

The land enriches the soul: On climatic and environmental change, affect, and emotional health and well-being in Rigolet, Nunatsiavut, Canada

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ABSTRACT

For Canada's Inuit populations, the landscapes surrounding communities, and practices such as hunting, fishing, trapping, foraging, and travelling to cabins, contribute greatly to human health and well-being. Climatic and environmental change, however, are altering local ecosystems, and it is becoming increasingly challenging for many Inuit to continue to travel or hunt on the land. These changes greatly impact health and well-being. While numerous studies examine the physical health impacts of climate change, few consider the affective implications of these changes, and the subsequent impacts on the emotional well-being of Inuit populations. From data gathered through a multi-year, community-driven project in Rigolet, Nunatsiavut, Labrador, Canada, however, it is evident that the emotional consequences of climate change are extremely important to Northern residents. Participants shared that these changes in land, snow, ice, and weather elicit feelings of anxiety, sadness, depression, fear, and anger, and impact culture, a sense of self-worth, and health. This article analyses the affective dimensions of climatic change, and argues that changes in the land and climate directly impact emotional health and well-being. Narratives of Inuit lived experiences will be shared through data from interviews, the concept of ecological affect will be introduced, and implications for climate-health research and programming will be discussed.

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You have to know what the land does to a person. It just gives you that sense of freedom, identity. ...It's the best therapy that anybody could have in the world.

Rigolet, Nunatsiavut Resident

1. Introduction: home is where the affect is

Global climatic and environmental changes have become an ever-increasing international concern, with changes in weather, precipitation, temperatures, and ecosystems occurring at an unprecedented rate (IPCC, 2007a,b). Throughout the world, variability in local, regional, and global weather events is resulting in shifting wildlife and vegetation patterns, and alterations in food and water systems are posing significant challenges for humanity and nature alike (IPCC, 2007a,b; Speldevinde et al., 2009; Swim et al., 2011; Tong and

Soskolne, 2007). The effects of these changes have extended into the human health arena, with the expectation that changing climatic and environmental factors will continue to negatively impact health and well-being. In a recent report, Costello et al., (2009: 1693, 1696) argue that climate change "is the biggest global health threat of the 21st Century," and that the field of public health needs to "frame climate change as a health issue." This 'global health threat' is expected to be felt first and most severely in geographically sensitive areas and/or by Indigenous populations, with the burden of climate-health impacts being unequally experienced by Indigenous peoples (Costello et al., 2009; Ford et al., 2010a). Research in the global climate-health field has focused primarily on *physical* health implications, such as health outcomes related to alterations in food and water quality, quantity, and availability, increased foodborne, waterborne, and vector-borne disease, increased heat-related morbidity and mortality, and increased death and injury due to extreme weather events (Costello et al., 2009; Few, 2007; Fritze et al., 2008; Frumkin et al., 2008; St. Louis and Hess, 2008; Tong and Soskolne,

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2007). There is also increasing awareness that people are emotionally impacted by changes in weather, climate, and environment through degradation or disaster, whether slow and gradual or rapid and unexpected (Albrecht, 2010; Albrecht et al., 2007; Higginbotham et al., 2007; Norgaard and Marie, 2006) and, as a result, there is emerging research examining and attending to the relationships among climatic and environmental change, emotional and mental health and well-being, and affective responses and behaviours (Berry et al., 2010; Cook et al., 2008; Doherty and Clayton, 2011; Fritze et al., 2008; Norgaard and Marie, 2006; Norgaard and Marie, 2011; Sartore et al., 2008; Speldewinde et al., 2009; Swim et al., 2010; Swim et al., 2011; Tschakert and Tutu, 2010).

In Canada's Inuit regions, the situation is no different. Across the Canadian North, communities have reported alterations in sea ice thickness, quality, and extent, increased incidences and severity of storms, changes in local and regional weather patterns, declining permafrost levels, warmer seasonal temperatures, and shifts in wildlife migration and plant growth patterns (Ford et al., 2008; Ford and Furgal, 2009; Fox, 2002; Jolly, 2002; Krupnik and Jolly, 2002; Nickels et al., 2006; Nuttall, 2008; Pearce et al., 2009; Prowse and Furgal, 2009; Prowse et al., 2009)—changes that differ substantially from the expected and historical variability in weather, climate, and conditions in these regions. In addition, climatic variability and the resulting environmental changes are expected to continue to impact Inuit and Inuit regions more strongly and more rapidly than in other global geographic locales (IPCC, 2007a,b; Ford and Furgal, 2009; Symon et al., 2005). Indeed, Inuit populations are already experiencing the burden and unequal distribution of climate change.

While there is a burgeoning field of study that is beginning to examine climate-health connections within a Northern context (e.g. Furgal, 2008; Furgal and Seguin, 2006; Ford et al., 2010a; Harper et al., 2011; Seguin, 2008), the focus remains on the current and potential physical health impacts: decreased physical activity due to unstable travel conditions and unpredictable weather patterns; increased infectious and vector-borne diseases due to temperature shifts; increased UV exposure leading to sun burns and eye damage; increased danger and chance of injury and death while travelling due to unstable ice conditions; and increased obesity and incidence of diabetes due to changing access to and abundance of traditional food sources and a reliance on market foods (Furgal, 2008; Furgal and Seguin, 2006; Furgal et al., 2002; Harper et al., 2011). Little attention, however, is given to the *affective* implications of a changing climate—that is, the conditions that give rise to the expressed or observed emotional and/or behaviour responses to the changes—and the subsequent impacts on the *emotional* health and well-being within Inuit populations. Several notable research studies, however, indicate the need for and the importance of studying the emotional and psychological dimensions of climate change within Inuit communities (Berner and Furgal, 2005; Ford et al., 2010a; Furgal et al., 2002).¹

In order to address this gap in both theory and research, and drawing from a multi-year case study conducted in the Inuit community of Rigolet, Nunatsiavut, Labrador, Canada, this paper will illustrate—through voices and lived experiences—the many ways that the affective consequences resultant from ecological changes are of increasing concern and importance to the emotional health,

well-being, and daily lives of Northern residents. To our knowledge, this is the first in-depth study of the emotional and affective dimensions of climate change within an Inuit context, and works at the intersection between people, places, spaces, emotions, affect, and ecologies. Although these findings are emergent from a single case study in Canada's North, the results from this research serve to expand and enhance current climate-health research, and enrich current understandings about the depth, extent, and impacts of the affective dimensions of climate change and the subsequent impacts on emotional health and well-being.

2. (Ac)Climatising emotion, affecting climate

As climate change increasingly impacts numerous facets of Inuit life, culture, and livelihoods, many research studies have been (and continue to be) conducted to identify areas of susceptibility and vulnerability within communities, and explore opportunities to expand and enhance upon already present adaptive capacities and resiliencies (c.f. Ford et al., 2006; Ford et al., 2008; Ford et al., 2010b; Ford and Furgal, 2009; Ford and Pearce, 2010; IPCC, 2007a; Nickels et al., 2006; Pearce et al., 2009). This literature, however, does not focus on the affective dimensions of climatic and environmental change, or on the emotional responses or emotional susceptibilities and/or resiliencies (differentially) present within communities. As mentioned above, emotions and emotional health and well-being have also been relatively absent from consideration in climate-health research and literature. Yet, emotions and emotional health are essential components of adaptation and resilience and, as current research in psychological coping mechanisms in the context of natural disasters is indicating, previous levels of emotio-psychological health and strength are directly related to the ways in which people deal with upheaval, respond to change, and adapt (c.f. Doherty and Clayton, 2011; Halpern and Tramontin, 2007; Rao, 2006; Swim et al., 2010; Swim et al., 2011). Emotional health and well-being, and therefore the capacity for emotional strength and resilience, is also intertwined with socio-cultural, socio-economic, and socio-political structures; indeed, climate change itself takes place within the context of myriad and overlapping social, technological, political, economic and cultural transformations and stressors (Swim et al., 2011).

Within an Inuit context, communities throughout the Canadian North have experienced rapid socio-economic and socio-cultural transitions in the last 60 years, ranging from a shift from a nomadic lifestyle to community settlement, to forced relocations and land dispossession, to residential schools, to changes in culture and language. Furthermore, Inuit communities experience greater disparities in health outcomes compared to the non-Aboriginal Canadian populations, from lower life expectancies, to higher incidences of infectious disease, diabetes, obesity, and respiratory illnesses, to higher occurrences of alcohol and drug usage, to higher occurrences of mental illness, suicide, and suicidal tendencies (Ford et al., 2010a; Kirmayer et al., 2009; Lehti et al., 2009; Richmond, 2009; Richmond and Ross, 2009). All these factors are now taking place within the context of a rapidly changing environment and climate in Inuit regions, and climate change itself is being experienced and given sense and meaning through complex emotional processes that are place-based and individual- and context-specific.

From a climate change and climate-health perspective, then, what can we learn from an understanding of affect and of emotions, and how can research and practice in this field be expanded and enhanced from an inclusion of affect and emotion? Before delving into these questions more deeply, it is first important to define 'affect', and to situate the emotional dimensions of climate change within this context.

¹ At a recent conference in Mexico City in July 2011 entitled *Indigenous Peoples, Marginalized Populations, and Climate Change*, organized by the United Nations and designed to inform the next Intergovernmental Panel on Climate Change report, the lack of research on the mental and emotional health impacts stemming from climate change was identified as a major gap, with research in this area urgently needed.

2.1. Affect, emotions, and climate change

An ‘affect’ can be understood as an external stimulus that has the potential and the ability to cause a physiological and/or psychological felt response (Brennan, 2004)—consciously or unconsciously—in the affected body. These affects manifest as both physical and mental responses, and “can be experienced as a pleasure and a shock, as an empty pause or a dragging undertow, as a sensibility that snaps into place or a profound disorientation. They can be funny, perturbing, or traumatic” (Stewart, 2007, 2). Affect is not an emotion or feeling *per se*, but rather, is the underlying or overarching condition or moment that gives rise to them, or emanates beyond them. Affect is the unseen and often-unspoken, yet *felt*, phenomena that permeate all aspects of our lives. It can be felt as the ‘mood’ in a room, or understood as the experience of being ‘drained,’ ‘tired,’ or ‘depressed’ in the company of some, while ‘energised’ or ‘invigorated’ by others (Brennan, 2004, 6). Perhaps most importantly, affect is shareable and passable—it can be transmitted, passed on, picked up, internalised, mutated, transformed, and re-shared: “in other words, the transmission of affect, if only for an instant, alters the biochemistry and neurology of the subject. The ‘atmosphere’ or the environment literally gets into the individual” (Brennan, 2004: 1).

Affect is made possible through the body, where “a body can be anything; it can be an animal, a body of sounds, a mind or an idea; it can be a linguistic corpus, a social body, a collectivity” (Deleuze, 1988: 127); it can also be vegetal or mineral, geologic or hydrological, real or virtual. This broadening of the concept of ‘body’ allows an opening for other components—human and other-than-human, animate and inanimate, that make up the various living worlds of the planetary biosphere—to become part of the affecting equation. These bodies possess both the ability to affect, and to be affected, which Anderson (2006: 735) described as “being affected-affecting.”² Building on this, “when you affect something,” argues Massumi (2002: 212), “you are at the same time opening yourself up to being affected in turn, and in a slightly different way than you might have been the moment before:” ‘being affected-affecting.’ With this understanding, affects, then, connect us to other bodies and other moments, and provide the platform for understanding the intimate connections between human and other-than-human bodies, and the way that processes such as global climate change can be experienced both affectively and as an affect itself.

When affects are experienced through a human body, they give rise to *emotion*. Emotion is the spilling over of the effects of affect on a given body. It is the manifestation in the physical and the actual of something that has first affected the body virtually. Emotions both emanate from and belong to a subject, in their particular state of ‘I am angry,’ or ‘I am sad,’ or ‘I am happy.’³ Yet, emotion is still only a minute expression of a larger affective process, for a body cannot at once and simultaneously take in and express the entire range of emotions associated with a given affect. While directly connected to and shaped by affect, “an emotion,” Massumi (2002a: 213) explains, “is a very partial expression of affect” and “no one emotional state can encompass all the depth and breadth of our experiencing of experiencing—all the ways our experience redoubles itself” Massumi (2002a: 213). Emotions emerge out of affect, as qualifications of affect dictated by the response of a body. Emotions themselves carry a dynamic ability to

influence and fluctuate with the field of affect; yet, they are not the ‘complete’ story or version of affect, but rather a narrative snippet of a larger event, flashes of visceral responses based on previous history, reaction, memory, and form.

Connected to emotions, and within the affective sphere of bodily responses, are *feelings*: “the movements of affect [that] are expressed through those proprioceptive and visceral shifts in the background habits, and postures, of a body” (Anderson, 2006: 736). Feelings are expressions of what is happening to and sensed by the body—a body that both receives and transmits affect, instantaneously assesses the affect via an emotional response, and responds physically in the shape of feelings (Anderson, 2006). Feelings are the individual responses of a body to a given affect; they are the passage of emotions and affects through the body, manifested in a felt manner. They are the corporeal surges—the ‘heat’ of anger, the ‘blush’ of shame, the ‘tension’ of boredom (Anderson, 2006)—and the releases of a body experiencing a course of emotion, from various stimuli of affects. Feelings are also not the sole property of individual actors; they can also be resultant from shared “affective intensities” between bodies. “From an affectual point of view,” Conradson (2005: 107) argues, “feeling is something that may emerge *between* bodies of various kinds, whether human or otherwise.” Feelings flow from emotion, which flows from affect, which feeds back as both closed and open affective potential loops—loops which at once inform themselves in a personal cycle of affect-emotion-feeling-emotion-affect, and simultaneously open up and enter into new compositions with other bodies and new cycles of affect-emotion-feeling-emotion-affect.⁴

Affect, emotions, and feelings are inseparable from the human experience, and since our bodies are always operating within a particular place and space, it becomes important to examine the interplay between affect, emotion, and the other-than-human environment. Understanding that “there is no secure distinction between the ‘individual’ and the ‘environment,’” and that bodies are “not self-contained in terms of [their] energies” (Brennan, 2004: 6), we can conceptualise and “understand emotion—experientially and conceptually—in terms of its socio-spatial mediation and articulation rather than as entirely interiorised and subjective mental states” (Bondi et al., 2005: 3). From this perspective, emotions, feelings, space, and place are considered together, in order to examine the interplay between affect and spatial phenomena (Thien, 2009), and to begin to understand the complex interplay between space, place, bodies (humans or otherwise), and environmental characteristics and events.

While there has been much work in the emerging field of affective studies and other fields, such as emotional geographies, examining the ways in which emotions and feelings interact and effect space and place (e.g. Bondi, 2005; Bondi et al., 2005; Davidson and Milligan, 2004; Smith, 2005; Thrift, 2004; Wood and Smith, 2004; Urry, 2005), there has been little sustained analysis of the intense intimacy with, and connectedness to, local ecologies that individuals experience; how these affective connections are altered and influenced by fluctuations in those regions; and subsequently, how these changes impact on emotional health and well-being. As Conradson (2005: 107) argues, “as individuals become imbricated within particular ecologies of place, so too do their emotions—whether happiness, sadness, elation, gloom, relief, or anger—arise in part from embodied physiological and psychosocial response to the constituent elements of these places.”

⁴ It is important to note that while the relationships among affects, emotions, and feelings—and indeed moods and mental states—are dynamic, complex, overlapping, and interrelated (and in many cases, these terms are used interchangeably), there are differences between and among these terms and states, and they cannot (always) be collapsed together.

² Being affected-affecting is an idea which has its likely source in Spinoza’s *Ethics*.

³ This subject-oriented capacity of emotion differs from affect, which does not (necessarily, always, or already) emanate from particular subject; yet, affect exerts its presence on individual subjects.

Since emotions and feelings are shaped by both the body and the space (and the interchange between both), “emotions, then, might be seen as a form of connective tissue that links experiential geographies of the human psyche and physique with(in) broader social geographies of place” (Davidson and Milligan, 2004: 524). This emotio-spatial interplay requires attention to the myriad affective movements and moments that occur between and among people and places. Thus, spatially-shaped emotions also give rise to spatially-mediated feelings, occurring within a spatially-organised zone of affect. These movements and ‘affected-affecting’ compositions comprised of myriad human, animal, vegetal, mineral, geologic, and hydrologic bodies also “involves a degree of recognition—whether conscious or otherwise—of the effect that one’s current ecology of place is having in emotional terms, as well as the potential effects that changing this ecology might bring” (Conradson, 2005: 108, italics added).

Emotions and affect, then, are essential to understanding the range of impacts of changes in climate and environment on people and communities. Thinking climate change with affect and emotions “is basically a call to think complexity, and to complex thinking, a way to think the environment as a negotiation of dynamic arrangements of human and nonhuman stressors, both of which are informed and ‘intelligent’”. It refers to a pragmatic and site-specific tracing of infinitely complex ecological arrangements, and as such, cannot rely either on a theory of cultural/linguistic constructivism or on a natural/biological determinism” (Herzogenrath, 2009: 4). This thinking with and through emotions, affect, and climate change can be conceptualised as what this article terms *ecological affect*, or the affects that are emergent directly from shifts, alterations, and fluctuations in climatic and/or environmental conditions. This *ecological affect* underlies how people think, feel, and emote, and can be conceptualised as a way of thinking, acting, and feeling that is directly and intimately connected to, and consistently motivated by, other-than-human bodies and processes. Thinking with *ecological affect* can overcome the artificial divides among affective, emotional, psychological, and geographical realities, and places the emphasis on the complex interplay between and among all these areas.

The affective dimensions of climatic and environmental change are therefore part of the conscious and unconscious fabric of human action, reaction, and sense- and meaning-making when confronted with changes. Clearly, emotions and affect are an essential component to the human experience of climate change and, as the voices and stories shared in this article (Section 5) will attest, are of the utmost importance in understanding the full extent of climate change for individual and community health and well-being.

3. Study location: Rigolet, Nunatsiavut, Labrador, Canada

Situated south of the Arctic Circle, at the intersection of the sub-Arctic tundra and Northern Boreal forest regions, Rigolet, Nunatsiavut, Labrador, Canada is the southern-most Inuit community in the world, and has a population of 259 people as of July 2010 (127 females and 132 males). Rigolet is one of the five communities that comprise the Nunatsiavut Land Claim Settlement Area (established in 2005), along with Nain, Hopedale, Postville, and Makkovik (Fig. 1). Nunatsiavut (‘Our Beautiful Land’) is one of the four Inuit regions, or Inuit Nunangat,⁵ in Canada, along with Nunavut, Nunavik, and Inuvialuit.

Rigolet is a vibrant community, rich in wildlife and vegetation, and continues the practices of harvesting wild meats, fish, berries,

and edible and medicinal plants established through 4,000 years of Inuit occupancy in the region. Hunting primarily consists of caribou, seal, partridge, rabbit, salmon, and trout, although occasionally moose, porcupine, and bear are hunted and consumed. While some hunting and fishing occurs just outside the town limits, most require further trips on the land and ice. Most residents regularly participate in hunting, fishing, trapping, and foraging and have cabins⁶ situated on the land around Rigolet, some of which require access by boat in the summer and some of which are accessed by snowmobile in the winter over sea ice. As with other Inuit communities in Canada, Rigolet is remote, and there are no roads going into or out of the town; travel in and out of the community is reliant on ferry services or personal boats in the summer months, snowmobiling in the winter months through trails and over ice, and year-round plane service—although each of these travel options is highly weather-dependent, and plane service is extremely expensive and inaccessible for many people.

4. Methods

The data for this paper were gathered between November 2009 and October 2010 by a transdisciplinary team of Indigenous and non-Indigenous researchers from social sciences, epidemiology, and public health working as part of the *Changing Climate, Changing Health, Changing Stories* project in Rigolet, Nunatsiavut, Labrador, Canada. This community-led participatory project examined the impacts of climate change on health and well-being within an Inuit context, with health conceptualised as encompassing physical, mental, emotional, and spiritual processes and components. Community participation throughout all stages of the research design, interviews, data analysis, and writing was emphasised and essential. Furthermore, due to an innovative funding model which saw all finances for this project transferred directly to the Rigolet Inuit Community Government, all research decisions were co-decided between the community government and the research team.

The voices shared in this article are drawn from the transcripts of 70 in-depth interviews (comprising of 57 individuals, 33 females and 24 males) conducted in English⁷ during November 2009, and January/February, March, August, and October 2010. The research participants were comprised of individuals between the ages of nine and 90 years, from numerous backgrounds and positions within the community, including hunters, trappers, teachers, town workers, parents, grandparents, great-grandparents, council members, youth, machinists, crafters, trawlers, and fishermen (Table 1). Interviewees were drawn from throughout the community through recommendations from community research assistants and Town Council members based on their regular participation in hunting, trapping, fishing, and and/or travelling to cabin. Participants were also selected based on their participation in digital storytelling workshops, which endeavoured to highlight climate-health relationships through digital media as part of the larger *Changing Climate, Changing Health, Changing Stories* project (Cunsolo Willox et al., 2012). Interviews

⁶ For many people in Rigolet, these ‘cabins’ are former homesteads, and represent where families lived, hunted, fished, and trapped before being moved into Rigolet in the late 1950s. In Inuttitut, the Labrador dialect of Inuktitut, cabins are called *aullavik*, which is literally translated as ‘a place to go out on the land’, and can mean a place where people build a cabin or pitch a tent. For Inuit, the cabin represents a historical and ancestral connection to a culture, lifestyle, and particular piece of land.

⁷ All participants interviewed spoke English fluently and preferred to conduct the interviews in English—although the option of conducting the interviews in Inuttitut with the assistance of a translator was an option available to any interested participants.

⁵ The term ‘Inuit Nunangat’ is an Inuktitut term which recognises that Inuit homeland is comprised of land, water, and ice (Inuit Tapiriit Kanatami, www.itk.ca).

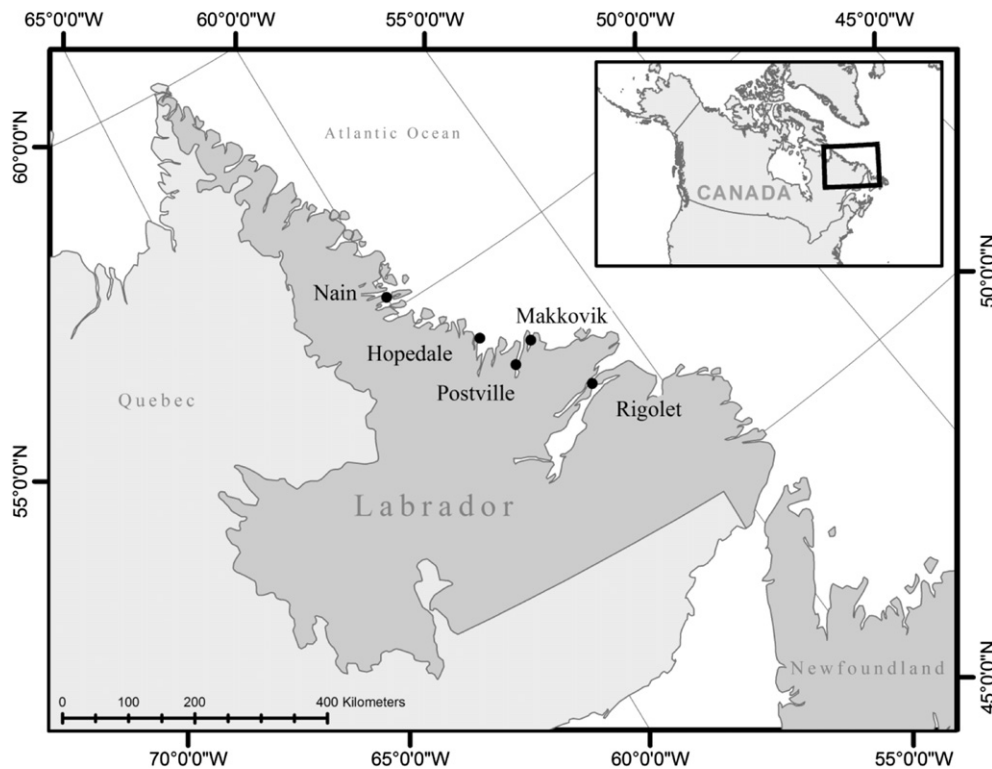


Fig. 1. A map depicting the five communities of the Nunatsiavut region of Labrador, Canada, constructed for this article through GIS programmes.

were, however, open to any interested individual in Rigolet. The interviews were an average of 45 minutes in length, and focused on perceived and observed changes in climate (trends in temperature, winds, precipitation, storms), environment (ice, snow, sea, fresh water), and wildlife and vegetation, as well as the perceived and observed impacts on health and well-being. All interview questions were pre-tested with 12 community members and 4 academics and health specialists for content and context, and were adapted where needed.

While health was broadly construed as encompassing physical, mental, emotional, and spiritual health when creating the in-depth interview questions and other data-gathering strategies for the larger research project (surveys, focus groups, PhotoVoice, and digital storytelling), the immediacy, poignancy, and prevalence of emotional responses that emerged throughout the interviews were not expected. As the interviews progressed, the questions and conversation threads were further adapted to reflect the emerging emotional and affective themes. In particular, the interviews began to focus on asking participants about the *felt* impacts of climatic and environmental change; in short, the interviews went beyond

discovering the observed impacts of these changes to how people *feel* about them, as this was an apparent and pressing issue for the participants.

It is also important to note that in order to engage people in natural and spontaneous dialogue, and to encourage the emergence of unexpected or unanticipated affects of a changing climate on the community, all the interviews followed a conversational structure (Kvale, 1996) to allow for a personalisation of answers and a variance in voices to emerge. This approach created the space for conversations to evolve around themes, topics, and narratives, rather than being restricted by a structured order or pre-determined wording. All interviews were digitally recorded with consent and transcribed before analysing for emergent themes. All themes were shared and discussed among the transdisciplinary research team, as well as with community members, to ensure accuracy and authenticity throughout all stages of the analysis and writing.

5. Voices and lived experiences from Rigolet, Nunatsiavut

In order to add to the theoretical framing of affect and emotions, and to further situate this work within climatic and environmental change, this section will highlight the voices and lived experiences of individuals within Rigolet, Nunatsiavut.

5.1. 'Nature is to us another person': affect, emotion, and the land

For Inuit communities such as Rigolet, land activities such as hunting, fishing, trapping, and foraging for berries and edible and medicinal plants, as well as the ability to regularly and safely travel on the land, sea, and ice, is of the utmost importance to physical, mental, emotional, and spiritual health and well-being. Indeed, for Rigolet residents, the land surrounding the community holds profound emotional significance, and evokes many deep feelings

Table 1
A breakdown of research participants from the *Changing Climate, Changing Health, Changing Stories* project from Rigolet, Nunatsiavut, Labrador, Canada, interviewed between November 2009 and October 2010, separated by gender and age ranges.

Age Range	Females	Males
9–19	3	5
20–29	8	1
30–39	4	2
40–49	5	3
50–59	7	7
60+	6	6
Total	33	24

and sentiments. As one extremely experienced hunter, guide, father, and grandfather explained, “The truth of the matter is that the land is really, really special to me. And you know, besides my family, I would die for my land.” This connection to the land lies at the heart of being Inuit, and is intimately connected to people’s identities and lifestyles. As another middle-aged woman who regularly travels on land to hunt and take photographs shared:

Well, for me I like to spend a lot of time outdoors and just connecting somehow with the outdoors. ...I think it’s just the nature. You can see the beauty in everything, whether it’s an old tree stump, or if it’s a wild animal that kind of gives you a little bit of a fright because they’re a little too close if it’s a wolf or something, or if it’s just a matter of being able to harvest your own food. ...It’s just all around good, I think, mentally and physically and emotionally for sure.

This sense of connectedness to the land around Rigolet, and feeling more healthy and well from spending time outdoors, permeated all of the interviews conducted. For some, the connection was like a relationship with a close intimate: “Nature is to us another person. This other being that you connect with and you respect. And you just want to be there amongst it. ...You give it the respect, it’ll give you the respect back. ...It has to be respected. You can’t control it.” For others, the connection to the land was best explained as biological and genetic, and was a legacy of ancestry, in the same way that a person is connected to their family members. As one middle-man who works fulltime, but travels to his cabin as often as possible, explained: “Our brains are wired to be away and to be off on the land and just nature...nature’s about, to us is like in a way, another person.” For others still, the connection was powerful, but subtle and almost subconscious: “the connection to it is just there. I mean I don’t know how to explain it. That’s the way we been raised.” When people spoke about the land during interviews, body language also changed: eyes sparkled, voices dropped, and hands often touched chests repeatedly to illustrate the deep, heart-located inner emotion associated with being on the land.

Finally, the land holds great spiritual significance: going out on the land regularly is a way to connect with something deeper, something beyond the human sphere. As one woman and mother of two explained,

Being out on the land means...I don’t know, but it gives me some form of peace with myself. I mean there’s a lot of times I like to just go out on the land by myself, and I’ll take off on the skidoo and go for a ride and I could be gone for a couple of hours. It doesn’t mean that I’m driving the whole time but I can take myself wherever and that’s where I feel mostly connected...to what I don’t know? I mean I’m not a church-going person, it’s not that I have no faith or anything but it’s there that I can find the peace that I need so it brings me comfort.

This emotional connection to the land cannot be over-emphasised, as it is of incredible significant to Inuit in Rigolet (and indeed, Inuit throughout Canada). All participants interviewed, whether young or old, and regardless of the amount of time spent on the land, gender, or occupation, expressed deep respect, love, and commitment to and for the land.

5.2. *‘What are we gonna do?’: when the climate and environment change suddenly*

This deep emotional connection to the local ecology also means that if people in Rigolet cannot get out on the land the way they and their ancestors have done, or participate in hunting, trapping, fishing, berry-picking, foraging, or travelling to cabins or other

communities on snowmobile in the winter due to unstable and dangerous snow and ice conditions,⁸ then there is an immediate and detrimental impact on the emotional well-being of individuals and the community.

For example, during the winter of 2009–2010, the Nunatsiavut region (and indeed, all of coastal Labrador) experienced an extremely mild winter. The ice did not freeze-up until late January (almost eight to ten weeks later than normal) and, when it did form, it was choppy, sharp, and considered ‘bad ice,’ only to be completely gone by early April 2010 (almost six to eight weeks earlier than in previous years). Snow patterns were also altered, with Rigolet experiencing the lowest snowfall in memory. While Nunatsiavut residents have been increasingly experiencing changes in ice conditions and freeze-up times, levels of snow and rainfall, and changes in seasonal temperature for the last decade, the winter of 2009–2010 was, according to all interviewees, the largest climatic and environmental shift experienced in living memory.⁹

During the twelve-month period in which interviews were conducted, participants went from commenting on the lateness of the cold weather, snow, and ice (November 2009); to expressing concern and worry over the bad ice, poor travel conditions, and lack of snow (January/February 2010); to sharing sadness and anger about the lack of a ‘proper’ Labradorian winter and the impacts on activities such as hunting, trapping, snowmobiling, and travelling to cabins (March 2010); to voicing reflections on the emotional and mental impacts that the past winter had had on individuals and the communities (August 2010); to expressing anxiety, stress, and fear about the potential for another winter like the previous (October 2010). As one woman who regularly travels on the land expressed:

I just found that as the time went on, I was just getting more frustrated with myself or just the weather. You see [the changes] every day, and it’s not something that I could accept very easy. And I’m very fearful of what this winter [2010–2011] is going to be, thinking that you know it’s been a year since we were able to do the traditional things that we do, and I was thinking that it might not be because this fall is quite warm.

As another individual commented, “For us to have to live like that for more than this year, like if this is just a beginning, which it could be, then I don’t know what to do. ... I can’t even think what it would be like with another year like that even, let alone to start off on what’s to come.”

This uncertainty and frustration about how climatic and environmental conditions will affect the community in coming years was a concern echoed by all interviewed, and raised many questions about what these changes will mean for the future of Rigolet and for Inuit culture. As one avid hunter, mother, and grandmother shared:

I’m hoping that the changes that happened last year, I’m hoping that it was some kind of a weird winter. On the other hand, I’m wondering, is this is the beginning for Rigolet of what global warming is gonna do to us? Because we’re the southern-most Inuit community in the world, and as you know, the Inuit

⁸ It is important to note that without ice in the winter, it is impossible for most people to reach their cabins as there are numerous water-crossing points. Even if the water were to remain open all winter, boating is too dangerous due to cold temperatures freezing the motor, chances of high winds and winter storms, and the potential for being stranded if conditions shift suddenly.

⁹ These warming weather trends have continued into the 2010–2011 winter (and are expected to continue), with the National Snow and Ice Data Center (NSIDC) recording the warmest temperatures in January 2011 (six degrees Celsius higher than average for the month) and the lowest sea ice extent since satellite measurements began in the Labrador Sea for the month of January (<http://nsidc.org/arcticseaicenews/2011/020211.html>).

thrive on ice. I mean they're people of the ice. And if that's the case, then what? ...And if Rigolet is warming up with global warming, is that gonna be what our winters are like? And if it is, what are we gonna do? What does it mean?

This year-long interview process also afforded our team insight into how day-to-day and month-to-month changes and fluctuations could deeply and intimately alter the emotional feelings, behaviour, and well-being of individuals, and the affective atmosphere of the community. As one young adult shared:

[The winter] was awful. I mean for me, for us, it was...it wasn't good. It wasn't good. It was like being stuck in Rigolet. ...Everything was about the weather. And the conversations were almost all about the weather, and how awful this was, and how they never seen the like of this. It was always conversations about the weather and not being able to go out. ...It really consumed us. It really did.

This sense of 'being consumed' by the climatic and environmental conditions of the winter was echoed by numerous participants. When speaking about being unable to travel on the land or ice during winter, all interviewees expressed deep frustration with the changing conditions, with people using words such as "grumpy," "sad," "depressed," "angry," "disappointed," "upset," "pissed off," "frustrated," "helpless," and "jittery." When considering what the conditions might be in future winters, the majority of people spoke of "being scared," and feeling "very concerned," "exhausted," "fearful," "unsure," and "worried," and that if they did not get out on the land for a second (or third...or more...) winter in a row, they felt they would "go mad." Those few who did not express worry or concern for the future shared that it was because they did not (or could not) believe that conditions would continue to worsen.

5.3. *"[The land] enriches the soul:" climatic and environmental change and emotional health and well-being*

For Rigolet residents, participating in hunting, trapping, fishing, and wild food harvesting, as well as going to cabins on the land, is an integral and important aspect of life: "it's who they are, it's what they've been grown up doing. And their parents have been doing it forever, so I mean they're kind of losing a sense of who they are." This sense of 'losing who they are' and the anticipation of future climatic and environmental change was echoed by numerous individuals. For many, watching a familiar landscape, as well as climatic and environmental conditions, change around them was upsetting, depressing, and disorienting. As one participant explained, "it's challenging when you're living a different lifestyle then, but still living in the same area, you know?"

When living a life that is intimately intertwined with the surrounding land—physically, mentally, emotionally, and spiritually—even minor variability in seasonal temperature, precipitation, and weather patterns have implications for the emotional and felt well-being. As one young woman explained, "every day [last winter] you get up and look out at the thermometer and see that it was like zero. And it would rain and day after day, it was, it really was depressing. And if you just sit and dwell on it, like it can really affect you." As another young participant explained, not being able to go out to her cabin regularly because of climatic changes "really was depressing" and she experienced "self-pity" and "misery."

For those who travel on the land and ice regularly, and maintain lifestyles of hunting trapping, and fishing, not being able to travel on the land because of warmer weather and changes in ice patterns is incredibly restrictive and feels as though something fundamentally important to and in life is missing. As one older hunter and trapper explained, for him not being able to go out on the land

"feels almost like a handicap. Like you got some kind of handicap when you cannot get away. It is your normal pattern of life and all of a sudden you cannot. It feels like a handicap." For all the individuals we interviewed, not being able to travel on the land is "depressing, really depressing," and caused myriad emotions, from sadness to frustration to anger, and in some occasions, even led to tears during several interviews.

Yet, accessing the land regularly, and connecting with the land was reported by all participants to be directly connected to emotional well-being. Many people spoke about the healing qualities of going out on the land on boat or snowmobile, and spending time at cabins, and the ways in which the land was used "to replenish our spirit." Some participants explained this in terms of feeling calm and at peace. As one middle-aged father and grandfather, and extremely seasoned hunter and trapper, shared: "The land means a lot to me. When I'm out there I'm at ease. You know, that's where I'm at ease." As another young woman and avid hunter shared, being on the land is "just peaceful. I love it. And it's home. It's where...it's like where we grew up. ...It's like I'm fulfilled. I'm complete. It's like I said, it's my home. ...It's wonderful up there. I'm pretty much sure everybody can tell you that." All interviewees, regardless of age, gender, or amount of time spent on the land, agreed that when going out on the land around Rigolet, and participating in hunting, trapping, fishing, and foraging, people become "emotionally healthier, mentally healthier. ...Like it calms a lot of people down and if they can't do that then they're going to be affected." For all participants interviewed, it was abundantly clear that spending time on the land "enriches the soul" because the land "becomes a part of you."

In addition, many participants spoke about a sense of 'self-worth' and 'value' that came from hunting, trapping, and fishing, and from the knowledge and experiences that their skills were valued and valuable out on the land. Without this land-based self-worth, many individuals expressed concern for emotional health and well-being of community members. As one woman in her late twenties explained from her own experiences, as well as observations of her family and community members, going out on the land

provides you with a sense of capability and a sense of peace within yourself [and as a result] you are probably better able to deal with things that are troubling you...you are able to come to some conclusion with yourself, because you feel in a better place to do that. If you take away that peace and that capability and that sense of self-value, then those things [that are troubling you] seem to be more to the forefront.

There was also acknowledgement from several participants that the emotional responses and experiences shared by individuals had the potential and the ability to begin to impact on others in the community. As one young female hunter explained,

I think once it starts affecting one family it will start with the rest. ...once it starts affecting a couple of families really hard, it's not usually affecting those couple of families cause they choose it, it just happens to be those are the first ones to be affected, and then affect reaches out right? So I think if more and more people can't be going to the cabin and can't be hunting and can't be dependently going on the land that they just start to see a community shifting not knowing what they're supposed to be doing, not knowing what you're good at, not knowing what your self-worth is, not knowing what you should be doing with your time.

This understanding of emotion and affect being able to 'reach out' and begin to impact others connects not only with emotional responses stemming directly from climate change, but also with

anxiety around loss of culture or knowledge linked to practices that enhance self-worth and self-value.

While there was widespread and consistent acknowledgement that climate change was causing myriad emotional impacts in the community, some individuals were not entirely ready to give in to only negative emotions; they voiced points of optimism and expressed some hope that the changes would either not continue, or that the community would find innovative and creative ways to adapt to the changes without sacrificing time or the land or culturally-significant land activities. These sentiments, however, were often qualified with undercurrents of concern and anxiety. As one youth stated: “I have to believe it’s going to be fixed and I have to do my part. But I think if I believe that it was going to get as drastic as they say I think I would go insane, even though I will not live that long to see it. But if I dwell on it...you know.”¹⁰

6. Discussion: climate change, affect, emotions, and health and well-being

For the participants interviewed in this research, the land is the heart of cultural and community life, as well as a source of health and wellness. The land provides sustenance, ancestral linkages, and the opportunity to experience joy, pride, happiness, and wellness through participating in hunting, trapping, fishing, or foraging, or just from being away from the community at the cabin. Yet, within the context of a changing climate, ice formation and stability, wildlife and vegetation patterns, and weather patterns are transforming the amount and quality of time spent on the land, and in many cases, making it very difficult (if not impossible at times) to go out on the land at all. In addition, the landscape surrounding the community, and the ecological processes and systems, are being transformed and altered at a rapid rate. For people within Rigolet who are intimately ‘in place’ and connected to the local ecology through a sense of home and reliance on the land for livelihood and culture, then any change or variability—subtle or otherwise—will immediately affect the emotions and felt responses of individuals and communities in the area. These findings resonate with Albrecht et al.’s (2007) concept of ‘solastalgia’, or a sense of place-based distress that one experiences when one’s surrounding and intimately familiar landscape has changed too rapidly and too drastically (Albrecht, 2010; Albrecht et al., 2007; Speldewinde et al., 2009; Tschakert and Tutu, 2010). For Albrecht et al., (2007: S96), “solastalgia refers to the pain or distress caused by the loss of, or inability to derive solace connected to the negatively perceived state of one’s home environment. Solastalgia exists when there is the lived experience of the physical desolation of home.” As one of our participants explained above in Section 5.3, “it’s challenging when you’re living a different lifestyle then, but still living in the same area.” This notion of solastalgia is demonstrative of the place-based emotions highlighted in this research, as changes in weather, ice quality and stability, snowfall patterns, and travel routes increase a sense of place-based distress and disorientation.

While this article has focused on the emotions experienced and expressed by the research participants within the context of

climate change, it is important to note that the voices and lived experiences shared in this research are not meant to portray the individuals, the community, or Inuit peoples as passive ‘victims’ of climate change, or as powerless emotional subjects, helpless in the face of environmental fluctuations and climatic variability. As was mentioned above, Inuit populations throughout Canada face myriad socio-economic, socio-political, and socio-cultural transformations, and experience on-going mental, emotional, physical, and spiritual stressors (past and present) from these rapid shifts in culture, lifestyle, and livelihoods (Ford et al., 2010a; Richmond, 2009; Richmond and Ross, 2009). Each person deals with these changes, multiple stressors, and previous experiences in an individualised manner (albeit intimately connected to culture and community), and it is important to highlight the need for understanding individual agency, strength, and resilience within an emotio-ecological or affective ecological context, both from an individual and a community health perspective.

Within the context of a small, remote community such as Rigolet, where community interaction is high, regular, and on-going, there is also the potential for people to be entirely encompassed by and entrenched in emotions such as fear, anger, frustration, and sadness around the environmental conditions. As was mentioned above in Section 5.2 by one interviewee, ‘weather talk’ and the unusual winter of 2009–2010 ‘consumed’ the community, and climatic and environmental changes, and the impacts on hunting, fishing, trapping, foraging, and travelling activities, and individual and community moods, were the main topic of conversation in Rigolet, with the affect of these changes ‘reaching out’ throughout the community.

From a resilience and community health perspective, then, support programming needs not only to be mindful of the importance and power of emotions, but also to be aware of the transmittable quality of emotions, and to focus on creating spaces and places for people to expand and enhance their emotional health and well-being. Furthermore, creating opportunities for people to share their concerns, feelings, and emotions on climate change may help to strengthen emotional health while fostering community cohesiveness and support for individuals (Doherty and Clayton, 2011).

In addition, more emphasis on the creation of opportunities for spending time on the land or for participating in hunting, trapping, fishing, or foraging is essential. While Rigolet, as with other Inuit communities throughout Canada, has established infrastructure and on-the-land programming to support and promote health and healing, expanding this programming will undoubtedly be challenging given the variability and unpredictability of the current climatic changes (not to mention budgetary constraints). By expanding already present resources, and linking them to an understanding of the emotional impacts of climate change, however, these programmes have the potential to enhance overall health and wellness and strengthen emotional resilience. That said, while more time on the land is a key component to supporting emotional health and resilience, it is important to foster other opportunities and mechanisms that can enhance emotional wellness and strength that are not solely dependent on the land or on weather conditions—supports focused on developing transferable coping skills and enhancing adaptive capacities.

From a resilience or adaptation perspective, emotions and emotional strength, wellness, and flexibility are key psychological indicators of adaptability. As Reser and Swim (2011: 278) explain, the process of adaptation

encompasses the diverse types of coping responses individuals can make to changes in their physical and social environments. ...it encompasses and integrates both intraindividual parameters and processes (e.g., appraisal of situations, affective

¹⁰ While this section has aggregated the responses emergent from the in-depth interviews together, other works from this multi-year case study examine youth observations and perceptions of a changing climate (as well as emotional impacts), the physical health impacts from climate change, the mental health impacts of climatic and environmental change, and the importance of sense of place and place-attachment for understanding health and wellness within the context of a changing climate. In addition, an in-depth gender analysis, with further research and interviews, to start in Winter 2012, to identify what (if any) differences in mental and emotional experiences with and of climate change may exist depending on gender and gender identities.

responses, cognitive analysis, and reframing, disengagement, defensive responses, and emotion regulation) as well as extra-individual social and situation processes (e.g., proximity and exposure, collective sense making, social comparison, social construction, social amplification of risk, and collective efficacy) that influence how individuals and communities respond to challenging circumstances.

Emotions and affect, then, are an important component of the psychological process of adaptation, and are a significant part of what drives decision-making around adaptation and support adaptive capacities and capabilities. As has been found with natural disaster literature (c.f. *Helpern and Tramontin, 2007*) prior levels of emotional and psychological health and resilience were strong determinants of the ability of individuals to adapt to and cope with the major stressors and upheavals in a manner that was more productive, and led to fewer long-term emotio-mental issues. Unlike natural disasters such as tsunamis or earthquakes, climate change is a slower environmental process. Like tsunamis and earthquakes, the results of the progressive changes in sea ice, weather events, wildlife and vegetation patterns, and travel routes can also be emotionally devastating to individuals and communities. Community counsellors and social workers would be well served to receive further training in climate- and environment-based emotional traumas, and to work with individuals to foster emotional health and strength in the context of a changing environment.

This research represents a starting point for re-conceptualising the role that emotions can play in the experiences and meaning-making of climate change, and of the complex, overlapping, and interrelated affects that come together to shape peoples' understandings of climate change, and is a call for further research and work in this area. While this work is one step towards advancing the interdisciplinary research on human dimensions of climate change, more research is urgently needed to further understand the affective dimensions of climate change—and the subsequent emotional and health impacts—within Inuit communities, as well as for other remote Indigenous communities globally that are impacted by a changing climate and shifting environmental conditions.

7. Conclusion: the affective dimensions of climatic and environmental change

Clearly, emotions and affect matter. They are fundamental to coping, to decision-making, to adaptation abilities, and to conceptualising changes in climate and environment. They are also fundamental to health and well-being and, as such, should be considered along with physical health in climate-health research and programming. The voices and stories from this research make clear the importance of including and considering emotional responses stemming not only from a changing climate, but also from changes in the ability to hunt, fish, trap, forage for berries and medicinal plants, and travel regularly and safely to cabin. For participants in this research, feelings of emotional wellness and wholeness came from being able to spend time on the land; in short, 'the land enriches the soul'. Yet, climatic and environmental change is impacting local ecologies to the point where people can no longer participate in these activities as frequently, or even at all. This inability to access the land and participate in hunting, trapping, fishing, and foraging not only dramatically impacts the emotional well-being of individuals due to decreased opportunities to spend time on the land, but also gives rise to feelings of anger and frustration, sadness and depression, as well as fear and uncertainty about the future—feelings and emotions that impoverish the soul. While these emotions and felt responses are

experienced on an individual level, they are also then (re)shared and (re)expressed, creating, enhancing, detracting, expanding, or collapsing the affective responses and the collective and affective 'mood' or mental state of the community. Therefore, the creation of both short- and long-term health and resilience programming and resources to support emotional health and well-being are essential, particularly within the context of climate change and climate-health impacts.

While communities such as Rigolet that are experiencing rapid and acute climatic and environmental change will continue to live with and experience these changes, and will continue to innovatively adapt to the changing circumstances, a focus on the underlying emotional health and well-being of individuals will enhance individual and collective resilience and decrease emotio-psychological susceptibility from trauma resultant from the changes. In addition, considering affect and emotion is also important from another perspective: the levels of environmentally-based distress experienced by individuals are a direct indicator of the state of the land and environment, and can be a strong measure of the true extent of climatic and environmental changes. By including and valuing emotional responses to—and considering the affective dimensions of—climate change, along with physical health indicators, climate-health research can become more holistic, more rich, and more reflective of the lived experiences of individuals and communities most directly affected by rapidly changing conditions, such as Inuit in Canada's North.

One final note for researchers endeavouring to work with individuals and communities in partnership to explore the affective dimensions of climatic and environmental change, the subsequent emotional responses, and the links between emotional resilience and adaptive capacities: affect also exerts emotional forces on our own practices and approaches that need to be acknowledged and considered. Exploring the "potentially powerful role played by emotions, without also experiencing our own emotional responses to these explorations" (*Meunier, 2010: 36*) is simply impossible, whether we consciously understand the effects of the affective encounter or not. To conduct this type of research, researchers need to enter into the research process as engaged, emotionally embodied, and ready not only to listen closely, but also to respond with our own emotions, feelings, behaviours, and expressions (*Meunier, 2010*). Researching, then, becomes an emotive process, aware and embracing of affect, with researchers also "being affected-affecting." As David *Abram (1996, 33)* reminds, "even the most detached scientist must begin and end her study in this indeterminate field of experience."

Affect, emotions, and feelings, then, enrich our understanding of the myriad connections between health and well-being—human and other-than-human—and the myriad bodies (animate and inanimate) in given ecologies. "It is only at the scale of our direct, sensory interactions with the land around us," *Abrams writes (1996, 268)* "that we can appropriately notice and respond to the immediate needs of the living world." These sensorio-emotional interactions with other bodies (animal, vegetal, mineral, geologic, hydrologic), made possible through ecological affect, remind us what we stand to lose if these climatic and environmental changes continue unabated; they remind us of what we can gain, should we begin to dedicate our work and research to supporting and promoting research, policies, and programmes focused on expanding the capacities and realms of emotional health and well-being. Thinking with ecological affect teaches that the intactness of the whole (human and other-than-human) is essential to understanding and working with the situation holistically, rather than separating a complex system into discrete components or approaches. And perhaps by attending to affects and emotions, we can also begin to discover and work towards other approaches to understanding, interacting, and connecting with

other-than-human bodies “through a renewed attentiveness to this perceptual dimension that underlies all our logics, through a rejuvenation of our carnal, sensorial empathy with the living land that sustains us” (Abram, 1996: 69)—ecological affect *par excellence*.

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