism has inflicted on the lives and
lands of Indigenous people in Canada also means healing *everyone's* shattered relationship with
land, waters and the myriad beings dependent upon the land and waters?” Callum – a young
cisgender white settler based in Nova Scotia – knows something about healing the wounds of
colonialism. He worked closely in community with a group of Mik’maq activists during the
Elsipogtog anti-fracking protests of 2013-2014 in New Brunswick (McCleod, 2015). During that

time, he learned something about what it means to decolonize settler identity, and how to take an embodied stand on the land, facing government and corporate interests.

Callum: I think there's an inability to really and truly honour the environment that you live in from a colonial perspective.

Umm, because the colonial perspective is based upon extraction you know of resources and of, umm...

It's classist you know, it's racist [...]

You know it's easy to live under the umbrella of colonialism quite blindly and be happy for everything you have.

But I think the decolonizing isn't just about the people who have been colonized but it's about the land you know, and the land that you live on, and the history of that land— because it has a history.

I think you can sit on top of the land,

Or you can be with the land, you can have a relationship with the land.

[]

Working and living in Mik'maq community during the fracking protests, and serving under the leadership of Indigenous leaders, Elders, and land protectors, Callum learned something about the difference between sitting “on top of the land” and being and becoming with the land, in relation.

I think that decolonization is ultimately about the relationships between people and land.

And I think one of the challenges for settlers in Canada is gonna be...

is how do you have a relationship with the land,

and that line - you know like [*gestures to indicate the line that is crossed*]

You're not gonna take the stories of the Indigenous people here for yourself

and claim them as your own,

because they're not your stories.

But you kinda have to integrate those stories into your own experience

in order to understand some more about the land, and the power that is in place.

You know you have to...

you have to uh have a relationship with a place in order to protect it.

Callum's decolonizing experience of "integrating" his own story, the stories of the land, and Mik'maq knowledge of the original people of the land – was an unsettling, contradictory, more-than-cognitive, embodied, spiritual affair that he experienced as a kind of disintegration and return. It involved experiencing losses of colonial attitudes that shook the ground of his identity. Only after coming through this experience was Callum able to share his stories and theories about decolonizing, and actions to protect the land. Simpson (2014), writes about people protecting the land and that it is "not those at academic conferences advocating for its use in research and course work but those that are currently putting their bodies on the land" (21). Callum's commitment to decolonizing work comes partly through analysis, through social

relations and actions, and through his body that he, and others, are willing to put on the line to fight for eco-justice.

4.6 It has to come through the body

Amber – a white, cisgender artist and architect – is also interested in the interrelationships between bodies and environments, and the visceral ways that she experiences climate change are based on her sense of connection to the places she hikes, canoes, and where she touches wind, water, trees, and grass. Now living in Halifax, it is important to her to access experiences of land, sky and water, and she identifies the need to slow down and connect to a “sense of belonging or well-being” that is harder for her to find in urban environments.

Amber: I moved to Toronto for a few months to do a work term.

And I walked so slowly the first two weeks I was there

because there is just so much to take in.

And there's like a tension that you hold,

like your shoulders are tight,

and there's just this barrage of information, umm...

And it took a long time for that filter to kind of pop into place

and I could just cruise on down the street.

And the opposite side of that, you know, going for a hike or going for a paddle,

is like a release and there's this sense of belonging or well-being.

And even though the natural environment has, in a way,

as much going on as downtown Toronto,
 there's just a kind of umm I don't know– a calmness to it,
 or an idea that's working.

And it doesn't attack the senses and the body in the same way.

[]

I'm really interested in how we can use our bodies to understand things at a large scale,
 which climate change exists at a very large scale,
 and it has these moments that become quite visceral.

I think understanding climate change, uhh, in a way that's meaningful...

it has to come through the body.

In the excerpt above, Amber names how sensory experience is different in urban and more natural environments, and that her capacity to understand climate change in a meaningful way hinges on slowing down and on an attunement to “moments that become quite visceral.” I asked her to say more about her sense of this visceral connection.

Amber: Like storms, like discreet events,
 that people are able to connect to this larger and global thing.

I was studying a site on Staten Island that was hit particularly hard by Hurricane Sandy.

And that was like a very visceral experiential moment for those people
 that is connected to climate change.

Not all of them see it as connected to climate change.

LC: I think I saw some film about this..[]

Amber: About the Staten Island folks?

LC: Yeah.

Amber: And what happened is they moved...

they got so, sort of jarred by it that they were like [*gestures with arm- a jarring pushing and extension of fists*]

we can't live in this community anymore...

and lots of them had lived there for years and felt very at home there,

but were so jarred by the event that they,

they voluntarily initiated a buyout from the government to leave their homes.

LC: I'm really interested in... the word "jarred " and the gesture...

Amber: Yeah! ha ha heay... [*repeats rhythmic gesture with both fists and arms striking out*]

LC: The gesture that you made when you say the word jarred,

is a very, uh...a kind of shocking,

sudden, tension in your fists and this movement...

a sense of there being an impact...

and then the time afterwards that it takes to respond.

Amber: mmmm uh hmmm that's a great observation.

Yeah I didn't even realize I was doing that.

I'm glad you pointed it out. [*she is curious*]

Amber's interest in the experience of the people who were forced to leave their homes on Staten Island is embodied in a particular way. She is interested in better understanding the visceral experience of the people she met, and the "jarring" movement and gesture that she makes reflects the way she has embodied this connection, and/or the ways that it evokes her own embodiment of "jarringness." As I invite our attention to the gesture she becomes curious about it, opening a new avenue of awareness and inquiry. With the thought "understanding climate change has to come through the body" these sudden jarring movements of fists and arms emerged.

Amber: I think you need that kind of, it seems like an affective, you know process to go through in terms of creating awareness about climate change.

Like there is often is this like jarring moment, that resets, that recalibrates our perspective on things.

And it's an interesting, it's interesting how you invite those moments of disruption in a way that is productive and meaningful, and that they are important I would say, for ...

because of that kind of recalibration that they offer.

The movement experiences of "jarring" and "recalibration" are different than Amber's previous account of tension and release navigating urban and natural environments. What Amber described as the movement of tension and release depicts the management of stressors, whereas in "moments of disruption" there is more of a transformative potential – the potential of changing relations and identities and finding new meanings and "recalibration." Jarring is a sudden shock and shaking to the core. Jarring evokes specific, protective impulses in the body – impulses and movements that express threat responses. Shifting attention from the story to the body, Amber tracks these movements of fists and pushing of arms with awareness and curiosity.

It is through attention to the more-than-cognitive, postural, movement, and sensory layers of Amber's experience that it becomes possible for her to attune in new ways to her experience.¹⁹

4.7 Artists' ways; staying connected through following the creative impulse

As noted by Amber, and other participants in interviews, our relationships to media are not only as passive consumers but also as active participants in the construction of public knowledge and culture. The creative impulse can also be a powerful expression of the life force, and sometimes provides an antidote to the pull of a self-protective freeze state. Catherine, a 61 yr-old cisgender writer in her late fifties living in rural Nova Scotia isn't tempted to look away from the losses of species and changing ecosystems affecting her small fishing community, making them the subject of her writing. She sometimes gets in "very black moods."

Catherine: I feel pretty joyless

I have a lot of trouble feeling joy and feeling...

and so I start to feel like everything's kinda falling apart

and I start to really close down

and I stop pushing myself to do things and I just get very insular.[]

I just kind of feel a great heaviness [*touches chest punctuating words*] inside

and umm I can get very... I can get in very black moods just generally about the environment.

Like I said to a friend,

¹⁹ Amber's installation work, that reflects her explorations of bodies and land may be found at <https://vimeo.com/191568794>

I don't think I wanna be in a world where there's no birds.

Like I love birds so much.

Every one of my plays have birds in them [breath, teary smile]

and it just seems like... particularly the birds that *are* here,

that must migrate twice a year.

They're in so much jeopardy now.

It's hard to believe that those birds will last even another five years.

That's the way it feels to me because of all the information we get about them.

There just doesn't seem to be any will out there to stop it.

It is through her creative process that Catherine grapples with the dark state she names as brought on by her knowledge of environmental change. Catherine's experience of heaviness "because of all the information we get" is clear to her.

Catherine: They must know it on some level,

the fishermen who says, he notices the whales in hot water

he notices the sharks are going up to Labrador

he must on some level know that there's a catastrophe coming.

But it's like they just carry on and its...

it feels like, so who carries the weight of that?

Who carries the weight of that knowledge?

and what do you do with that?

I think that when I'm writing I kind of feel like... ttt

I carry the weight but I also carry the possibility of how to change that?

But maybe only for those characters in the play, not anything larger.

Which is, which is, really

I don't know if it's useful, I don't know, I don't know...

[]

And that's one of the big things about starting this new play

umm is that I'm really terrified of going there

and going into all that information about how affected the oceans are

even though I guess they say write about what scares you

and that's true.

For Catherine, as for several other interview participants described in chapter three, in the ambience that she describes as a sense of a heaviness, life becomes about insulating against threat, and feeling kind of shut down. Catherine feels powerlessness, and a loss of agency. Her response to the intense, unremitting stress of climate change knowledge is a pull towards the most primitive subsystem for self-defence. Levine (2010) writes “this neural system (mediated by the unmyelinated portion of the vagus nerve) controls energy conservation and is triggered only when a person perceives that death is imminent – whether from outside, in the form of a mortal threat, or when the threat originates internally, as from illness or serious injury. Both of these challenges require that one hold still and conserve one’s vital energy” (105). These patterns

of threat-response have emerged to protect persons from overwhelming rage, fear, and grief, which feel too threatening to acknowledge.

Catherine's writing practice leans into her fear, sometimes pushing through with a monologue or a play, sometimes freezing in the tension. For Sally, Brian, Amber and Catherine, the creative process helps them to titrate powerful self-protective impulses, connecting them with memories of early experiences with the natural world, and an imagination that feeds their sense of connection and aliveness, and sometimes point to sources of hope in the Anthropocene. For Brian this happens through poetry, for Sally through painting, for Catherine, through writing plays.

Catherine: I loved writing this one [a play] even though it definitely marks into fantasy.

But I was so pleased with it because I remembered my very first experience with nature when I was about four.

And I was in a field behind the house by myself, which means my brothers were somewhere else, I don't know where. But I was by myself it was probably just like out here in the yard.

But I felt like I was way, way out there in the yard.

And so I put my hand out and I captured this grasshopper,
you know I held it in my hands.

And I peeked in and it had, you know we called it molasses
you know when they spit out that bit of brown.

And then it kind of spread its wings

and that scared me and I let go

and then I licked up this molasses.

And I'm sure I was four at the time and it was such a powerful memory

and I was able to use that memory in this piece that I did on hope

and I just loved writing the piece.

and it did, it gave me [hope]

Catherine orients to a sense of connectedness with the natural world, exploring memories, embodiments, and identity, through her writing. Her artistic practice is one way that she manages fear and is a critical source of hope for Catherine, as she bears witness to the demise of ocean ecosystems that impact her community and parses her mediated knowledge of climate change in places near and far.

4.8 Hope in decentering Anthropos

Catherine's hope in the Anthropocene comes from three directions that appeared in several of my interviews with people in Atlantic Canada: following her creative impulse; spending time connecting in local environments with more-than human kin; and knowledge of the resilience of nature beyond humans.

Catherine: and I brought in [to writing process] this other thing that I'd read about
in Germany ...

[there are] stumps that are about 500 years old that are being kept alive by other trees.

The trees are nourishing them through their root system and keeping these stumps alive...

And it was just such a symbol, like maybe if we really screw up,

we really ruin everything, the planet will survive.

And at that moment I started to think, yes

like maybe we will be gone and that's fine

but the planet itself...

LC: umhmm

Catherine: is going to be able to rejuvenate itself.

And when I can remember that,

I'm okay.

For Catherine, hope of more-than human kin surviving makes her more okay with parsing the information about species decline, the contamination of ecosystems, ocean plastics.

Catherine: But there seems to be SO much information out there

that we hear about at the time, like all the heavy water leaking

from Japan from the, those nuclear plants.

And then you never hear anything about it AGAIN.

But you know it's not cleaned up so it's still you know, happening.

And it's like there's all these hot spots that

that are creating all this devastation that nobody seems to know what to do about.

LC: umhmm

Catherine: and so the balance is trying to remember that

ultimately the Earth will be okay, but yes

the human race is probably not going to be okay.

LC; umhmm

Catherine: and to be okay with that, right

So you can be okay with it except when it's your daughter.

LC: ihhh exhale

Catherine: son, granddaughter, grandson, right

LC: ya [breathy] and then that's

It's about loss

Catherine: yes, exactly

ya the tremendous loss

LC: anticipating the loss

Catherine: ya

Catherine, and others in my interview sample, name a tension between hope in the survival of Earth systems beyond human-centred existence, while experiencing a great anticipatory grief, loss, and worry about what the future will look like for their own offspring and descendants.

4.9 Except when it's your daughter

So it just feels like it's too late.

And we, going forward, we're not creating a new city or creating a new province.

We're adapting a broken one, and we're gonna try to make it as good as we can,

so that in fifteen years when my daughter is 18

she will hopefully have an idea of what the strategy is gonna be.

Maggie

Human mammals have evolved with self-protective impulses that extend to protecting our infant offspring who are incapable of caring for themselves and dependent on caregivers to survive. (Porges & Furman, 2011). But what about protecting the future of generations of humans in a rapidly changing planet? Maggie, a young mother of two, has questions. My interview findings are aligned with Randall's (2009) claim that younger people, like Maggie, are less likely to be consumed by guilt and more likely to feel anger. Millennials weren't around for the party. They didn't contribute to the destruction that earlier generations have brought on the planet, but now these youth have to find solutions while older adults work through their issues of complicity and guilt, sometimes being paralyzed by the thought of what they are leaving for future generations. For Maggie, this conundrum shows up when mostly white men in leadership roles are responsible for making political choices regarding renewable energy.

Maggie: How do we insist that we become allowed to, for example
to have our own miniature wind turbines on our homes?

How do we make renewable energy part of our provincial and federal strategies?

We currently don't have any plan, right? [...]

I know the provincial government, *The Way Forward* document²⁰

²⁰ The Way Forward is a series of documents published by the Government of Newfoundland and Labrador from 2016-2018 highlighting four areas "to achieve four objectives: a more efficient public sector, a stronger economic foundation, better services, and better outcomes to promote a healthy and prosperous province." <https://www.gov.nl.ca/thewayforward/>

has a *health now* policies stipulation.

Every single policy is supposed to include health.

So where is it? What is the health policy?

LC: whose health?

Maggie: yeah whose health is it?

And we can't, we can't uhh

make the next generation as immediately disenfranchised as

as again, like the millenials have been.

We were coming of age at a real turning point, right.[]

Growing up the news was on in the background for me 100 % of the time

so I definitely...

I think we need to protect the next generation

and really give them some tools to use.

That's what I see as our job— as millennials—

is to provide some ideas and tools and strategies

and the next generation can carry them out

cause we won't have time to do that also.

It's just not possible.

That's how I feel.

Maggie and Catherine are both anticipating disaster. Their responses are different. Maggie, in her twenties, is a musician and poet, but decided that it was imperative for her to participate in direct community engagement, so she ran for city council and now has the responsibility of a municipal leadership role. Maggie hopes that policy changes and direct political actions will support her daughter's and other future generations. Catherine's approach to anticipatory loss, when she is not overwhelmed, is through engaging in a creative process as a playwright. Through her writing, Catherine is more able to carry the weight of climate change, complicity and grief. Both women's responses – municipal leadership, and artistic leadership through the creation of cultural knowledge – require wading into the content and becoming more knowledgeable about the devastation to ocean ecosystems and losses to community that are on the horizon. It is sometimes overwhelming. Catherine sits with the profound fear of loss.

Catherine: So, you know it starts to be like somebody tells me they're pregnant
and I'm like, oh no!

LC: uh huh

Catherine: And my own daughter said to me “Mom I'm not sure if we want to have you know two kids or one kid, you know what do you think,”

and I said “You can carry one if something happens you can carry one.” [pause]

And that just came out of me, and it's sad but that's how I feel

If anything happened and she had to be responsible...”

Randall (2009) observed a pattern in her research and *Carbon Conversations* group work that is also reflected in some of my interviews, including my conversation with Catherine. In the

present, Catherine feels safe enough – she is protected by a home that (so far) is above water, and she is a cisgender, white woman with a certain degree of social and economic privilege.

However, she projects her worries about climate change into the future, and sometimes this catastrophizing spills out into her relationships with family. Perhaps, as Randall (2009) suggests, this splitting of present and future protects Catherine from facing and mourning all of the anticipatory losses associated with climate change all at once. As an artist, Catherine's mourning is titrated through a creative process that feeds her embodied resilience while producing writings and plays that reach, disrupt and diffract with various audiences. This process allows her to touch into her grief, fear, and rage, a little at a time, while creating and expanding on the much needed psychological and public spaces for mourning climate change for her audience. Catherine's example reflects the theme of how creative engagement and participation in the cultural production of knowledge is a potent way to manage the threat of climate change. In fact, all aspects of Catherine's creative engagement support greater nervous system regulation for herself and other artists. From collaborative research that she participates in, to writing, dramaturgical process, audience development, production, and publication – her work as an artist contributes to her own and other communities' capacity to parse climate change knowledge.²¹

Like Catherine, Debra, in her sixties, spoke of how she is glad she is not a youth in today's world and how she would accept it if her own children don't want to bring another generation into the

²¹ Catherine's play *The Project Hope*, was originally produced in partnership with the Climate Change Theatre Action, and was first performed on November 10, 2017 at the In/Visible Theatre. It is published in: Bilodeau, C.(Ed.) (2018) *Where Is The Hope : an Anthology Of Short Climate Change Plays*. Toronto: Center for Sustainable Practice in the Arts. For more on the Climate Change Theatre Action, visit <http://www.climatechangetheatreaction.com/carnegie-mellon-university-school-of-drama/>

world.

Debra: It shows up sometimes in umm
a struggling to be hopeful to tell you the truth

LC: Umhm

Debra: sometimes it seems that, ah
well you know we ARE past all reasonable tipping points
in terms of what the world might be willing and capable of doing at this point.
and that you know things ARE set on a path
which is, mmm, quite predictable?

So that our, umm, job becomes to adjust rather than to,
maybe to mitigate to some extent.

I do experience sometimes, just, mmmm...

I'm glad I'm not the next generation,
if I can go that far.

I have met young people in my ministry who are thinking twice about having children
because they're concerned, ummm about
the state of the world, not so much politically...

Really it comes down to climate changes
and the pressures that will put on the peoples of the world
and how that's going to change the whole balance of things.

And climate's already contributing to wars and there'll be more of that.

So I think there is a bit of a...

I think hopelessness maybe too strong

maybe not-sure-aboutness.

You know I'm glad to be living now, to be frank about that

we have three children...

LC: umhmm

Debra: and I'm glad to see them all doing things that they love to do.

But if they decided not to have families, then you know,

I'll be heart-broken but...

I'm closer to understanding now than maybe I was a few years ago.

So that's a pretty heavy, weighty piece.

Not everyone feels this weight, sometimes putting considerable effort into looking away. This disavowal is costly to persons, nervous systems, and communities. As Butler (2004) writes, “I am as much constituted by those I do grieve for as by those whose deaths I disavow, whose nameless and faceless deaths form the melancholic background for my social world” (46). Those who are doing the work of mourning, creating spaces to acknowledge loss, and naming species, ecosystems, and places as grievable are doing important work for others (Cunsolo, 2017; van Dooren, 2014). Lertzmann (2013) and Holifield (2013) call attention to what some members of communities are ‘holding’ for others, and what unconscious and unexpressed losses may be projecting onto other aspects of life in families, communities, socially and politically.

Acknowledging climate change fear and loss, as well as anger, can open up cultural spaces for creative participation, and for the cultivation of care and concern.

4.10 Mourning is not rageless

Mourning and depressive states of shut down/immobility in response to climate change are beginning to be recognized during this critical time of acknowledging losses of nature (Cunsolo, 2017; Haraway, 2016; Sandilands, 2017; van Dooren, 2016). Anger, and its corresponding sympathetic arousal in the body is also part of mourning, yet it is often denied, ignored, or avoided. Levine (2010) writes, “[t]he fear of rage is also the fear of violence – both toward others and against oneself... Because the rage associated with the termination of immobility is both intense and potentially violent, frequently traumatized people inadvertently turn this rage against themselves in the form of depression, self-hatred and self-harm”(88-9). A cultural fear of rage is partly because of its association with unhealthy forms of aggression, violence, and toxic masculinity. Irritability, annoyance, frustration, anger, and rage, however are responses that must be acknowledged as part of mourning climate change.

Tim, a therapist and Buddhist meditation teacher spoke about his anger:

Tim: Well you know in terms of media, I do listen to CBC while driving back and forth.

And when those, was it right whales?²²

LC: They're turning up.

²² North Atlantic Right Whales are an endangered species that was in the news in the summer of 2017, when the Government of Canada imposed a speed restriction for vessels travelling in the western Gulf of St. Lawrence, to protect the whales. Right Whales are dying by being struck by boats, and also by entanglement in fishing gear. See http://www.cwhc-rcsf.ca/right_whales.php

Tim: yeah you know 7 or 8 or 9

That is you could feel the pain of that,
and you could feel that humanity was touched,
or that, you know our community that was listening to the CBC.

LC: So there's a connection being made...

Tim: yeah, that there was some quality of feeling
you could feel the devastation and the loss
when they actually number them at... I don't know a couple of hundred or something,
and there's 9 or ten that died within the space of two weeks of some unknown cause.

And then, there's that other thing
there's the anger which you can tip over to.

And I'm not generally an angry person,
but that's something I feel very angry about.

Corporate irresponsibility, about corporate waste.

And how to use that Anger to become activated
in a healthy way, to do something about it that helps

LC: So the anger...

I noticed as you were speaking that maybe there was a shift
and maybe something here [*gestures to jaw*]
that was different then.

Rim: In my jaw?

LC: When you spoke of that

Tim: well it's just like...

well it's that anger of powerlessness that I felt my whole life.

Like when I was a kid, you know,

we'd go and clean up the litter, and I never understood how people could trash nature.

And uh, so especially when its these big corporations,

or when there's some kind of huge spill or something,

And not taking responsibility.

I feel like I'm a little kid.

Inside I feel like a little kid and wanting to jump up and down and scream.

LC: Ya

Tim: and [ARRRRRRRRRR] just like scream [gestures sounds]

I feel like you know, what can I do? [...]

So you do what you can.

But there's this feeling of powerlessness that is very

visceral and I think if anything that's what I'll tend to, you know,

ignore...[laughs]

That's my whole life, I ignore anger.

The angry emotions relate to protective responses that have evolved in nervous systems over thousands of years, and to the mobilization of survival energy, organized by the autonomic

nervous system as specific instructions for defensive and aggressive movement (Porges, 2011; Levine, 2010). Healthy, protective aggression is not the same as compulsive raging, violence, and abuse. Levine (2010) writes:

Anger and resentment, when denied, can build to an explosive level. There is a popular expression that is apt here: “That which we resist, persists.” As damaging as emotions can be, repressing them only compounds the problem. However, let it be duly noted that the difference between repression/suppression and restraint/containment is significant though elusive. (339)

When anger, for whatever reason, is managed by “keeping a lid on it,” and then ignored or denied, there is a cost to the organism’s physiology. The survival impulses in the sympathetic nervous system that don’t get to complete their action plans, and create a sense of safety, remain present in the body, becoming the contractions of breath, muscles, fascia, heart, and gut. It is the neurophysiologic sequelae of this response along the hypothalamic-adrenal-pituitary axis which control the dynamics of stress hormones (Porges, 2010; Zoladz, Fleshner, & Diamond, 2012).

Through this project, I have become even more curious about anger as a response to climate change, and the ways that people manage this anger, both consciously and through involuntary processes in their bodies. There are social contexts and costs for the repression of anger. Tim names the effort that goes into ignoring his own visceral sense of anger that is triggered by knowledge of climate change. He associates this labour with back pain, and with a sense of wanting to jump up and down and scream. The sounds that he makes, however, feel stifled even while he names the impulse to be more explosive. The dynamics in which people in communities, social groups, learning institutions, and family systems are permitted to express or repress anger/rage, affect everyone. Some bodies are regularly required to defer, smile, “relax,” walk on eggshells, chill out, or do whatever is necessary to maintain the status quo while other

people harness the permission to express anger. These dynamics are gendered, and socialized through cultural practices in families, learning institutions and across cultural groups (Cox, Stabb, & Bruckner, 1999; Jack, 2001).

In my sample group, composed of mostly white settlers, people live and dream in relatively safe communities that aren't yet threatened directly by climate change. However, all of the participants in my research felt both fearful and angry. Some participants struggled with mediated images and the incongruence of living privileged lives while distant "others" feel the direct impacts of shrinking biodiversity, drought, famine, and displacement. Direct experiences of climate change for this sample group of white settlers living in Newfoundland, New Brunswick and Nova Scotia contrast with the experiences of Indigenous people in the region. For example, changes in sea ice due to climate change have a major impact on the people of Nunatsiavut, Labrador (Petrasek MacDonald, Cunsolo, Ford, Shiwak, & Wood, 2015).

In the face of climate change, there is a widespread sense of helplessness. Helplessness in the face of threat, whether physical, psychological, current or anticipated, can lead to a traumatic stress response. Levine (2010) writes:

The feeling of danger is the awareness of a defensive attitude. It prepares us to defend ourselves through escape or camouflage. Similarly, when our aggression is *not* thwarted, but is clearly directed, we don't feel anger but instead experience the offensive attitude of protection, combativeness and assertiveness. Anger is thwarted aggression while (uninhibited) aggression embodies self-protection. Healthy aggression is about getting what you need and protecting what you have. (331) (my italics)

The implications of the repression of anger in this time of climate change are many. The incomplete protective response in the nervous system is costly at the systems level of the

organism. For example, suppressed anger (a thwarted impulse) leads to jaw clenching and teeth grinding behaviours, chronic pain, dental and temporomandibular imbalance (Staniszewski et al., 2018). Suppression of anger during provocation is also linked to increased low back tension and increased systolic blood pressure (Burns et al., 2012). Adrenal fatigue, depression, long-term anxiety and cognitive impairment and a host of lasting symptoms of the nervous system and gut are all connected (Zoladz, Park, Fleshner, & Diamond, 2015).

4.10.1 Engaging raging

Healthy aggression is about protecting ourselves and those who are close to us. It is also about setting clear boundaries and getting the things we need, including food, shelter and mating partners. It is what empowers our lust for life. This passion for life must be supported by a capacity to embody a range of purposeful emotions. (313)

Peter Levine (2010)

All of the participants in interviews for this project named anger as part of the experience, however, their responses were embodied in a variety of ways. Climate change anger, according to Tim, is often denied, ignored or avoided. I asked Tim how he ignored and managed his anger.

LC: You *do* manage it and have ways of doing it that are working...

Tim: yeah.. back pain [laughs] right?

yeah umm, ways that are working or ways that don't work.

LC: or... that worked for a while

Tim: yeah or that need to be transformed.

Tim spoke about his own struggle with anger, and reflected on his socialization in family, school,

and in his spiritual community in which expressions of anger are viewed as weakness, and incongruous with a value for non-violence. However, transformation of socialized responses to anger requires awareness of inner resources and access to safe enough spaces. Holding space for expressions of anger in mourning climate change is a start and may lead to the deep work of allowing self-protective impulses that show up to move through limbs, jaw, teeth, tongue, voice and action.

Tim's quieter, contemplative embodiment of grief responses to climate change were in sharp contrast to those of David. I interviewed David (61, white settler in NB) via Skype. His schedule was very tight but he managed to sandwich our interview in between meetings and other demands. Like Maggie, who, at the beginning of her career, has taken on a role in municipal politics, David feels that being in a provincial leadership role is the only choice, after decades of activism that left him feeling helpless. David's jaw is taut. He shared, emphatically, that he doesn't get to take breaks anymore now that he is in politics. He spoke with few pauses, which is reflected in my shift in transcription style, and the tone and rhythm of hyper-arousal:

David: We had been participating in this big global conference in 1988 in Toronto and everyone there agreed – politicians, activists scientists – that consequences of climate change were second only to global nuclear war if we didn't tackle it. And then by 1992, you know the treaty was signed – the Climate Change Convention to avoid dangerous climate change... they didn't define what that would be.

There was a huge political engagement after the 88 conference. 88-89 in terms of what to do, and then in the end they decided to do nothing.

And then once again we had a huge political engagement after the climate change convention was signed in 92. I was involved in that on the provincial level, and in the end the decision was to do nothing.

And then it took from 1992 to 2015 with the Paris Accord where they finally agreed to an acceptable definition – what constitutes global climate change, and that was 2 degrees Celsius increase in average global temperature. So, umm you know we squandered 25 years and, umm you know provincial leaders, federal leaders in Canada, they were like... people will forget this.

And then, from the vested interests who felt threatened by ummm, by action, whose dependence on fossil fuels was overwhelming, there was generally a consensus that... that the apple cart shouldn't be upset.

We're seeing that to the response to the plan to the cancellation of the Energy East pipeline, so it's hard to watch. Hard to watch... and the consequences in 2017 when we well knew what was going to happen in 1988. Broadly, it came to public consciousness in 1988 and we had the opportunity to act as a global community and we failed.

David, who had meetings before and after our Skype interview, spoke fast and directly in a rhythm of "hit the ground running." Beneath his enthusiasm to share with me was a sense of frustration and an active fight to stave off despair. This was palpable and visible in the sounds of his voice and his facial expressions. He shared about direct changes to ecosystems in his home province, and costs to preparing infrastructure of waterways and roads for inevitable future flooding. David's tone shifted slightly when he moved from discussing his activist history, to what is happening now in his home province. Here, the transcription style reflects a little more space for breath, and emotion.

David: I have a sense of what's going to develop

And it's terrible [...]

LC: And how do you manage it? How do you manage all of that?

David: I went into politics.

I went into politics because it's time to step up and get inside the political system,

to try and make a difference from inside the political system

And give voice to these concerns and the political narrative that people *weren't hearing*.

Umm and not just these concerns, but including this.

So that's what I did.

You know I spent, you know about 30 years working in the environmental movement

And I reached the end of my rope on that.

Governments were no longer responsive to public interest groups.

And so I decided to go into politics.

LC: and so that was to effect change [...]

David: It's another route to try to make change.

When I felt the kind of change that's necessary...

So the way I think democracy has deteriorated –

unresponsive politicians who largely are captured by other agendas.

The notion of the common good has disappeared, TOTALLY from the political realm.

It was time for me to enter the political realm and try and make a contribution

At least in the context of my own province.

David, holding his own while representing his constituents in the political realm, *must* tap into a sense of assertiveness and healthy aggression. This may be more possible for due to social and cultural gender norms that reward men for expressing assertiveness (Cox, Stabb, & Bruckner, 1999; Jack, 2001). David has a great capacity for the sympathetic charge of high conflict situations that he must navigate in a provincial leadership role. A capacity for self-regulation and

behavioural flexibility is required to be *effective* in leadership. David certainly has access to his vital aggression and, tapping into it as a source, he does not stop. He is in a race to the finish line. The sacrifices that he has made, and continues to make, in the fight against climate change live in his body and do not go unnoticed.

4.10.2 Not Safe Enough

The women that Sally works with as a counsellor and Somatic Experiencing Practitioner (SEP) at a local women's centre embody a different range of responses than David, and other socially and economically privileged participants in my study sample. Sally's clients are angry too, but they live with housing insecurity, deal with intimate partner violence and other trauma, and face systemic violence and discrimination on a daily basis. They are in survival mode, bouncing between sympathetic defenses and a protective freeze state. They suffer with depression and anxiety and a host of syndromes, from fibromyalgia and IBS, to chronic fatigue and severe environmental and food sensitivities. The world, for them, is not always a safe place and, thinking with Burstow (2003) it is often a place where women, in particular women of colour and Indigenous women, are routinely wounded.

Sally: we're just so disconnected now
from the Earth, from each other.

Yeah, from our bodies.

I see that so much in my work
you know, with women...

“so how are you experiencing that in your body?”

“what body?”

you know... just operating from here up [*gestures from the neck up*]

Sally's work and the work of other frontline community-based health practitioners is to connect and support the co-regulation of clients in community within various scopes of practice. Though indirect effects of climate change are not the primary issue for people experiencing insecure housing, and struggling with health and addictions challenges, climate change will increasingly cause the direct displacement of people in Atlantic Canada as rising sea level and flooding affect many regions (Calabrese, 2018; O'Malley, 2018).

Climate change adds to the stress burden of gender-based oppression, racialization, and other constellations of social and economic oppressions that are understood as chronically traumatic, or as enduring psychosocial stressors that create the conditions for a traumatic stress response (Burstow, 2003; Johnson, 2009; Scott & Stradling, 1994). A baseline perception of safety or feeling safe-enough is required for bodies to rest, digest, and for co-regulating social engagement with other two and four-leggeds. The threat of rapid environmental change and species annihilation adds significantly to the weight of other survival challenges and the conservation of hope and agency.

4.10.3 Anger and the embodiment of hope

I asked Brian about his sense of hope, he became quite activated.

LC: can you say a little bit about how that feeling of hope shows up for you

Brian: well it shows up in in terms of being persistent

and hope is not the end—

it's hope for action.

What really matters is the action itself.

Hoping that something will happen is... is good,

and you have to keep striving toward encouraging something to happen.

And I guess you have to put hope aside in a way

and you have to be determined.

You're not hoping to get to that end.

You're determined to get to that... there's definitely doers.

Hope – it has a doing.

A determination to say “you hope somebody's going to change their mind”...

That's not good enough.[*Brian is tapping into his anger, which*

appears in his gestures, his jaw, his tone of voice, mounting as he talks about hope]

You have to actively get that person to change their life!

You can't hope they will do it you have to insist they will do it,

you have to insist that politicians will pay attention to what's going on globally.

You have to insist that that's *gonna* happen. []

So I hesitate to... I would not hesitate to use the word hope.

I don't want to use the word, I don't want to use the word.

We have to *do*. We can hope to do it, hope to accomplish... no, no.

We have to accomplish, there's no intermediate ground where

we'll make a bit of progress. No we have to *do* it!

Have to do it man.

LC: mobilizing rage, or anger

there's anger, and then there's action...

Brian: Whatever, whatever makes people have a grasp,

have an understanding of what's real.

I don't care if it's love, if it's anger, if there's a bit of hate

maybe if it fixes the problem if you hate.

Having that flat tire– if that motivates you to get that tire fixed, fantastic.

Let there be anger, but hope is not gonna fix it.

Hope is not gonna fix your flat tire.

Hope is not gonna save the earth.

Doing it, it's the only thing that's gonna work.

Brian, speaking to me about hope, tapped into his anger, and the embodiment of a clear, assertiveness. Maggie and David also engage their frustration and anger assertively, as leaders in municipal and provincial politics, connecting in community and working towards policy change and changing systems. Finding ways to mobilize anger, or what Levine (2010) calls healthy aggression, has the potential to recruit survival energies at the level of the organism towards action. The potential of an embodied activism grounds hope in the senses, is not overwhelmed by rage, but practices engaging intentionally with survival energy in the body, allowing for completion of the impulses to protect ourselves, communities, and ecosystems.

4.11 Chapter summary

In chapter three I focused on observing experiences of freezing, managing the media onslaught, and the weight of a heavy ambience of threat around climate change. In this chapter I have looked at the meta theme of ways that people flourish in the tensions of climate change and observed some of the ways that interview participants cultivate a sense of agency. The most important way of connecting and flourishing reflected across the interviews, involves bodies in real-time, connecting in natural environments. Using excerpts from interviews, I also touched on how religious and cultural ideologies play a role in how participants understand their relationship with the natural world.

In all of the interviews, including those with Debra, Mike, and Lorna, whether being and becoming with trees, being moved in water, or flopping down on the moss, their embodied experiences connecting in natural environments changes them, feeding their resilience in the face of loss and threat. Being in and part of natural environments is protective, contributing to the capacity for a sense of relaxed awareness and vitality, and enhanced well-being. Under the theme of flourishing, sub-themes include participating in the exchange and cultural production of knowledge as artists, and small and large social actions. Catherine, Sally, and Amber engage in community through artistic work that wrestles with bearing witness, explores and embodies loss, freeze states, complicity, and anger. For these artists – whose work includes relations with fish, birds, wind, trees, grass, insects, and human bodies – it is engaging in the creative process in specific landscapes that feeds their resilience and felt sense of hope. Engaging creatively also allows artists like Catherine, Amber, Sally, and Brian, to touch into feelings and embodiments of fear, threat, and loss in a titrated way in the present, (co)regulating through writing, painting, design, and installation. Thinking with Randall (2009), creative engagement in community

supports people in having some agency in the present, rather than splitting off from the present in frozen bodies that can only imagine a terrifying future.

My interviews with people in Atlantic Canada revealed details of experiences that can be characterized as managing eco-anxiousness. People are feeling nervous, and name ruminating on future losses, and worrying for future generations. Participants spoke of the impossible tension of our complicity in the destruction of Earth systems. For some people, for some of the time, the sympathetic activation of eco-anxiety leads to feeling overwhelmed and freezing, or to compulsive and addictive behaviours that manage uncomfortable knowledge. This was named as particularly challenging for the two participants who work in the oil industry but was also true for others. All interview participants – for some of the time – experienced being able to engage actively with the survival energies in the body, channeling anxiousness and anger into assertive social actions in community. However, there are limits to the capacity to be compelled – towards climate justice, or other works that require agency – and this capacity is dependent on how well resourced people are in their own nervous systems. It is important to remember, here, that nervous system (co)regulation is always in relation to family, and community, and that dysregulation responses to climate change, such as overwhelming anxiousness, compulsive and addictive behaviours, are also shared.

In this chapter I cited examples from the interviews of how participants observed the connections between climate change and colonization, noticing that younger participants had greater awareness of these links than did their older counterparts. Though most participants spoke about connections between global capitalism and climate change, younger participants were also thinking about their own privilege and settler identities. The connections between colonization, bodies, and climate change will be explored further in the following chapter.

Observing the experiences of interview participants who find ways of flourishing under the heavy ambience of threat of climate change, has deepened my curiosity about and compassion for the ways people consciously and unconsciously embody anger. Through the lens of polyvagal theory, and an experiential somatic approach, it is possible to observe and understand climate change anger experience as a protective response. In the work of Somatic Experiencing, for example, people learn to track sensations and movements, bearing witness, and engaging tissue, posture, and behaviour. When people learn to witness their own activation, staying present at the edge of difficult and ambiguous tensions, feelings and uncomfortable sensations, a little at a time, without becoming overwhelmed and shutting down, tissues are able to complete defensive, self-protective gestures. This allows for change in the affective and cognitive loops that may otherwise become trapped in a disorganized state, or repetitive cycle (Payne, Levine, & Crane-Godreau, 2015).

It is clear that orienting to the land, to more-than-human kin, to creativity, and social action – ways of managing tensions observed in interviews – provide some resourcing to threatened nervous systems. However, bodies are becoming overwhelmed and this has important implications. Levine (2010) writes “[r]age and terror-panic are the *secondary* emotional anxiety states that are evoked when the orientation processes, and the preparedness to flee or attack (felt originally as danger), are not successful. This only occurs when primary aggression does not resolve the situation, is blocked or is inhibited” (31). The source of danger and threat of climate change is not resolvable. Understanding experiences of frozenness, anxiousness, and ways of flourishing under climate change threat are needed as people in Atlantic Canada cultivate refuge. Refuge, in the face of the climate crisis and the destabilization of populations, will be needed for

diverse people and nervous systems, and will need to resist growing violence, xenophobia, and fascism.

Reser et al (2011), in a systematic assessment of existing international social, environmental and health psychology perspectives on psychological adaptation to climate change, wrote that a transdisciplinary approach is needed and that “there has not been the transdisciplinary conceptual and paradigmatic scaffolding necessary to put psychological adaptation and the mental health impacts of climate change on the radar of governments, funding bodies, and climate change science” (34). I have explored some ways to get under the cognitive, discursive layers, to the somatic layers exploring various rhythms, proprioceptions, interoceptions, meanings and relational resonances which (co)constitute experiences of climate change. As humans adapt to the growing chronic stressor of climate change, to ecosystem and species losses and mass migrations of human and more-than human kin, and as ecosystems and geo-political realities change in the Global North, ways and means of engaging with healthy aggression will be critical. I propose that because somatic approaches are effective ways to support bodies adapting to powerful, protective impulses, a justice-seeking somatics can contribute important ways and means to transdisciplinary efforts.

5 Feeling nervous (systems) and the capacity to be compelled



Hands unfurling, iphoto LC



Water Lily, Lamanche, NL, photo with permission
philwintersphoto.com

5.1.1 Furling and Unfurling- autoethnography

Two days this February week were so warm that I could crawl and roll around on the bare ground, picking cranberries and breathing in the smell of the blackberry earth out near Gunner's Rock- the point of land on Motion Bay beyond my house on the East Coast Trail in Maddox Cove, Newfoundland. Today there is a mix of fine snow and freezing rain which shimmers and clicks against the windows. Juncos are landing on the ledge near my chair. I talk to them. Junco hyemalis, also known as Snow Bird, is unlike the Canadian retirees so-named for their annual flights to escape the Winter cold. Junco stays all year-round. As I watch them hopping through the branches where seeds have blown from my feeder; I feel the damp cold in the contraction of my hips and tissues around my spine. I dream about the desert canyons of Southern Arizona and long to feel deeply warm and dry. I wander over to turn on the infrared sauna to preheat.

I am a 51 year-old white settler, cisgender artist-researcher living in the place I was raised as a member of the dominant culture. Like many doctoral students, I doubt the value of my contribution and the more I learn, the more I become aware that I am barely scratching the surface. I have long understood knowledge as always partial, and I have thrived in ambiguity and rejoiced in complexity, but exploring experiences of climate change while expanding my own knowledge of Earth's sixth mass extinction episode has led to intense challenges in my own nervous system, fragmentation, and periods of active mourning.

These mourning days are mostly quiet, but sometimes I find myself wailing real loud. When I make loud sounds of rage or grief I am usually alone in the woods, by the sea or the river, with more-than human kin who don't pass judgement on our messy communion. I celebrate the beauty of these places while sitting uneasily knowing that my research will likely go unnoticed as we

continue to destroy the planet. My small part in a too little, too late scenario unwinds thin threads of my own privilege in the tangled relations of kin in family and community, finding new knots and coaxing open safe (please be safer) spaces to acknowledge our complicity and role in colonization and destruction of Earth. I know that some of the current suffering could be alleviated by acknowledging and creating more spaces for the great grief of losing our world(view). I read from Tuck and Yang (2012) that decolonization is not a metaphor, and that “[t]he absorption of decolonization by settler social justice frameworks is one way the settler, disturbed by her own settler status, tries to escape or contain the unbearable searchlight of complicity, of having harmed others just by being one’s self. The desire to reconcile is just as relentless as the desire to disappear the Native; it is a desire to not have to deal with this (Indian) problem anymore” (9). Fuck.

The pull towards freezing in the tension is great.

It is curious that my feelings of frustration and despair during the writing of these chapters have been coupled with a painful, frozen shoulder also known as adhesive capsulitis. My glenohumeral joint capsule has shrunk due to a sticky build-up, reducing the space for the head of the humerus to slide and move. As I complete a first draft of this final chapter my shoulder and I are in the thawing stage. The range of motion in my right arm and shoulder is still reduced, but I continue to push, little by little, towards greater freedom of movement. Small gains in the shoulder are sometimes accompanied by backlash in adjacent structures. Today, levator scapula and trapezius are contracting due to mis-recruitment and locking up my neck. Turning my head to look must be done gingerly. (Do I even want to look that way? Maybe not.)

In a Somatic Experiencing practice with a colleague this week I noticed a tightness inside my chest cavity. As I attended to this sensation my upper body organized around it, bracing through

fingers, wrists, elbows, arms and a curling of my spine towards my ribcage. The “fist” inside my chest cavity was mirrored by both hands that curled into very tight fists. Staying with the changing movements and sensations, I became aware of a deep aching in and around my heart. In tracking the sensations for a few moments, simply bearing witness, and supported by the witnessing presence of another, something began to shift. My tight fists began to very slowly unfurl.

Over the course of the next 15-20 minutes the tight holding in my hands unfurled, spine lengthening, and the aching in my chest shifted to the left, and then became different— an interoceptive sense of more spaciousness, and less tension. An image came up in my mind of a water lily, opening to the light. I noticed that I now felt more relaxed and available to take in the brightness of the sky outside. I had also become less anxious and more available for contact with my environment and my neighbours, human and more-than human with whom I share the mystery of this journey.

To support greater movement, I find it helpful to attune to particular corporeal structures and interoceptive experiences, using anatomical maps to imagine and explore movement potential. I have studied some of these ways beginning in the 1980s with Lee Saunders, a somatic movement therapist and teacher whose practice integrates Body Mind Centering— the detailed and systematic work of somatics pioneer, Bonnie Bainbridge-Cohen. This week I have been curious about the dura mater— the outermost membranous connective tissue layer surrounding the brain and spinal cord. It corresponds, anatomically, with the pericardium which surrounds the heart. More movement feels like there is more space inside, more capacity, as though the dura mater, surrounding my brain and spinal cord, and the pericardium, surrounding my heart, holding and protecting it in its position in my chest, release just a little.

5.2 Closing collisions in thinking

Through this project, while engaging with and honing emerging methodologies, I have learned about some of the ways people sense and create meaning in the tensions between direct and mediated experiences of climate change. My project has not been an attempt to generalize about experience or behaviour but to explore and observe complexity in a way that includes details of somatic experiences and the lived bodies of interview participants. Engaging in a somatic artist-researcher practice, I have observed persons and nervous systems orienting to the threat of climate change, through the lens of polyvagal theory (Porges, 2001, 2009, 2011), and through the skillful means and witnessing practices of somatic and interdisciplinary artistic practices.

I have been immersed in an iterative, emergent process of listening and creating with the voices of interview participants, immersion in their sounds, video, and gestural material, engaged in a movement practice, writing and theorizing. The methodology that I am naming somatic artist-researcher practice is an example of how research-creation, or practice-based research, can become ways, of “staying with the trouble” (Haraway, 2016), and responding in small ways to Haraway’s challenge for greater leadership of “imagination, theory, and action to unravel the ties of both genealogy and kin, and kin and species” (161).

Somatic artist-researcher practice is also aligned with Weintrobe’s (2013) tenets for research into climate change experience: exploring the felt experience of living with conflictual tensions, engaging with issues of social justice, theoretical approaches positing underlying structures not manifest at the surface level, and the inclusion of more-than human kin (4). Grounded in a somatic psychology that consciously names both underlying neurophysiological processes and attends to the risk of erasing bodies from the social field (Briggs, Hayes, & Changaris, 2018; Grand, 2011; Johnson, R, 2018), Somatic artist-researcher practice resists maps of individual

psychopathology, instead finding theoretical models that are complex enough to include diverse persons, nervous systems and communities that include more-than-human kin.

I have argued that the *capacity to be compelled* is not increased only through cognitive-only, top-down knowledge translation, especially in the atmosphere of threat surrounding climate change. More information and a “louder megaphone” is pushing many nervous systems more deeply into a physiological freeze, and corresponding positions and behaviours of complacency. Creating ways and means of living together in refuge will become even more critical as international mass migrations of human and more-than human kin transform the Global North, including Atlantic Canada. Will it be possible to stay with the trouble (Haraway, 2016) and create safe enough spaces for diverse nervous systems/organisms/critters to imagine possible futures together.

In this concluding chapter of my dissertation, I include further excerpts from interviews that represent how a sample of people living in Atlantic Canada experience climate change, and how the language of the senses, tells us something about nervous system responses and response capacity. I theorize that the capacity to be compelled (or thinking with Haraway (2016), response-ability) lives at the level of nervous system resilience, where organisms are orienting and adapting to perceived threat. I argue that climate change is always, already in relation to colonization, and that embodied work in the face of climate change includes becoming aware of the dynamics of unsettling (white settler) nervous systems, and recognizing Indigenous knowledge, scholarship and leadership in the face of climate change (Million, 2008; Prior & Heinämäki, 2017; Simpson, 2005, 2014; Simpson & Smith, 2014; Todd, 2004). To conclude this chapter, I reflect on my emerging methodology – somatic artist-researcher practice – contributions to knowledge, and future directions, and share reflection on and a link to video of performance *Feeling nervous on the land*.

5.2.1 Adapting to Climate Change; Orienting to Threat, Orienting to Beauty

Analysis of interviews has shown that knowledge of climate change triggers self-protective responses on a spectrum that includes pro-social, creative, and resilient actions, to fight and flight reactions including hyper-arousal, and freeze/immobility responses. Through my doctoral research I have explored the experiences of a small sample of people living in Atlantic Canada as we orient and regulate in face of climate change. What has emerged from this (always) partial mapping of experience are examples of the embodied tendencies of humans, similar to our mammalian kin, to self-protect in the face of a threat in our environment, in this case the great threat to our world of climate change.²³ Through the analysis of interviews and creative work produced during this project I have tracked how a small number of people in Atlantic Canada experience loss, threat, and overwhelming sympathetic arousal which leads to frozenness and a corresponding loss of agency– freezing in the tension. I have noticed how the very same people also orient to beauty, creativity, and sense of place and connection to each other and the natural world – flourishing in the tension. I have also noticed that people are angry, and theorized along with Levine (2010) that when thwarted anger is coupled with feelings of helplessness in the face of climate change threat, the conditions exist for a traumatic stress response.

²³ The broad definition of climate change that I established in Chapter 1 is from *The American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change* (APA, 2010), which defines climate change as “*the perceived threat and unfolding environmental impacts of climate change*, as it is these facts of the larger phenomenon that are of particular relevance to public understandings and responses, psychological and social impacts, and planned change” (Reser, Morrisey & Ellul, 2011, 20).

5.2.2 Cultivating embodied research practices

Each interviewee in my sample contributed unique, sectoral perspectives and insights grown of cultural and geographic terrain. However, by responding to my call for participation, interviewees self-assessed as having adequate time, interest and resources enabling them to take part – an already privileged position. My goal to include Somatic Experiencing practitioners was specifically because they are practiced observers of the gestural space and of a particular way of ordering and mapping experience. Including them has supported theorizing the connections between climate change experience, and the tri-system threat response dynamics of the autonomic nervous system according to Somatic Experiencing (Levine, 1997, 2010; Payne, Levine, & Crane-Godreau, 2015). Somatic Experiencing practitioners cultivate the use of language to describe sensory experience. For example, when I asked Lorna *how* she knew that enough radio stimulation was enough, her response included some detail from her inner, interoceptive experience, affective layers, behaviour, and meaning making.

Lorna: I want to just push a button- that's enough! [*push button- Behaviour*]

LC: And how's it that you know that it's enough?

Lorna: It's in in my chest, definitely, it's like... [*sensation*]

both an irritation [*gestures with her hand and fingers, mirroring the sensation of irritation in her chest*]

And also I'm quite sensitive to auditory stuff [*Image or external stimulation of sensation*]

so my jaw might get tight [*gestures*] [*Behaviour of clenching, sensation of tightness*]

and frustrated and turn it off. [*frustration is both affect and a sympathetic nervous system arousal*]

Or it could be, for example recently a couple weeks ago

the news came on

and it was like the tone of voice was right in the drama of it, you know.

And talking about all these deaths that were happening locally in the country and abroad

and so it was boom boom, boom, boom [*gestures rhythmically with fist*]

I was like...

that is absolutely too much, you know what I mean? [*Lorna is aware of her arousal threshold,*

or the point that it is too much for her system]

And it was sort of rapid fire and [*clears throat*]

LC: rapid fire

Lorna: yeah...

LC: hmm

Lorna: violent.

Lorna is able to name the violence of the “rapid fire” of media, beginning not from a cognitive analysis of content, but by recognizing and naming sensations, and tracking her sensed, self-protective response. Lorna, by attending to sensation, is better able to know her limits and to make choices that support her sustained sense of agency. For example, after a brief conversation about climate change, energy alternatives and fossil fuels I asked what she noticed was showing up in her body:

Lorna: umm my jaw's a little tight [*sensation of tension, observable behaviour of clenching*]

LC: mmhmm

Lorna: little bit of tingling in my feet [*sensation*]

I think there's some anger there [*naming affect, clears throat and gestures around throat with hands*]

Really because... what I don't like...

What really bothers me is... [*slight tension more evident in jaw*]

When I'm looking it's almost like a veil [*she notices a sensed quality in her visual field that indicates a pull towards being zoned out or frozen*]

So it's almost like something is—

it's well it's called a wolf in sheep's clothing right? [*Lorna has made the leap from a sensation in her visual field to something familiar. She associates this with meaning— is the “wool being pulled over her eyes?”*]

So it's veiled as being something that's good for the environment,

and “give us, you know, give me some money for this.

And it's going to be really helpful to not use fossil fuels,

and oh yeah we've done our tests and we're all fine.”

But it's not really.

So they have another agenda, which is to make money.

And they're not really that concerned about the environment.

And they're willing to, umm, cut corners,

or not be direct and clear and honest and have integrity right?

So it's almost like I'm seeing [through] this veil

[gestures through and movement with both hands]

and then behind it is the real thing. Right?

LC: yeah and there's anger and I'm noticing some energy in your hands

like *[I mirror Lorna's arm movement that are reaching out in a "stop" gesture]*

Lorna: yah , absolutely, STOP *[a clear movement and speech enactment of boundaries]*

LC: yeah

Lorna: yeah, yup

LC: yeah, yeah I'm feeling

with that I kinda feel some energy moving in...

mobilizing in my legs and arms.

[sensation of mobilizing is an arousal in the sympathetic nervous system that corresponds with "I can do something"]

Lorna: yaaah

my thigh muscles feel a little... activated

yup

[...]

Yes and I think you know, now that we're talking,

what I'm realizing is that my process...

it's almost like gathering allies [*social engagement is possible*]

It's interesting, cause I'm only just coming clear

cause you know how I felt that powerlessness,

that it was too much... [*just coming clear and becoming available*]

So it feels like gathering allies so it almost is like,

you know, neighbours and friends... [*social engagement, connection, community*]

In the above interview excerpt, Lorna is able to track and loosen the coupling of sensation (jaw tension) and affect (anger) and feel what, for her, was a life-affirming sympathetic arousal of a fight response alongside another self-protective response of freezing and corresponding feelings of powerlessness. A “veil” or fogginess descends over her eyes in the context of experiencing a deception. In staying with the sensations and naming these various layers, she was able to shift from a feeling of zoned-out powerlessness, towards agency and connection to allies in community. Feminist epistemologies define body and lived experience as the ground of knowledge and explore the relationship of embodiment to agency (Belenky, 1986; Bordo, 1993; Grosz, 1994). However, tracking *sensation* directly is not necessarily included in discussions of embodiment, and the lived experience of women and men in my sample did not always refer to sensation, or use language to describe somatic layers of their experience.

Directing attention to sensory experience in the interview focuses on the language of the body and nervous system, inviting the elaboration of an embodied, active subjectivity, while simultaneously constructing it. Gubrium and Holstein (2012) name the narrative agency of both respondents and interviewers “who work together to discern and designate the recognizable and

orderly features of the experience under consideration”(33). In somatic artist-researcher practices, the agency of participants and researcher are respected and cultivated by somatic approaches that deepen the experience of bearing witness to sensory layers of embodiment (Adler, 1987; Clarke, 1995; Cohen, 1993; Levine, 1997; Stromsted, 2007; Olsen, 1991). Somatic approaches offers new and old ways of recognizing orderly features of embodied experiences of climate change, returning to and tracking sensations of trouble, while looking for ways to attend to mourning, fear, and anger, and to supporting agency through nervous systems that are sometimes overwhelmed by the threat of losing world and worldview.

5.3 Raising awareness of how climate change is embodied

The construction and reconstruction of narratives by active subjects in interview research occurs for both participant and interviewer (Gubrium and Holstein, 2012). In the case of my project, this non-linear, unfolding of complexity occurs before, during and after interviews, and will continue through performances and reciprocal relationships with various audiences. Those who joined in conversation with me as part of my project began to explore the tensions between mediated and direct experiences of climate change in an intentional way that included considerations of how these experiences show up in themselves as persons and nervous systems.

Several participants noticed that they had a lot more to say about experiences of climate change than they had expected. They were surprised that by speaking to me about their experience they became aware of how much energy they used managing their responses to climate change, and they became curious about noticing how these responses were somatically organized. For Sally, an artist, mental health counsellor and Somatic Experiencing Practitioner in training, her responses range from fear, to anger, to painting against the pull of becoming frozen.

Sally: When I think about climate change there's that

that... around us [*gestures with a blank look*]

that flat, frozenness... in people, right?

Paralyzing.

I didn't think I'd have much to say but now that I'm thinking about it and talking about it

(breath) wow! [*Sally is amazed– wide-eyed about how specific and rich her response is in the interview*]

LC: you do though [have something to say] and it's *your* experience.

Sally: It is. [...]

LC: How do you manage those things that come up

Sally: hmm...mm

I guess I paint.

I've been doing some somatic painting now– this newer kind of direction for me, umm

and painting *activation*, or what is in the body. [*The word activation is used to name the experience of sometimes challenging or uncomfortable sympathetic arousal*]

Umm, funny, I have this really clear memory right now that's come up.

Being in my basement, that's where I paint in the studio, in the basement

and um, and this overwhelming sadness came over me.

And I was thinking about being here as a kid.

And, you know how different it feels here now than it did then

you know it's a beautiful place but..

it's a scarier place- this road may not be here.

[]

LC: Sally, have you in your social media experience...

do you screen out a lot of the news?

Sally: yeah I don't look at it []

I just scroll through it

I don't even... [*gestures to show the pull of social media and her resistance*]

ah no I won't,

I don't.

LC: so that's a choice you made

Sally: Yeah, yeah I do

and maybe that's 'head in the sand,' but

to me it's kind of like, I do my part with what I do in my...

that just adds to the activation for me to see this stuff ...

it's overwhelming.

And I don't want to be a frozen,

to go into a state of complete freeze and

turn off or get jaded or [*clears throat*] or you know feel I

there's absolutely no opportunity...I think

sometimes I feel ...yeah [*disorganized language fits with an experience of some freeze*]

[*gestures and facial expressions denoting fear, powerlessness and a self-protective response*]

but, you know

some of the water level changes ... [*real perceived threat*]

Sally doesn't want to be frozen or cynical as a response to her fear about what is to come. Her home is in an area where a small sea level rise will change the coastline, swallowing the neighbourhood, her home, and the places where she has felt safe at many stages in her life. In order to be more okay with this reality Sally makes some choices. She, Lorna, Amber, and other interview participants, find social media and radio quickly become overwhelming, and she is aware of her threshold for this information, the risk of shutting down, and her need to move and express these tensions through painting. Following her creative impulse is a way that she feels her own nervous system and increases her capacity to be present in her life, available to support others, and engage in community.

Sally is also aware of her clients – she works as a counsellor in a women's centre– who are vulnerable due to a constellation of various oppressions, including racialization, addiction, poverty, and intimate partner violence. She wonders how these marginalized women will deal with sea level rises (direct experience of climate change) and as the news from other parts of the world becomes even more dire (mediated experience). She is also aware of her own children, wondering about the effects of climate change on future generations, as described in Chapter 4.

Bill, an oil industry professional who travels internationally with his work for a large oil company, was also surprised by how much he felt the effects of media related to climate change

in his body. Even though he was less experienced in naming sensations, he noticed how stories of the lack of concrete climate action, and images of disaster capitalism affect his nervous system, which, as described in Chapter 3, make it increasingly difficult for him to travel due to anxiety.

LC: And all the media and all that is going on

has a big impact on “the cloud” [*ambience or atmosphere of climate change threat*]

Bill: yes, I see them all tied together

I see it as a way of... this stuff is happening.

And people, instead of bringing it into a more,

you know open productive, ‘roll up your sleeves’ discussion.

It just highlights all the uh... what’s the word?

The uh worst nature of people who,

you know, find opportunity in tragedy,

and find ways to make money that way.

LC: I was reading earlier, the expression “disaster capitalism”

Bill: yes, that's exactly it.

I'd never heard of that but that's exactly...

LC: and those who exploit people who are...

Bill: Here's a perfect example that I've read through multiple media sources.

You know I have a number of specific papers or websites that I follow,

and then Twitter.

But the company that was awarded to clean up Puerto Rico,
to do the electrical powerlines and this and that–

I don't know if you read about this one.

They were awarded all the work– 300 million dollars.

When they were awarded that– they were a Montana-based new company –
they had two employees!

And they were awarded 300 million dollars.

[details]

And so I read about that a week ago

and it started to uhh rumble *[gestures in a circular motion around his abdomen]*

[Bill's breathing becomes more obvious, but is shallow and tense- a heightened sympathetic arousal]

And then the anxiety it's just...

check, and check, and what's the update on this *[eyes are darting around]*

and you just feel that there's just something so wrong...

So they're going in there cleaning up from this weather disaster

and now we're seeing every day.

So it turns out they're a huge contributor to Rick Perry

who was Trump's secretary to bla bla bla... energy. *[frustration, anger, and face is red]*

And then today and again... Somebody, just step in and say

“It's okay we've got this...

you know we're taking care of this, we're righting all the wrongs”

And it just doesn't happen.

So today copies of their contract came out

which is ridiculous.

It says they get the 300 million no matter if they finish the work or not!

And that's exactly what you're calling, what is it?

Disaster capitalism.

[breathing heavier and face has become quite flushed and eyes continue darting around]

Bill, like many people, is not accustomed to tracking sensation in a lot of detail, but names an experience of *anxiety*. Though Bill does not talk about his interoceptive experience, during our interview I notice the changes in his breath, posture, the colour of his face, and sound of his voice and movement of his eyes. Bill names his anxiousness in relation to the pull of media – specific papers and websites that he follows. He is looking for relief, for someone to take charge and make things right, but mostly what he finds online contributes to “the cloud” or heaviness – the ambience of threat that is part of his mediated climate change experience.

Many interview participants described a pervasive atmosphere of loss and threat in relation to climate change, and that this shows up in their experience as a heightened anxiousness (a sympathetic activation), a heaviness, or cloud of doom. Whether these experiences are characterized as feeling the trouble, or trouble feeling, in this named atmosphere there is a strong pull towards a protective freeze response. This pull towards frozenness is directly in tension with the nervous system's capacity to stay present and roll with the demands of life in a rapidly changing world.

5.4 Tracking and titrating trouble (autoethnography)

When I was a little girl I would run around and around the perimeter of my maternal grandmother's house. On the East side of the house, the grasses and flowers grew in wild entanglements, and bees would assemble, according to the time of season and their taste for clover, buttercup, dandelion, morning glory, and black knapweed. Each time I passed through the bee's place my pace would change, movements slowing and becoming more attentive to each footfall, sensing the coolness across my hands and arms as they cut through air, while my voice greeted the bees in a prosodic tone, "Hi bees... hello bees." I loved this place and being a child with bees, but also felt a sense of nervousness in my body with them. Perhaps, if I threatened them, they would chase and sting me! Memories of these early embodiments, and negotiations of childhood exuberance in movement and sound with bees, resonate in my 50-year-old body when I pass through clusters of fireweed on the trail near my home.

When I – an organism – assess that a threat is more serious, a limiter kicks in. This happens when the amplitude of excitation reaches a certain threshold. This ceiling, once overwhelmed, tips my system over into fragmentation, rendering artifacts that seem disconnected from meaning and appear to have no reference. Though I feel fragmented, I may appear intact to others in the room. I'm not moving much now, and have become still, at least to an outside eye. Here, I have temporarily lost access to what I know, how I know it, and even to speech itself. I was relieved when I read Spry (2016) write about how "a multitude feeling of guilt, shame, and remorse would overtake me, overtake my embodied somatic, and hold any semantic expression hostage" (50). This happens sometimes when I'm performing identity as an artist-scholar, and as

an embodiment scholar inside of institutions where bodies tend to disappear under the black cloaks of academe.

In witnessing my own embodiment of frozenness, and tracking freeze and thaw both somatically and creatively, I resist the sociocultural norms that assume universal standards of productivity and competence, noticing how these standards disappear some bodies, embodiments, and identities and not others. I am curious about the relationship between a state of dorsal vagal dominance, and the fragmentation and chaos that are a necessary part of creative process. In the winter of the creative cycle, bodies conserve energy, protecting unknown fragments of emerging knowledge as they become known. My own clarity, and capacity to be compelled usually returns once I have moved through this part of the cycle, having rested here a while. This is made possible by my feeling safe enough, and when I am accompanied by artist colleagues who I trust. Re-emerging, I can notice, track, and titrate experiences of tissue and muscle tension and release, the flow of energy, tingling, heat, and return of aliveness. Re-emergence/rememberment/unfurling is made easier when supported by other bodies – two and four-legged, winged, barked, furred, fronded, and finned.

Somatic practices, and being and becoming in the woods, near the river, and on cliffs, with critters and human friends, lead to greater (co)regulation, and ways for my nervous body to give and receive support. In these super wicked times we need ways of staying together,, present to the tensions – ways of staying with the trouble (Haraway, 2016). My increased capacity to be compelled allows for pro-social and creative responses to threat, and the potential for greater agency in community with and for a network of human and more-than-human others. I am thankful for the privilege of safe enough places to practice and connect, and for my memories of early, exuberant embodiments that I can call upon as resources to stabilize my bodily sense of

safety in moments of challenge.

I could hear the relief in Brian's voice when he saw the bees. I could hear this through my body, taking a breath that was somehow easier than the one before, shoulders releasing to gravity, sensations of more fluid movement in my ribcage, and greater awareness of my body below the diaphragm. I felt my feet against the path and a tingling sensation in my legs. I hadn't noticed until now that I had been holding my breath, shallow, before this. My focus softened – a sensation of tension melting around my brow, eyes and jaw. Turning my head, my eyes found a patch of Russian Sage. I asked Brian if I was identifying a feeling of relief in his voice when he saw the bees:

Brian: Umm in a sense, yeah, perhaps a bit of relief, but umm

we know that bee populations have suffered greatly. And, so wherever they choose to come and have a nice little snack, you know as much and as often as they want.

That's great.

It's sort of, you know, it makes the sometimes

fff...

that shadow of doom,

that we're just COMPLETELY FUCKED...

But there are bees, so it's not complete yet...

Maybe there's a way out of this.

Maybe there is. And if there's something that WE can do that mitigates the destruction

then hell yeah, well why not.

*As a matter of fact, that was the reason for umm, amongst other things, growing bee balm.
It's the red plants (points)*

*And the strange thing is I haven't seen a bee around the bee balm (laughs) but they love the,
the day lilies...*

A recent media focus on the troubles of bees and other pollinators has informed public knowledge of the dangers of farming monoculture, methods of unsustainable practices that mine the land, pesticides that harm bee colonies while poisoning the food chain and watershed (Gabatiss, 2017), as well as the ways that climate change affects the synchronization of blooming and cycles of pollination (Carrington, 2014). Articles, radio and video documentaries, and clickbait highlight very real threats to bees. Through the creation and distribution of media, the hope is that changes will be made to human behaviour which has impacts on bees, locally and globally. Regardless of human agency, Randall (2009) points out that social media fetishizes bees, reducing “the bee” to an icon of anticipatory loss and doing little to stop the agricultural machine of global capitalism whose methods continue to threaten the bees’ existence, instead, trapping us in the performance of self-indulgent, apocalyptic narratives (17).

*Reflecting on bees, on bears, or moss, or on anything ecological, is to reflect on society and to bear the weight of the ways that Anthropos continues to disrupt and destroy Earth systems. However, thinking about, being, and becoming in **kinship** with bees, corals, ice, polar bears, mosses, lichens, fungi, and toads imagines spaces for intra and inter/all our relations. These spaces of unknown possible future kinship attend to the more-than cognitive ways of krittters (or creatures)²⁴ that matter and include humans as matter and relations.*

²⁴ Haraway (2016) prefers “krittters” and removing the theological implications of “creatures,” further decentering Anthropos (169).

5.5 Broken We

I really do think that tensions in the world order are because of the effect of climate,
the differential effect of climate on people.

That's not going to go in a good direction [*almost gasping inhale with smile*]

[*Debra is smiling. She is angry. It is the smile of a wild cat, a defensive facial pattern that looks like readiness to attack. Her body is bracing through arms and neck*]

Like I don't see any good coming out of that...

you look around for someone to blame.

Debra

As a millennial, I'm aware that we have, umm

we have DONE this to the planet.

And we continue to do this every day.

That the shocking thing to me...

you know our government does Muskrat Falls²⁵ on a daily basis.

²⁵ Muskrat Falls is a waterfall on the lower Churchill River about 25 kilometers west of Happy Valley-Goose Bay, Labrador. A hydro-electric mega-project backed by the Government of Newfoundland and Labrador threatens the health and lives of Indigenous peoples of Labrador through destruction and poisoning of ecosystems, the food-chain, and potential collapse of the Northern Spur which threatens several communities of human and more-than human kin in the region. See <http://aptnnews.ca/2017/11/17/in-the-shadow-of-the-dam-the-failure-of-reconciliation-at-muskrat-falls/>

We make the decision to continue with a project

that has no good behind it, right?

We, umm, take advantage of Indigenous peoples all the time.

I feel really guilty about that every single day

and it's all tied to the environment.

Maggie

The concept of the *broken we* began emerging in my notebooks during a Somatic Experiencing training module working with traumatic stress responses to horror, terror, torture and ritual abuse. Like Butler's (2004) "tenuous we," the *we* I refer to here is not the nebulous unity of oneness, but the potential for specific complex embodiments of relations. It also relates to Spry's (2002) "*willful embodiment of We* as a guiding principle of utopian performatives"(33). The *broken we* is a way to name the capacity for being in and of the world with a sense of vitality, complexity of connection, and agency that is injured by traumatic stress. The *broken we* is embodied in various individual, relational and culturally-situated and institutionalized configurations of traumatic stress response— from emergency responders without adequate support, to stumbling systems reacting to the opioid crisis, to toxic mental health work environments, to institutionalized oppression in universities and professional organizations, to government policies giving lip service to reconciliation while kow-towing to big oil.

The *broken we* is at the heart of these crises facing human and more than human kin. We embody ecological collapse, as do corals and bees, bears and whales, in postures, tissue states and behaviours. The 'we' is broken when our capacity to connect is injured through exposure to

cumulative, and ongoing traumatic social and environmental stressors, and normalized violence. This injury is continued through direct experience bearing witness to local environmental losses, and vicariously, through mediated exposure. Mediated exposure is not limited to digital media channels, and includes personal accounts of others – neighbours, family, friends.

Re-mattering, re-inhabiting frozen bodies and healing the broken we requires theories and practices, towards an intercorporeal becoming that include sensings and worldings with more-than-human kin. Neuro-affective maps of the threat-response cycle based in polyvagal theory support greater agency in connection, and deemphasize individual pathology, supporting a shift towards connection and community, deepening experience in connection with others, and knowledge that the current environmental crisis is intimately tangled with social injustice.

As described in earlier chapters, trauma is not in an event or series of events, but lives in the nervous system (Levine, 1997). What we have come to understand as trauma or a traumatic stress response often occurs when freeze/ immobilization, becomes coupled with fear (Levine, 1997; Porges, 2011). The result is that an experience of feeling threatened and corresponding impulse to self-protect remains as an imprint that is activated when a person or community feels threatened in any way. Human bodies that perceive threat have a dynamic threshold for which sounds, which voices, which meaning, gets processed through social engagement. Failing social engagement, and when there is too much activation in the sympathetic system, the organism experiences overwhelm, and it becomes more likely that the phylogenetically older freeze response will dominate over pro-social responses.

The purpose of witnessing patterns at the level of somatic experience doesn't abandon attention to the social situatedness of bodies, and questions of power and agency. Quite the opposite— a justice-seeking somatics brings awareness to these more than cognitive self-protective, survival

impulses that are at play in (e)merging cultural spaces and recognizes them inside histories of colonization. A justice-seeking somatics acknowledges intersectional histories of social and economic privilege, gender-based oppression, and racialization (Briggs, Hayes, & Changaris, 2018; Menakem, 2017; Johnson, D.H. 2018; Johnson, R. 2017).

Attending to persons and nervous systems in intersectional spaces means naming historical and intergenerational trauma, ongoing micro and macro aggressions, acknowledging the ongoing colonial project, settler moves towards innocence (Jacobs, 2009; Tuck and Yang, 2012; Simpson 2014; Simpson & Smith, 2014), white fragility (DiAngelo, 2011), and the grief and rage of those invisible to dominant culture due to racialization, gender, queer, crip, and neuro normativity (Briggs, Hayes, & Changaris, 2018; Burstow, 2003, 2013; Johnson, R. 2018; Menakem, 2017; Michalko & Titchkosky, 2009; Walker, 2018).

At this moment of mandatory systems transformation in the face of climate change, and annihilation of species and ecosystems, being creative across difference – including species difference – is no longer optional. We must learn, as Montuori (2011) writes, “to talk across differences in ways that see difference as the source of creativity rather than of mutual destruction” (60). More than *talking* across differences is the complex and messy work of feeling nervous (systems) and creating safe (enough) spaces in which bodies can re-member their innate capacity to be compelled; compelled to protect the earth and cultivate individual and collective resilience in the face of rapid changes to Earth systems. Dodds (2013) writes that “(d)espite the anxiety, guilt, and terror that climate change forces us to face, this crisis can offer us an opportunity for a more open vision of ourselves, as subjects, as societies, and as a species, among the interconnected life systems of the Earth” (11). To create what Haraway (2016) calls for – cultural, natural and built environments of refuge that are inclusive – we must cultivate ways of

attending to the somatic experience of neuro-diverse bodies.²⁶

5.5.1 Witnessing grief and rage

In Butler’s foundational work on grief (2004) she asked “what can we hear?” – which voices and questions are permissible, who and what are named as grievable objects? Because we have perpetrated and are living in the sixth mass extinction event (Ceballos, Ehrlich, & Dirzo, 2017), that we are mourning species, ecosystems, ways of life and identities, has been established (Cunsolo, 2017; Weintraub, 2013; Weissbecker, 2011). Through somatic artist-researcher practices, in this inquiry I begin to tease out a thread of Butler’s question, theorizing *how* can we hear? (or not hear/witness) and exploring how persons and nervous systems embody the call and response of the so-called Anthropocene.

“Staying with the trouble” (Haraway, 2016) from a somatic perspective means attending to unsettled bodies and tensions in the colonized intercorporeal zone, acknowledging guilt, shame, fear, anger and powerlessness and their associated tissue states, movements, and postures coupled with behaviours. Staying with troubled bodies means cultivating ways to sit with difference, in warm/cool enough, safe enough spaces to process some of the defensive tissue states and cognitive positions organized by nervous systems under threat. In tracking how white settler bodies respond to the ambience of climate change threat, we must begin to notice and

²⁶ Valuable directions in thinking about neurodiversity and how to cultivate sensory processing capacity come from the autism community. Walker (2018), a somatic practitioner and leading thinker in the neurodiversity movement writes of how autism is one of many manifestations of neurodiversity in the spectrum of human experience. He writes that “differences have their basis not only in differing individual and cultural experiences but also in innate biological variation in neurocognitive functioning” (90). Thinking with Walker, persons and nervous systems who become overwhelmed by knowledge of climate change can learn from autistic voices- “It boils down to this: the more one’s use of the body has to be geared toward regulating sensory and cognitive experience, the less it can be geared toward social purposes...” (Walker, 2018. 95).

loosen the ways that dominant cultural spaces for climate action uphold white settler privilege and institutionalized racism. Getting curious about how experiences of white fragility, feeling threatened, and mourning show up in white settler persons and organisms supports the capacity to create greater safety for all bodies and cultivates deepening social engagement.

5.5.2 Colonization, Bodies, and Climate Change

I wonder how our bodies would function if they weren't tasked with survival in an occupied state. What if our muscles did not have to stay braced for battle even as we sleep? How would we relate to one another if we were able to let down the weight of anti-colonial armour from our skin?

Erica Violet Lee (2016)

While white settler bodies respond to climate change threat, Indigenous bodies are also, in the words of Lee (2016) “tasked with survival in an occupied state.” In this scholarly project of mourning, entering into tissue states of grief, fragmentation, frozenness, and rage as a white-settler scholar, I must acknowledge threads in the intimate tangle of knowledge construction and colonization (ealom, 2018; Johnson, 2009; Kuhn, 2018; Reyes, 2018; Tuck and Yang, 2012). I name these threads even while I sit with the tension of knowing that my somatic artist-researcher practices have required the safety, economic and social privilege that is mine as a white-settler scholar. As I live in these tensions, sometimes freezing and losing access to my own words, I find resonance in the words of Spry (2001)

The embodied autoethnographic text is a story reflecting the research artist's collaboration with people, culture, and time. It is generated in the liminal spaces between experience and language, between the known and the unknown, between the somatic and semantic. The text and the body that generates it cannot be separated. Surely, they never have been. Postcolonial

writing has not brought the body back, it has exposed and politicized its presence... (276)

On the occupied ground, Inuit, First Nations, and Métis people are disproportionately affected by climate change, particularly those living in circumpolar Northern regions where more rapid warming of the Arctic has led to accelerating changes to sea ice and migration patterns of land and sea animals. Direct losses and anticipatory losses of relationships with land, seasons, and ways of life are unequivocal sources of grief and mourning for Indigenous people (Cunsolo et al., 2015; Durkalec, Furgal, Skinner, & Sheldon, 2015; Ford, 2012; Mameamskum, 2014).

As written in a report prepared for the Assembly of First Nations by the Centre for Indigenous Environmental Resources (2006):

The loss of opportunities to exercise and experience cultural activities as a result of the impacts of climate change on settlement patterns, sources of food and medicines, or spiritual sites undermines First Nations lifestyles. This adds to the severe pressures already facing First Nations as a result of their reliance on a changing environment and complex social pressures. As the environment changes as a result of climate change, First Nation culture is also forced to change. (33)

Simpson (2014) recognizes that decolonizing can “only be achieved by my (privileged perspective) stepping aside and allowing other knowledge-bearers- in particular, Indigenous knowers, to take the lead” (16). Indigenous scholars have published significant community-based research since that 2006 report that also voices the experiences of Inuit and which names land-based learning and mourning losses of climate change as important aspects of mental health and resiliency (Cunsolo et al., 2015; Cunsolo & Ellis 2018; Obed, 2017). Simpson (2014) expands on land-based learning, naming the land itself as pedagogy, and “the shift that Indigenous systems of intelligence compel us to make is one from capitalistic consumer to cultural producer” (23).

As an artist-researcher I am beginning to learn how to interrogate my own white settler privilege, and white body supremacy (Menakem, 2017). I waded with Thorpe (2012) into the tangle of race, gender and Canadian nature, in her unsettling look at the history of the struggle between the Teme-Augama Anishnabai First Nation and the Ontario Government over n'Daki Menan.²⁷ This thinking has deepened and decentred my experience as a white settler artist-researcher living in the ancestral territory of the Beothuk. It has also increased tensions in my thinking about the erasures of Indigenous bodies and histories in the name of conservation, as I live in my home in the woods, and where my nearest neighbour is the Nature Conservancy of Canada. Thinking with Thorpe (2012) also influenced my approach to interviews and explorations of embodied tensions between direct and indirect experiences of climate change, globalization, colonization, hope, and action.

5.5.2.1 Imagination is the war that matters²⁸

When I first asked Debra (a white-settler United Church minister in her sixties) about the connections between climate change and colonization and how it shows up in her life, she began by saying that her ministry doesn't intersect with First Nations communities. She emphasized how it didn't relate to her direct, lived experience so she couldn't speak to it.

Debra: There hasn't been a lot of intersection with First Nations community in uh,

²⁷ To the Anishnabai, n'Daki Menan means "our land" but the area is known to settlers as Temegami, Ontario (Thorpe, 2012)

²⁸ "The only war that matters is the war against the imagination, all other wars are subsumed in it" From the poem Rant, Di Prima, D. (1990). *Pieces of a song: selected poems*. San Francisco: City Lights Books.

amongst my people.

I mean it's certainly something we talk about,
but in terms of real lived experience I would say not.

Umm, you know where that does come to me
is that we do have family members who, umm uh
travel in the North for work.

LC: umhmm

DB: and relate with folks there and I have...

Oh, I have a clergy friend actually who is doing a volunteer stint in the North.

And the um you know the effect of the thawing of the permafrost and the changing in
migration patterns of animals...

I mean, let alone the penetration of the Northwest Passage and the resource exploration and
the pressure for that. But just the...

I can't imagine what it would be like to be in the North, you know?

With your, your whole heritage really... umm

built around a certain way of encountering the landscape and that the landscape is going to
present to you in a certain way.

And it has, for you know– for ah, the length of your oral history–

it's always been like that. And then...

over the course of one person's lifetime that

those things are just not happening anymore, you know.

The migrations are not here.

The fish species are different.

The ice is gone.

The, you know there are rivers where there never were before and

there are dry beds where there used to be water.

But I can't imagine. It's a complete upheaval.

And to experience that upheaval and to be, you know,

a people so closely connected with the land and the sea

it's, it's not like we have that kind of upheaval here.

But we go to downtown Halifax and it's still the same, right?

It's a little hotter a little colder,

a little windier a little dryer,

but you know I, I don't get that.

But I do get from my relation who travels to the North a fair bit and you know,

sends back pictures, and diaries, and works with First Nations.

It's like, I just get a little bit of a flavour of it there.

When Debra began to respond to my question about connections between colonization and climate change, she used the phrase “I can't imagine.” What resonated for me is that she then went on to engage in an exercise of imagination and a recounting of knowledge of climate change – indirect/mediated images – of the rapid and unequivocal changes in land, relations and

ways of life for Indigenous people in the North. It is clear that she, and others in my interview sample do imagine, in fact white settlers imagine the lives of Indigenous people a lot, based on mediated knowledge, but mostly not in relation to invisible white settler privilege. Many of us white settler folks who haven't spent time doing the work of acknowledging our privilege assume that colonization relates only to Indigenous people.

But I can't imagine. What am I saying when I say I can't imagine? Is it that imagining hurts? Am I giving in to the "I can't," to freezing in the tension of our trauma history? White settlers are often in freeze when it comes to our colonial histories. It is uncomfortable to shake the worldviews that form the false refuge of dominant culture. Scratching the surface of colonial history and privilege means facing (sometimes overwhelming) guilt, shame, rage and grief which are organized in nervous systems— the trouble, embodied. Living in freeze/immobility is living in "I can't imagine." Responding unconsciously mostly ends up with organisms living in and out of a freeze state— what Levine calls "functional freeze"— and rendering the "other" as invisible, as iconic, and histories as un-grievable.

Re-membling without othering is an embodied affair of the imagination. Through the senses, touching our grief and rage can break through walls of numbness, eroding that which keeps us from aliveness and connection. I asked Callum, who had experienced what he described as the transformative power of decolonizing in his own life, about how this showed up for him.

LC: uh. so when you say that it's in your body,

like there's a bodily response... umm.

Do you feel it literally, as a sensation?

Callum: some days.

LC: mmhmm

Callum: yeah. I feel a lot of things in my gut.

Feel a lot of energy there

so I feel that definitely [...]

LC: do you think that mourning has a part in that process?

Callum: yes, I do cause I've experienced it personally.

Umm I'm not sure what I was mourning.

Maybe I was mourning you know the loss of Mi'kmaq land when I was protesting.

Maybe I was mourning the loss of my own colonial attitudes.

But I think mourning is a... is a transition period

sort of a withdrawing before you can come out with

fresh ideas and new perspectives.

Callum named and described a couple of threads in the knot of mourning colonization in his gut, and how these threads have an impact in his life and his mental health. His sensory experience is the language of his nervous system. Attending to embodied experiences loss and threat supports neurophysiological (co)regulation. By leaving out the body, unresolved or incomplete self-protective impulses become locked in patterns of recapitulation – we may “know better” but continue to behave badly.

Facing colonization requires imagining the unimaginable histories, in the flesh, in our senses, tracking and becoming aware of the connections between settler colonialism and heteropatriarchy, (Arvin, Tuck, & Morrill, 2013) as they are embodied in our nervous systems

and well understood by Indigenous scholars. Tracking and staying present and grieving, and becoming unsettled, but in a titrated way that is not overwhelming, *together*, is transformative. Containing and re-membling— consciously entering into the embodiment of our trauma histories is an important part of the work of decolonizing. This is a critical part of staying with the trouble of climate change.

5.6 Contributions: theorizing embodied responses to climate change threat

Through this project, I bear witness to and co-construct the experiences of fifteen people in Atlantic Canada, including myself, who are living in this strange moment of systems transformation/collapse in the face of climate change. My goal has been to contribute to developing theory through understanding embodied experiences of climate change at the level of persons/nervous systems, always already in relation to communities, nations and global contexts. Grounded in interviews and somatic artist-researcher practice, I theorize embodied responses to climate change threat and respond to Haraway’s (2016) call to be open at the edges and “greedy for surprising new and old connections” (160).

The heavy ambience of climate change that exists, and that is identified by interview participants in this research, can be characterized as a chronic environmental stressor that influences all bodies. Payne, Levine, & Crane-Godreau, (2015) describe traumatic stress responses on a continuum as “a chronic but mild elevation of sympathetic response on one end, and chronic extreme activation of both sympathetic and parasympathetic (or more exactly, ergotropic and trophotropic) systems at the other”(5). The continuum of human nervous system threat response *capacity* – the capacity to be compelled – is influenced by many factors, including genetic

makeup, health, social and economic oppression, privilege, attachment and trauma history (Bowers & Yehuda, 2016; Johnson, R, 2018; Kain & Terrell, 2018; Menakem, 2017).

The research presented in this dissertation contributes to understandings of the ways that persons and nervous systems are affected by mediated knowledge of climate change, and the tensions between direct and mediated experience. Some of the themes, as highlighted in Chapter Four, include social engagement, creativity and connection in community, and *resourcing* in natural environments. Feeling engaged with a sense of connection and a state that includes a degree of relaxed awareness, makes it possible for sympathetic arousal to be channeled into pro-social/pro-earth action. Some responses, also illustrated in my interviews, are more about managing increasing levels of anxiousness and fight and flight responses to loss and threat – holding tensions in bodily patterns such as tightness in gut, jaw, neck, shoulders and viscera.

Other themes, reported in interviews, and explored in the performance *Freezing in the tension*, include physiological frozenness and paralysis and corresponding psychological numbness, disorganization, depression and feelings of hopelessness. For some people a freeze response looks like complacency (“it’s not my party”) for others it manifests in dark moods and depression (“I have a lot of trouble feeling joy... and I stop pushing myself to do things and I just get very insular”). Participants in my interviews shared examples of all three threat responses, corresponding to three systems – social engagement, fight and flight, and freeze (Porges, 2011).

The understandings about climate change experience I explore in this dissertation could contribute to transdisciplinary climate change planning which would do well to include embodied social justice approaches. Diverse nervous systems require a range of strategies to support greater self-regulation and co-regulation in family, educational and health institutions, and community. Understanding embodied responses to climate change threat using heuristics of

polyvagal theory (see diagram 1, p 27 is one way to visualize and make sense of diverse responses. It is my position that polyvagal theory is flexible and inclusive, and that its use makes it possible to observe and bring greater compassion to ourselves and each other, across differences. Compassion at the planning table will be critical as ecosystems and geo-political realities shift in the Global North, including Atlantic Canada. All levels of planning will benefit from ways that support greater (co)regulation, and which are not overwhelmed by fear and rage.

5.7 Towards a Justice-Seeking Somatics

There is a growing international community of somatics practitioners, in several disciplines, calling for a justice-seeking somatics – a transdisciplinary field exploring how to create frameworks for various types of refuge across difference (Briggs, Hayes, & Changaris, 2018; Johnson, D.H, 1994, 2018; Johnson, R, 2009, 2018; Johnson & Grand, 1998). This direction may seem new but is part of a long history of practices and social movements grounded in the wisdom and evolutionary potential of bodies, moving and being moved, and curiosity about the bodily basis of the social order (Grand, 2012; Hanna, 1970, 1986; D.H. Johnson, 1994, 1997, 2008, 2018; Johnson, R, 2009, 2014, 2018; Johnson & Grand, 1998; Langfeld & Rellensmann, 2015).

In the words of Ian J. Grand (2011),

“[w]e see that the organization of self, and self-with-other, occur through bodily means. We look at how culture and social institutions value, encourage, and reward or punish particular forms of embodied expression, and certain strivings for embodied meaning. We hold that the lived body is both symbol of the past and the making of the future. It is the place where values and meanings are lived” (45).

I am indebted, in particular to somatics leaders and teachers Don Hanlon Johnson, Judyth

Weaver, Tina Stromsted, Lee Saunders, and Ian Grand, who have always challenged students, and research colleagues to think, embody, and strive towards values for justice while bringing consciousness to how we embody existing conflictual tensions. Grand (2012) writes:

The multiple images of somatic enactments we practice are not only conflictual. They are also empowering. They let us incorporate actions, presences, ways of being and doing. People form many identifications and identity representations in both the family of origin and in the communities of participation to which they belong. They can be in conflict with each other or act together to form a positive complex of various kinds of empowerments. They are, as I have noted throughout, derived from participation in multiple communities, and they contribute to the enactment of these communities, as well. (552-553)

In the quote above, Grand (2012) names multiple communities and embodied enactments in and of communities. My research project contributes towards deepening understanding of climate change experience, and how the conflictual tensions that exist in bodies, and in communities, have implications during this time of rapid changes to Earth systems.

5.7.1.1 Implications for practice – future directions

I propose that what is missing from planning around climate change is recognition of the need for (safe-enough) passages into the contended, leaky zone re-membling, listening to, and inhabiting bodies – bodies that mourn, bodies that are afraid, bodies that rage, bodies with personal, cultural and intergenerational histories, whose protective systems may be overwhelmed. Planning requires bottom-up approaches, and somatic work that disrupts neuro-normativity (Walker, 2018), and white body supremacy (Menakem, 2017). It also requires active gestures of support for Indigenous ways of knowing, and deep listening to and collaboration with Indigenous leaders and scholars, whose embodied knowledge of land, and relations with more-

than-human kin is desperately needed in our colonized world (Million, 2008; Prior & Heinämäki, 2017; Simpson, 2014; Todd, 2014).

Creating safe enough spaces and building places of refuge is a complex, transdisciplinary, trans-species affair that would do well to include somatic approaches. Understanding experiences of embodiment and cultivating strategies and practices of co-regulating across difference will be key in addressing how privilege, racialization, gender, queer, crip, mad, and neuro norming, white fragility and the many other barriers created by colonization are imprinted in *all* human nervous systems.

Specific directions coming out of my doctoral project includes ways of deepening activism with artists, scholars, and activists in community. Menakem's (2017) *My Grandmother's Hands*, Rae Johnson's (2018) *model of embodied critical learning and transformation*, and the embodied liberation work of Sage Hayes (embodiedliberation.com), offer practical entry points into acknowledging, exploring, and beginning to heal from traumatic colonial histories and provide specific strategies and practices that can be adapted to local communities on the ground. As a justice-seeking somatics works towards a mending of the broken we, it must be done both personally and in community. This local work in my community will join with a growing international community who are finding refuge and agency in somatic explorations of racialized and marginalized bodies.

Other directions include development and deepening conceptualization of somatic artist-researcher practices, further writing and practice of embodied interview research methods and analysis, as well as pursuing other directions of somatic/semantic collisions arising through this project. Some of this will take the form of autoethnographic texts and performances. Potential directions for collaborative transdisciplinary (mixed methods) research might include measuring

vagal tone in relation to climate change experience and exploring/evaluating somatically-based strategies to support community resilience in relation to climate crisis.

5.7.2 Performing tensions- *Feeling Nervous on the Land*

I conclude this dissertation by sharing reflections on creative process and performance practice as an integral way of more-than-cognitive thinking and knowing in my research. *Feeling Nervous on the Land* performs anxiousness, fragmentation, rage, and loss, anticipating the disappearance of ice and polar bear habitat, changes in shorelines, and identity, all of which are aspects of performing the trouble of climate change in Atlantic Canada. The following video link documents work in development— *Feeling Nervous on the Land*. https://youtu.be/58ots3t_b5E

As with the previous video links, this also points to a digital ghost, capturing layers of an embodied, durational, relational process. It includes footage from studio rehearsal and two performances in June and August of 2018 as part of programs I curated and hosted with support from the Performative Inquiry Group (PIG). These events were held near the Treehouse in Maddox Cove, Newfoundland, and featured the work of Andrea Cooper, Lois Brown, Daze Jefferies, Josh Murphy, Tedd Robinson, Sarah Joy Stoker and me. My performance – *Feeling Nervous on the Land* – integrates critical autoethnography, interview analysis, sound design, somatic practice, and dance.

This video documents experimentation with elements of walking in procession with an audience, on the land, performing on the land, sound design, and costume exploration, towards a more complete performance work for various sites and the stage. Integrating gestures, voices, and meanings that emerged in interviews with Sally, Catherine, Brian, Callum, Tim, and Debra, in this work I explored the intersections between and across participants, some of the conflicts and

tensions between interviews, and in my own body as artist-researcher. This is documentation of artistic process, and embodied analysis of interviews through a somatic artist-researcher practice.

The sound design of *Feeling Nervous on the Land* integrates sounds of the Anthropocene (although, arguably, all sounds of this era could be characterized in such a way). In this piece you will hear my field recordings of toads from the Codroy Valley, Newfoundland, and Eurasian Collared Doves from the San Pedro Riparian Conservation Area, Arizona. Both species were introduced to these regions by humans and both markedly dominate the acoustic ecosystems of the places they inhabit. I worked in the studio with recordings of a raven pair whose territory I live in, but chose not to work with these sounds outdoors, so as to not interfere in their territory by introducing raven sounds that might be confusing to them. You will also hear the sounds of human voices from interviews with people in Atlantic Canada, the voices of ice, river, wind, and a motorboat.

The gestural vocabulary in this and other performances emerged in the space of interviews and in my response to, between, and across the interviews and to the more-than human inhabitants of the land. Throughout my research, I worked weekly at the Dance Space at MMAP (Centre for Music Media and Place) and also at home and on the cliffs and near the river in Maddox Cove. By May I had mostly recovered from *Freezing in the Tension*, and the frozen shoulder that manifested in what I now consider to be a part of research as mourning.

Listening to a recording of Sally's voice I recalled the bracing, "preparing, cause there's this threat that's there, all the time." I entered into postures and gestures that had emerged in my interview with Sally, who named specific embodiments of her interoception of threat – sensations of tensions and movement in the gut, bracing in the arms and torso, and the freeze/collapse response to feeling overwhelmed. While on the land near the Treehouse I was

drawn to a place where the movements of bracing, an upward moving wave of anxiousness, collapse, and unfurling moved me towards a tree that had been sheared off by recent high winds – one balsam fir at the edge of a diagonal of fir kin that were either sheared off or tipped up by the high winds that are more frequent now.

Working on another section of this piece, listening to the voice of Kerri and her reflections on polar bear kin, and to sounds of ice cracking and melting, I entered into a movement improvisation, following tissue and movement impulses, attending to interoception, proprioception, meaning, and my environment. I found myself imagining these movements on a moving, melting, and disappearing ice sheet, my body balancing, scrambling, and reaching up as the liveable ground supporting me became smaller and smaller.

The sounds of ice give way to the sounds of water gently lapping, like in St. Margaret's Bay, Nova Scotia, where I held the interview with Tim. Tim's embodiment of a contemplative calm that he attributes to meditation practice, was coupled with the sounds of the water, and when I



listened to these sounds in the studio, I followed into movements of softening and flow – movements that also recall my interview with Amber and her reflection on paddling. This grounded state of relaxed awareness is what is needed to build up the inner resources needed to enter into anger, rage, and movements of clarity and

assertiveness (healthy aggression) that are difficult for Tim, and others, and which I sometimes touch into through my moving body.

Exploring and inhabiting the gestures and resonance of the intercorporeal space of the interviews, on the land, and in relation to audience, cultivates more-than-cognitive ways of knowing, and emergence of knowledge through movement practice, and performance. This is an example of the ways of knowing cultivated through somatic artist-researcher practice. The performance-based work that emerged will continue to evolve, towards a 30 to 45 minute group work for various sites on the land and the stage, and sites “for the construction of meaning in the consciousness of the audience” (House, 2018). This artistic work is not primarily interpretive, nor simply an expression of the research content, but emerges from the somatic artist-researcher practice that inhabits and performs mourning and raging climate change.

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6 Appendices

6.1 Appendix 1 Excerpt from Performance Autoethnography “I am sitting in a chair”

(Dec 9, 2016)

(Lori stands at a lectern, wearing her “specialness hat”)

Tami Spry speaks of how autoethnography is a way to interrogate the distracting experience of our own perceived specialness and its place in the academy. This is pretty important to me as a White, heterosexual, educated artist who has the privilege of doing further graduate studies “at her age.”

(Lori takes hat off, walks to centre of space for “at her age” extended vocal improvisation)

at her age

hers yes her age

Hormones her her

that hurts! her her

hurdlng into futures unknown

her her

haunted by histories

her her (growls, hrrrr)

(oooooooooooooooooooo)

whose hermeneutics?

Hers.

Whose hermeneutics?

(A play of call and response with audience in which audience answers “Her Hermeneutics”)

Hers

Mine

(Lori walks back to lectern and puts hat back on.)

Spry (2016) writes “that self-doubt can provide an opening for fecund critical reflexivity, a primary reason for engaging performative autoethnography...” (p. 29). As I integrate identities as a researcher, as an artist inside academic environments, and in my chosen profession as a body psychotherapist, the voice of self-doubt is often present.

It is only by inhabiting the doubt and interrogating meanings in this unsettled place that I can begin to examine and inhabit my own privilege, heritage and behaviours of complicity in the oppression and destruction of human and non-human kin and Earth systems. This is critical for me, as in my research I am investigating experiences of loss related to climate change.

In this historical moment, as we bear witness to the tumult and disruption following the elections South of the border, the powerful coming together of Indigenous groups as water and land protectors and the rise of the ultra -right and white supremacy around the world, I am struck by the activation of stress-response systems in clients, friends, family and just about everyone I run

into. So many feel unsettled and anxious, angry and scared. Addictions amp up, tempers flare, despair seeps. There is an atmosphere of low grade, underlying panic and a lot of folks in a chronic state of defensive orienting.

I'm interested in research methodologies which look at diverse, complex experiences of these responses, and methodologies which allow for a polyvocal analysis that engages and maps experiences and vulnerable interiors of participants and researcher.

Reflexive practice co-current with interviewing and interview analysis enters the always already shaky ground of being, shaking and unsettling oppressive notions of normalcy, destabilizing psy knowledge- psychological, psychiatric, psychotherapeutic, psychic knowledge norms questioning whose knowledge who is included in knowledge production and who is left out.
Whose body?

[Lori Moves over to wall where there are video projections of the woods and water. She sits in corner of projection.]

video link to the following section
<https://vimeo.com/206580418>

Skin,
breath,
bones moving

belching

heart flutter

ribcage contract

pain
move
give way to something new

glancing to see the exit, am I safe?
Feet fidgeting.
feet wanting to get the fuck out of here?

eyes focused straight ahead
head turning only to the right, but not the left
never the left,
what's there?

As animals, over millions of years, our nervous systems have developed protective responses which keep us safe in the face of threat.

Fight, flight and freeze patterns kick in when we feel threatened, regardless of whether the threat is imminent or not.

Grieving losses related to climate change is a dance of perceived threat and self-protection.

Chronic activation of our stress response systems leads to all kinds of health challenges, disrupting digestion, sleep, respiration, cognition, relationships, life.

The threat to selves and identities in these complex losses dominate for some and not for others. Gendered, racialized and psychiatrized bodies, and bodies in poverty are marginalized and more threatened bodies whose grief responses, consequently, exist within a more complex constellation of self-protection.

To enter into this terrain, with interview participants who, like me, are animals, an embodied methodology is required, and the creation of a safe witnessing space—a refuge.

[End video]

VIII SOUND CUE 3

LORI RETURNS TO CHAIR FOR “FURLING AND UNFURLING” MOVEMENT IMPROVISATION

SOUND IN with Voiceover

Recording Oct 16

This morning as I sit and write my body is tired. The back of my throat feels inflamed. I've taken sinus medication so that my nose won't continue to run down over my lip, like a slow running tap. The sun is shining in on me in my chair and the heat feels good on my left side. I love that heat, especially in the Fall, in anticipation of the drafts Winter days will soon bring to this corner of my home.

Perhaps if I take this moment to let my body feel a sense of unfurling in the sun's radiance, something new might occur. Something Spring. MMM

Unfurling is already an unfurling from. There are always at least two directions.

The sensation of burning in my throat, a familiar, tight, compressed feeling in my thoracic spine, tightness of breath.

This is not Spring

and I am not Persephone

but, nonetheless I am strangely called to join my Beloved in the dark underworld.

Unfurling from is only for a moment. Furling is the movement I prepare for here. And bracing.

Embracing bracing? Hmmm. Not usually.

What would happen if I inhabit the furling and the bracing and the uncomfortableness. The numbness too.

The Morro reflex shows up sometimes as a movement or pattern that wants to happen in the bodies of those who have experienced trauma.

It shows up in clients, it shows up in me.

I WANT to unfurl, to dance in the glorious sun,
but today my body knows only furling

So I furl, curling in around my spine.

(END excerpt)

6.2 Appendix 2 Outreach email to recruitment partners

Dear _____,

I'm an artist researcher at MUN. I'm starting to recruit participants for my doctoral project on mediated experiences of climate change and am looking to recruit 2 artists in the Atlantic region who would be interested and willing to share their experience with me.

In the interest of an arms-length recruitment strategy I need partners to help me reach potential participants. Would you be willing to share my call for participants with artists in Nova Scotia?

If you decide that you are able to assist in my recruitment process I would be very pleased!

If so, a disclaimer to be included in any recruitment communication is required by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) which may be modified as appropriate for your organization.

<https://understandingresponsestoclimatechangeinatlanticcanada.wordpress.com/>

6.3 Appendix 3 Consent Documents

Informed Consent Form

Title: Understanding mediated experiences of climate change loss

Researcher(s): Lorraine (Lori) F. Clarke, Interdisciplinary PhD Program, Memorial University of Newfoundland, lfc042@mun.ca , (709) 685-4527

Supervisor(s): Dr. Brenda LeFrançois, Dr, Fern Brunger, Dr. Sean McGrath

You are invited to take part in a research project entitled “*Understanding mediated experiences of climate change loss.*”

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, *Lori Clarke*, if you have any questions about the study or for more information not included here before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction

I am a PhD candidate, and artist-researcher in the Interdisciplinary PhD Program at MUN. As part of my Doctoral studies, I am conducting research under the supervision of Dr. Brenda Lefrançois, Dr. Fern Brunger and Dr. Sean McGrath.

Background

Recent scholarship in Canada and abroad has outlined how well-being is impacted by climate change. My study investigates how people are affected by the climate change losses and threats

they witness in their daily lives through television, social media, video, and hearing personal oral accounts.

I am interested in understanding how those people who aren't directly affected—by changes in sea ice, drought, and extreme weather events, for example— still have a significant response to climate change loss and threat. I am interested in understanding how you think about climate change and how you respond in your mind, body, work and in community. I have a particular interest in including details of your embodied experience—how your response to climate change shows up in posture, gesture, felt-senses and “gut feelings.” Understanding how people respond to *indirect exposure* is also important for those developing policy frameworks to support people and communities adapting to climate change.

Purpose of study:

To understand indirect experiences of climate change my objectives include:

- conducting in-depth interviews with people who have an interest in sharing their experiences and contributing their knowledge on this issue;
- research-creation of video, installation and performance, through which knowledge gained will be shared with audiences and communities inside and outside of the academy, creating opportunities for dialogue on the profound affects of climate change in our communities;

What you will do in this study:

If you participate, you will agree to an **in-depth interview**, at an agreed upon location, that will be video-recorded. This interview will consist of an open-ended conversation in which you share with me your thoughts, experience and knowledge.

The video recording has two purposes:

1. to document the interview for the purposes of describing posture, gestures, and other-than verbal aspects of the interview which will help me understand better how participants experience climate change. For example, through the use of video recordings it will be possible to describe in greater detail the gestures that punctuate the experiences being described, and the felt-senses that words do not always capture. And
2. to use audio and video excerpts of interviews, **approved by participants**, as part of an artistic project .

As this is an artistic research project, video recordings may be used in the final production of video, installation, performance and digital media, and participants may be identifiable through use of these video/audio recordings and art.

A second, **follow-up interview** *may* be requested—either in person or through secure, web-based means—when needed, to clarify or deepen something raised in the first interview.

A **final consultation**—again, either in person or through secure, web-based means— will mark the end of your participation in data collection and will involve vetting audio-visual material to assure your continued informed consent.

Length of time:

Each interview, including technical set-up, will take 1 hour. Follow-up interviews, if required, will take up to 30 minutes and may be held via Skype.

Withdrawal from the study:

During the data collection/interview phase, you may choose to end your participation in the study at any time. A final consultation with you will be held after the completion of all interviews and after a period of analysis. This will take place either in person or through secure, web-based means. At this time you will be given the opportunity to view audio-visual materials and transcripts that have been chosen by researcher to be used in written, video, installation, performance, and digital means of artistic creation. The purpose of this final consultation is to include you in the vetting of collaboratively generated content from the interview. At this time you may ask for the removal of specific content or you may choose to end your participation in the study without consequences. After the final consultation, with your informed consent, your interview data will not be removed from study (on or before November 1, 2017).

At any time before, during or after the course of the interviews, you may end your involvement in this study by simply emailing or phoning the researcher or supervisor using contact information provided.

Possible benefits:

If you choose to participate you may experience the benefits of emotional stimulation, sharing insights you may have into yours and others' experience, and the general benefit that comes from sharing deeply with another person.

If you choose to participate you will also be contributing to knowledge that is important to those developing policy frameworks to support people and communities adapting to climate change.

Possible risks:

Potential risks are related to the emotionally charged content that may be stirred up in the interview. If you become upset because of your participation and require professional support, the following services are available in your province:

<p>Newfoundland: Leah Lewis, Counsellor, PhD, RDT, MEd, CCC Lewis Counselling Services St. John's NL A1C 3W6 (866) 585-0433</p>	<p>Dr. Peter Barnes, Mdiv, CCC 18 Pleasantville Ave. St. John's, NL. A1A1K8 709-747-1107</p>
<p>Nova Scotia Elizabeth Berlasso, MEd Registered Counselor Therapist (RCT) with the NS College of Counselling Therapists (NSCCT) Certified Canadian Counselor -Supervisor (902) 454-6919</p>	<p>Sybil Power, MEd, CCC Power Counselling Services Port Williams NS 902-542-8606</p>
<p>New Brunswick Dr. Marie-Therese Fournier, R.Psych Horizon Health Network Moncton, NB Marie-Therese.Fournier@horizonnb.ca (506) 860-2176</p>	

Confidentiality

There are limits to privacy and confidentiality in arts-based research. Your personal information will be kept in a secure, locked cabinet. Interview transcripts, video and audio recordings will be kept on encrypted drives. *After your interview, and before the data is integrated into reports, and artistic products of research, you will be able to review the transcripts of your interview, and to change, or delete information from the transcripts, video*

and audio excerpts, as you see fit. An opportunity to add to the data will also be possible at this time.

In the case that a recording technician participates in the interview process, that person will have signed a non-disclosure agreement to protect the confidentiality of the interview.

Anonymity:

By agreeing to participate in this project you agree to be acknowledged by name (or other form of credit) in any public presentation of the research, whether physically or on the internet, in which your quotes or images are included **unless you choose to remain anonymous.**

If you choose to remain anonymous I will make every reasonable effort to assure anonymity and to anonymize the use of your transcribed and recorded data. Anonymizing would involve the removal of anything that might identify you from transcripts. Anonymizing may also involve having a voice actor reading from a transcript for audio representation of our interview. In the case that you choose to remain anonymous, any video recording will be used solely for analysis purposes and not for artistic production. You will not be identified in any reports, publications or artistic works without your explicit permission. However, *it is always possible that you may be identifiable to other people in your community on the basis of what you have said.*

Recording of Data:

I will use a microphone and video camera to record interviews. In consultation/collaboration with you, I will also make a video recording representing a place that is significant in your experience of nature, to be used in audio-visual work emerging through the study.

Storage of Data:

All written data and audio-visual recordings will be kept in a locked and secured cabinet on the premises of the researcher's studio, and on encrypted drives that are password protected. This data will be accessible only to the researcher and supervisors. Data will be kept for a minimum of five years, as required by Memorial University policy on Integrity in Scholarly Research.

Reporting of Results:

The results of this research will be presented in multiple formats: a thesis, journal articles, conference presentations, reports to funder, and through public presentations of artistic media. The final thesis will also be publicly available at the QEII library.

Sharing of Results with Participants:

You will be kept informed about public presentations, publications and reports emerging from this research. You may choose to be included in an email distribution list of any related activities. MUN?

Questions:

You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact:

Lori Clarke, lfc042@mun.ca or Dr. Brenda LeFrançois blefrancois@mun.ca

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw from the study without having to give a reason and that doing so will not affect you now or in the future.
- You understand that any data collected from you up to the point of your withdrawal will not be used in the research study nor in artistic work associated with the research.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your signature:

- I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.
- I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.
- I recognize that part of this study consists of artistic work, and thus my knowledge contribution might be represented in a variety of ways. I give permission to the artist-

researcher to represent my contribution in a form which maintains the artistic integrity of the project. I recognize that the artist will retain the copyright of any original artworks she creates in this project.

I agree to be audio-recorded during the interview Yes No

I agree to be video-recorded during the interview Yes No

I agree for recorded material to be used in artistic work associated with the study Yes No

I agree to the use of quotations. Yes No

I allow my name to be identified in any publications resulting from this study. Yes No

A copy of this Informed Consent Form has been given to me for my records.

Signature of participant

Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator

Date

Consent Form B (To be used at time of final consultation)

I,

grant permission to LORI CLARKE (artist and Memorial University PhD student) to use the described transcripts, and sound, in her project that includes (working titles)
Managing tensions: Bodies responding to climate change in Atlantic Canada
Freezing in the tension
Feeling nervous (systems) and the capacity to be compelled
 This permission includes the right to use in whole or in part the material derived from interviews in audio form, in written works _____, or in any other form presented to the public via art installations, exhibitions, and performances in galleries or other public spaces _____, broadcast forms including television, podcast, radio, the world wide web _____, or published via printed or electronic media _____ for noncommercial use only. Any commercial publication or production must be subject to additional consent.

I recognize that my identity may be recognizable in public presentations of the work, whether physically or on the internet, in which my words/voice are included **unless I opt here to remain anonymous.**

I also recognize that this is an art project, and thus my knowledge contribution might be represented in a soundscape, installation, performance or digital media. I give permission to the artist to interpret and represent my interview contribution in forms which maintain the artistic integrity of the project. I recognize that the artist will retain the copyright of any original artworks she creates in this project.

PRINT NAME HERE

DATE:

 SIGN NAME HERE

I CHOOSE TO REMAIN ANONYMOUS
PRINT NAME HERE

 SIGN NAME HERE

