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Reimaging Climate Relocation after Hurricane Fiona in Channel-Port aux Basques: Unmasking the Hidden Aspects of Relocation Decision Making

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Conflict of Interest

The authors declare no conflict of interest

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Ethics Statement
Data for this research was collected in compliance with the Grenfell Campus Ethics guidelines. Ethical clearance was obtained from the Grenfell Campus Research Ethics Board (#20241107) prior to data collection, and all necessary protocols were observed and upheld. All participants were informed and their consent sought before data collection.

Data Availability Statement

All transcript data used in this article my be available upon request but would require a written permission from the Grenfell Campus Research Ethics Board before it can be shared

Author Contributions

Lawrence Nditsi: Conceptualization, Writing—original draft, Writing—review and editing; Evan J Andrew: Conceptualization, review and editing. Kelly Vodden: Review and editing. All authors have read and agreed to the content of this manuscript.

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Abstract

Coastal communities are increasingly required to adapt to climate change. Relocation is emerging as an important yet contested adaptation strategy. As climate-related impacts intensify, there remains limited empirical research on relocation, including examining why and under what conditions people are willing to relocate. The gap in knowledge is especially wide in Global North contexts such as Canada. In response, this study presents a qualitative case study of climate change driven relocation in the Town of Channel-Port aux Basques, Newfoundland and Labrador, following Hurricane Fiona, marking one of the first documented cases of climate related relocation in the province. Drawing on in-depth interviews, the study examines core assumptions typically associated with relocation and climate adaptation policy and scholarship. It focuses on the belief that relocation can be encouraged by exposure to extreme events, that risk awareness leads to relocation readiness, and that financial incentives increase willingness to relocate. Our findings demonstrate that while these are often preconditions in relocation decisions (influence relocation reasoning) they do not act in isolation to trigger retreat (determine outcomes). This article contributes to the broader climate relocation scholarship by demonstrating that exposure, risk perception, and financial incentives do not independently determine relocation willingness. Instead, retreat decisions are mediated through emotional attachment, social embeddedness, identity, grief, and perceptions of agency, which complicates linear models of climate adaptation behaviour. We conclude that relocation research and policy must account for these broader social, experiential and psychosocial dimensions of decision making in support of just and socially sustainable coastal retreat initiatives.

Keywords

Hurricane Fiona; Determinants of Relocation; Channel-Port aux Basques; Climate Change

Introduction

On September 24th, 2022, The Town of Channel-Port aux Basques was hit by Hurricane Fiona, which is documented as one of the most destructive storms recorded in Canada. What started as a thunderstorm in the tropical Atlantic on the 12th of September, detected by the National Hurricane Centre in the United States, later gained ground and caused damages in Puerto Rico, the Dominican Republic, Haiti and several other Atlantic Canadian provinces. When it finally made landfall on NL's southwest coast, it caused massive destructions in Channel-Port aux Basques than any other location, washing several houses and one individual to sea (Roy, 2023), and rendering several other houses structurally unsafe (Weather Underground, 2022; CBC, 2022).

Before the storm, when forecast information was first shared with the Town, officials organized meetings to plan and coordinate their response. Residents living near the ocean were contacted and informed about the approaching storm. On the night of September 23, additional calls were made as local officials and emergency responders urged those in vulnerable shoreline areas to evacuate, in some cases going door-to-door to reach individuals who were hesitant to leave. With the

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assistance of first responders and emergency services, the elderly and other vulnerable residents were evacuated from their homes and care facilities. In the aftermath of the storm surge, the damage was extensive. Homes were destroyed or severely impacted, and more than 200 people were immediately displaced, many seeking refuge in shelters or temporary housing. In the days that followed, some residents briefly returned alongside emergency crews to retrieve personal belongings. However, many were forced to remain displaced for extended periods due to unsafe living conditions.

What happened in Channel-Port aux Basques is known as relocation. There are varied conceptualizations (managed retreat, planned relocation, relocation etc.) and definitions but this paper adopts Ferris et al. (2015, p. 9) as a "process in which persons or groups of persons move are moved away from their homes, settled in a new location, and provided with the conditions for rebuilding their lives." Relocation is assumed to protect people against environmental threats, disasters or impending environmental changes that carries an apparent risk as proactive response in anticipation of danger, during or the aftermath of it. But the 'when, how and whether' of it result from juxtaposing many factors. Characteristically, relocation constitutes a complex adaptation strategy, often happening in phases (pre-planning, planning, execution and evaluation), navigating complex decision making process (Ferris, 2015) and interaction between diverse actor groups who may sometimes disagree (Ferris, 2015; O'Donnell, 2022). Nonetheless as climate threats persist in coastal locations like Channel-Port aux Basques, there is growing justification that relocation may constitute an indispensable adaptation strategy.

According to some, the prevalence of relocation underscores the number of persons engaged in climate induced mobility (Ajibade & Siders, 2022; Bower et al., 2023). Hino et al. (2017) reported that approximately 1.3 million people have been relocated between 1987-2017 due to storms, erosion, and flooding. He further speculated that between 250 million to 1 billion people would experience climate induced mobility by 2050. These mobilities are either voluntary or imposed. Garimella (2022) notes that earlier cases of relocation were often imposed on at-risk populations. But in recent times, hybrid approaches combining government planning with community input have emerged with instances of communities advocating for relocation (Bronen and Chapin 2013). But whether relocation is community initiated or imposed, evidence from the literature suggest that resistance to relocation can limit policy effectiveness and that communities are seldom satisfied with its outcomes, leading to resentment and strained relationships within communities and with government (Arnall, 2019; Hino et al., 2017).

While the need to relocate is emerging globally, research on relocation is skewed to examples in the Global South, and heavily reliant on three assumptions that may limit understanding, and effectiveness of policy. First, it is widely argued that the experience of climate change will ultimately generate a willingness to relocate as environmental hazards intensify (IPCC, 2022; Chuvieco et al., 2021; Jansen, 2020; Bergquist et al., 2019; McLeman, 2014). Second, the assumption that economic incentives can overcome resistance to relocation has become embedded in the design and implementation relocation policies. These policies frequently rely on

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compensation schemes, property buyouts, and financial subsidies to galvanize support (Hino et al., 2017). Third, it is suggested that improved knowledge and awareness of future climate risks will create a relocation-ready coast (Hino et al., 2017; IPCC, 2022). However, these assumptions oversimplify the practicality of relocation and mispresent coastal people. They imply the most vulnerable will leave based on exposure and if that fails, that they can be 'bought' or educated out their vulnerabilities (IPCC, 2022). This not only obscures salient contextual considerations but create the risk of perpetuating unjust narratives in climate discourse that continue to subvert the interest of vulnerable populations (Simis et al. 2016). Deeply connected to this is the historical marginalizations and mischaracterization of certain populations as agency deficient and in need of 'saving' rather than active agents of change.

In light of the above, and gaps in understanding on relocation as an adaptation strategy in the Global North, including Canada, and the need for more nuanced science and effective climate policy, this research investigates these three predominant assumptions by exploring a case study of relocation in Channel-Port aux Basques, Canada, following a major weather event, Hurricane Fiona. The study is anchored on three underlying questions. What really matters to people considering relocation? Do connections to place and the psychological tolls of relocation override financial incentives and exposure to risk? What understanding is required for tenable relocation programs and what lessons are there for future situations through the Channel-Port aux Basques example? This article critically explores these questions to gather critical insights for future relocation programs in NL and beyond in line with predicted need for relocation planning research and policy (Woodhall-Melnik & Weissman, 2023).

This paper is organized in four additional sections. First, the paper includes a literature review that highlights limiting assumptions and discusses alternative directions for understanding relocation behaviour: Second, the paper shares the study context and methods, describing how relocation was explored before and after Hurricane Fiona touched ground. Third, the paper shares the main research findings demonstrating how relocation behaviour transcended awareness of environmental change and economic considerations and concludes with recommendations for relocation research and policy and planning in regions with similar socio-cultural and psychophysical characteristics. It draws attention to the imperative of recognizing the human experiences of coastal communities in relocation policy and planning for tenable outcomes.

Literature review

Limiting assumptions on climate related relocation and scholarship

This section discusses three major limiting assumptions in research and science informing climate related relocation policy. It focuses on the assumptions that exposure spurs willingness to retreat, that people can be incentivized to relocate, and that a stronger perception of risk would facilitate retreat intentions.

Previous exposure means willingness to relocate

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A common pervasive rationale underlying mobility policy is that of exposure. Some have argued that as environmental hazards intensify and livelihoods become difficult to sustain in threat prone areas, retreat would emerge as a rational response (IPCC, 2022; Chuvieco et al., 2021; McLeman, 2014). According to Lie et al. (2023), however, people do not retreat solely on the basis of exposure or climate experience. As his study revealed, people continued to stay in threat prone areas amidst mounting evidence of risk and vulnerability. Populations who experience disruptions resort to different coping behaviour, including risk attenuating measures to enhance their environments to withstand future impacts (Lie et al., 2023). Relatedly, past exploration on the linkage between exposure to hazard and the choice of coping behaviour yielded mixed results (Seebauer & Winkler, 2020; Woodhall-Melnik & Weissman, 2023).While some indicate exposure increases risk-averse behaviour such as retreat (Jansen, 2020; Bergquist et al., 2019), others uncovered otherwise (Lie et al., 2023). Exposure can increase a sense of vulnerability but not translate to feeling at risk (Lie et al., 2023). In Florida, for example, Haney (2019) indicated that locals affected by the 2013 Florida floods expressed concerns about the impacts but stayed in place to build resilience to future floods. Other examples found preference for temporary evacuation rather than permanent abandonment (Ariccio et al., 2020; Haney, 2019).

Coastal people can be financially incentivised to relocate

Related to the above is the belief that economic incentives can overcome resistance to relocation. This assumption is responsible for an overreliance on financial compensation, property buyouts, and other subsidies intended to motivate retreat behaviour (Hino et al., 2017; Siders, 2019). Undoubtedly, financial incentives are characteristic of relocation programs given their complexity and the cost involved (Hanna et al (2019). In fact, the necessity of funds is underlying mounting calls in favour of dedicated funding streams in support of proactive relocation programs (Boston et al., 2021), resulting in the critique of the overreliance on ad-hoc and reactive financial arrangements by some (Cameron, 2022). McAdam and Ferris (2019) argued that success rates are contingent on the provision of comprehensive financial considerations sufficient enough to allow people build back their lives in the new environment (Boston et al. 2021). Unfortunately, most relocation programs measure success based on the absence of opposition, even though it may not imply favourability to relocation or financial incentives. Rather it may be concealing other background factors connected to past histories of negotiating with government, fears of eventual abandonment, or being provided with later options that are worse off.

Education would increase risk perception and motivate coastal people to leave

According to Vodden & Cunsolo (2021) coastal environments tend to experience more rampant climatic stressors compared to inland areas. Hence, capturing future threats and risks and disseminating them through projections and hazard mapping is expected to increase risk consciousness and facilitate anticipatory action, in turn producing a more relocation-ready coast. This is often framed in terms of education and risk consciousness campaigns with hopes to increase willingness. While such information can prepare policymakers to anticipate, strategize and plan

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climate action (Hino et al., 2017; Siders, 2019; IPCC, 2022), it differently influences various communities. Fear mongering and apocalyptic narratives often instil distress rather than motivate retreat. Knowledge of future risk can increase perception of risk (Holley et al., 2022) but not translate into relocation as a coping strategy (Jansen, 2020). As Simis et al. (2016) intimated, emphases on educating communities out of their vulnerability can constitute a lack of sensitivity to lived realities and non-acknowledgement of local agency. The receptivity of climate-related relocation could be further explained by a range of social, cultural, economic, psychological and emotional factors that may play intervening roles and interfere with the limiting assumptions to determine the actual actions (Cunsolo et al., 2018; Hanna et al., 2019; Hayes et al., 2018; Woodhall-Melnik & Weissman, 2023). Understanding decision making through a comprehensive human experience of climate change could yield more human centric policy options and those that work from the ground-up.

Alternative factors shaping relocation behaviour

This section presents alternatives to the limiting assumptions discussed above by showing that decisions might be more convoluted than these assumptions suggest. Here, factors such as place attachment and emotional factors are explained to provide a more nuanced understanding.

Psychosocial drivers of relocation behaviour

A growing body of scholarship maintains that strong attachments manifested through cultural identity, social networks, and historical relationship with land usually shapes how people react to climate perturbations (Cunsolo et al. 2018; Holley et al., 2022; Lie et al. 2023; Mavhura, 2025). According to Feng et al (2022), humans establish deep attachments with place over time to a point where the place can be envisaged as an extension of oneself (Dachary-Bernard et al., 2019). At the core of this attachment is a strong sense of place (Xu et al., 2017; Reid & Vodden, 2020, Mavhura, 2025). Attachments can manifest at diverse levels including block, neighbourhood, or communal levels (Long & Perkins, 2007). A strong place attachment is influenced by the depth of rootedness in place, social networks, and place satisfaction/experience (Lie et al., 2023; Woodhall-Melnik & Weissman, 2023) to create bonding on several dimensions (i.e. place identity, place dependence, family bonding, friend bonding, and nature bonding (Lie et al., 2023). Collectively, these dimensions solidify attachment and invoke a dread for detachment. Separations may be viewed as distortions to life and social support systems and induce mental and psychological reaction, and even the possibility of suicide in extreme cases (Holley et al., 2022; Neef, 2022; Cunsolo et al. 2018; Bonaiuto et al., 2016).

Place attachment also encompasses physical, socio-cultural, symbolic, and psychological dimensions that instil place rootedness (Holley et al., 2022). Bonaiuto et al. (2016) contended that place attachment can contribute to an increased risk awareness but a reduced likelihood of retreat. Sometimes it fuels the tendency to return to the risk environment after threats subside to reestablish ties with cultural norms and symbolic aspects that define ones identity (Holley et al., 2022). Boon (2014) and Mavhura (2025), for example, cited that a strong sense of place increased resilience in

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flood prone communities and reduced their desire to relocate. Xu et al. (2017) also revealed that households which exhibited stronger place attachment and dependence were more resistant to relocation within farming communities in China following floods. Feng et al. (2022) showed that strong place attachment can strengthen collective action to enhance sustainability and reduce future impacts. Sometimes, collective action formed during hazards are used to build self efficacy, community resilience, and social capital, or are leveraged to reinvigorate social norms and cohesion to stage defiance to adaptation projects when there is a lack of trust, or when interventions underprivilege them (Haney, 2019). These reflect the complex social, cultural, emotional and political dimensions of mobility and climate action.

Psychological and emotional drivers of relocation factors

Research has identified intentions and visions as powerful predictors of behaviour (Bosone et al., 2025). However, an intention–behaviour gap often persists where even strong pro-environmental intentions do not consistently lead to corresponding actions. Because ties with place are established and strengthened through deeply rooted historical, religious, and cultural traditions, it produces psychological and emotional reactions to current and anticipated climate change and action (Cunsolo et al., 2018). Climate action is largely shaped by anticipatory visioning of outcomes to support public and private organizations and individuals as they navigate uncertain futures. According to Bosone et al. (2025), anticipating the future can shape motivation and decision-making by fostering a sense of purpose and direction that drive behavioural change based on the type of emotions evoked.

As Andrews & Wolfe (2025) noted, emotions are critical human dimensions that convert values and other cognitive processes into action across context including sustainability and climate action and are essential to understanding human experience, motivations, and interactions that inform behaviour. Both positive and negative emotional reactions could emerge based on the images and scenarios created, how they are communicated or align with peoples' visions. Visioning can aid understanding the imperatives of positive behaviour, generate positive emotions like hope or happiness, and promote pro-environmental action and sustainability in socio-ecological systems (Bosone et al. 2025; Andrews & Wolfe, 2025).

There are established grounds climate change triggers negative emotions, but consensus is split over its contribution to coping strategies like relocation. Negative emotions about future risks persist in culturally significant ecosystems (Haney, 2019) with emotional intensity dependent on rate of impact or depth of attachment. A typical negative emotion associated with climate change is grief that can arise over ecological degradation, loss of access to place, loss of environmental knowledge, or an anticipated future ecological loss (Bergquist et al., 2019), triggering related negative emotions (i.e. anger, fear, sadness or anxiety) (Bosone, 2025). In the context of marine conservation and ocean governance, Andrews & Wolfe (2025) argued that emotions are foundational guiding elements determining how people engage in conservation, comply with rules, or support efforts. But negative emotions can arise over incoherent processes or ideological friction

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among stakeholders. Negative emotions could arise over disparate risk perception among actors to create barriers to effective planning, ultimately affecting actions. When paired with existing socio-political factors in climate discourse, this can complicate efforts in contexts where historical issues exist (Ajibade et al., 2022), particularly connected to land and access to cultural sites, to reinforce risk seeking behaviours and deter relocation. In a typical case study following the 2013 Alberta floods, residents expressed significant grief and anxiety about the possibility of future floods. Haney (2019) found that this influenced relocation considerations for some but bolstered place attachment and community cohesion to reinforce decisions to remain and protect place in parts of the population. This again depicts the complex nature of relocation decisions.

Study context and methods

Climate vulnerability in Atlantic Canada

Many Atlantic Canadian coastal communities including Channel-Port aux Basques are vulnerable to a range of climate-related risks (Bush & Lemmen, 2019). In Newfoundland, warning trends are projected to continue and precipitate more frequent and severe storms, sea level rise, and flooding (Bush & Lemmen, 2019) and pose a threat to the region's critical infrastructure (Brown et al. 2017). The proximity of Channel-Port aux Basques to the Atlantic Ocean makes this community's situation more dire as strong winds and storm surges have all increased in frequency and intensity. Coastal erosion, sea level, and rainfall volumes have been increasing (Lemmen et al, 2016) and this is projected to persist (Lemmen et al. 2016; Government of NL, 2019).

Town of Channel-Port aux Basques

The current town of Channel-Port aux Basques is a consolidation of former independent towns of Mouse Island, the Channel, Grand Bay East, and Grand Bay West (Town of Channel-Port aux Basques , 2019; Roy, 2023). Channel-Port aux Basques is located on the southwestern coast of NL and functions as the southernmost gateway into the province via the Marine Atlantic ferry, which connects Newfoundland to Nova Scotia and other provinces in the Maritimes. Characteristically, the town hold significant infrastructure and serves as the access route for freight that enters the province. A report released by the Institute for Research on Public Policy (IRPP) in 2023 documented that about 90 percent of food products and other essential supplies enter the province through that gateway, making the town and its accompanying ferry infrastructure indispensable to the provinces' economy and a lifeline (IRPP, 2023).

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Figure 1: Map of Newfoundland showing the corresponding research area of Channel-Port aux Basques (Source: Authors Construct)

The population of Port aux Basques in 2021 was 3,547 (Statistics Canada, 2021), decreasing from 4,067 in 2016 (Statistics Canada, 2016), 4,113 in 2006 and 4,637 in 2001 (Town of Channel-Port aux Basques , 2019). The town experienced a negative population growth of 12.8 percent between 2016 and 2021 with concerns climate change might further drive those numbers downwards (Statistics Canada, 2021). These trends are largely attributed to both a natural decrease (i.e. when deaths outnumber births) and youth out-migration for education and in search of attractive opportunities (Town of Channel-Port aux Basques , 2019). Channel-Port aux Basques has a gradually declining and aging population, with approximately 88 percent above the age of 50.

Hurricane Fiona

Hurricane Fiona holds the title of the strongest storm on record in Canada, the second most costly weather-related disaster ever experienced, and the costliest in Atlantic Canada (Roy, 2023; The Canadian Press, 2022; Mcclearn, 2022). Total insured damages of Fiona amounted to $800 million (Insurance Bureau of Canada, 2023), from the initial anticipated amount of $660 million when the storm first happened (IBC, 2023; Coletta, 2023). In Channel-Port aux Basques , a combination of homes and municipal infrastructure damages amounted to more than $7million according to CBC news report (CBC, 2023). Over 20 homes were destroyed during the storm with an additional 100 deemed compromised following evaluations in the aftermath of the storm (Chughtai & O'Neill, 2022).

Subsequent to the storm, the provincial government established an impact zone and implemented a property buyout program to remove houses in the delineated area. The two-phase relocation program removed a total of 140 houses, including 83 in the first phase and 57 in the second phase. The first phase comprised houses substantially damaged and those with a compromised structural integrity on the basis of safety protocols. The second phase included those within the impact zone. The property buyout amount was determined in compliance with the federal government's Disaster Financial Assistance Arrangement for extreme weather events like hurricanes to include: (a) a

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replacement value for the home at a minimum of $200 per square foot and based on a detailed assessment by an insurance adjuster, (b) replacement value of property contents in accordance with the DFAP program Schedule of Loss, and (c) a value for land or provision of a suitable land option (Department of Justice and Public Safety, n.d). Amounts payable for contents were based on the adjuster's recommendation (Department of Justice and Public Safety, 2022), with the establishment of maximum payout amounts subject to determination by the provincial government (Department of Justice and Public Safety, 2020).

Methods

This study employed a qualitative research design to gather and analyze detailed narrative descriptions of respondents' personal encounters and experiences with climate change (Assumption 1) and Hurricane Fiona (Assumptions 2 & 3). Hybrid data analysis techniques were used. The three limiting assumptions were explored through an inductive approach while the alternatives emerged based on deductions from the data. Narrative interviews were used to gather primary data from people who were affected by the hurricane (n=10) and municipal officials (n=3). The sampling frame of affected residents was obtained from the town office, and these individuals were contacted to participate in the research. Some initially declined due to trust and safety concerns but later agreed upon learning I had interviewed others, or after previously interviewed participants contacted and encouraged them to. This aligned with a snow balling technique which allowed previously interviewed participants to recommend other participants. Conversations lasted approximately 45–60 minutes guided by a protocol designed to elicit participants' perspectives on the storm and the relocation program. Interviews were audio-recorded with permission and transcribed verbatim. To ensure accuracy, transcripts were reviewed against the original recordings and anonymized prior to analysis.

Group 1	People who had already relocated at the time of the research (Includes persons relocated in the first phase, including their family members and anyone tied to them that the relocation has impacted.)	N=8
Group 2	Those yet to relocate at the time of the interview (includes one person yet to move in the second phase and a second individual impacted by Fiona but outside the delineated impact zone)	N=2
Group 3	Officials from Channel-Port aux Basques (Key informants)	N=3

Table 1: Classification of interview participants

The interview began with an open-ended approach to allow participants to freely express themselves and follow-up questions were asked only when it became necessary. For this study, narratives allowed for exploring how participants conveyed their experiences, making it useful for studying complex and emotionally laden phenomena like disaster, displacement, and retreat (Carless & Douglas, 2017; Andrews et al., 2021). Data collection occurred between December 2023 through January 2024 and was analyzed using thematic and narrative analysis techniques. The former aided the extraction of relevant themes and the latter to capture deeper meanings through pauses and sighs. Interview data was transcribed, proofread, and reviewed through several

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iterations to manually identify statements that corresponded with the assumptions. Each transcript was thoroughly reviewed to establish analytic memos. Codes were generated inductively to interrogate dominant assumptions and deductively for alternative explanatory factors. Similar codes were merged to form themes, synthesized, and supported by illustrative data extracts.

Researcher positionality

I approached this study as an outsider to the Channel-Port aux Basques community and recognized that this position may influence participants' trust, comfort, and willingness to share sensitive experiences related to Hurricane Fiona, relocation, their traumatic experiences and grief associated with their experience. This acknowledgment was especially needed after some fraudulent individuals called victims after the storm purporting to be government officials in an attempt to extort money from them. Hence, I informed participants they were recommended to me by the town office and encouraged them to contact the Town Office to verify my identity if they had any doubts. Because the topic was emotionally sensitive, interviews were conducted in a flexible and participant-driven manner and allowed individuals to pause, skip questions, or stop at any time they got uncomfortable. Coming from a developing country context where financial provisions, most especially are seldom available to disaster victims, I also reflected upon my own assumptions and academic perspective and how they shaped the interpretation of participants' experiences. In all, the study aimed to draw attention to community agency, lived experiences, and varied perspectives on relocation rather than portraying them only as vulnerable victims of climate change.

Research findings

The data analysis revealed polarized sentiments on relocation willingness in Channel-Port aux Basques after Hurricane Fiona, which most participants described as the most destructive storm they had ever experienced. The following section presents the position of respondents on their inclination to retreat in connection with the dominant limiting assumptions and the alternatives that emerged.

Factors informing relocation decision in Channel-Port aux Basques

Climate impact and relocation behaviour in Channel-Port aux Basques

All participants come from generations that had lived in the community and is a coastal community reputable for its vibrant fishing industry and beautiful coastal environments. Living along the coast was treasured and is directly linked to individual and communal identity which simultaneously made it prone to high impact winds and storms. The wreck house area (a location on the Trans-Canada Highway connecting the community to the rest of the province) is widely known for its atrocious and destructive winds. Coupled with climate change, triggering more than usual frequent and intense storms, participants expressed alarm about vulnerability and increasing exposure, which was particularly heightened by Fiona and its destructions. But Fiona was not the first intense storm Channel-Port aux Basques ever experienced. Evidence from the Municipal Action Plan,

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corroborated by participants revealed a similar storm occurred in January 2000 with damages occurring up to 8 meters above sea level (Town of Channel-Port aux Basques, 2019). One participant recounted:

"There was a similar event in 2000. It wasn't quite as bad. There were houses damaged with one or two people affected. A lot of fishing infrastructure was destroyed. Wharves and boats were all destroyed, but not as many on the scale that Fiona did. Fiona was out of this world".

The experience of Fiona and the heightened sense of exposure interpreted through past experiences prompted some to retreat immediately following the storm, even before formal plans were announced. As one participant noted "after Fiona, I don't think I could ever live anywhere near [the ocean]" which is reflexive of the extent of impacts endured. Here exposure and concerns about vulnerability influenced relocation decision as others have argued and relocation as a coping strategy was chosen to offset any future experience (Chuvieco et al., 2021; McLeman, 2014).

Property buyout amount, financial situation and relocation willingness.

Economic implications of the storm and its impact on decisions was strongly articulated by participants. Two factors accounted for differences in opinions on the program along economic lines. These include individual financial situation, and the degree of damage sustained. Losses ranged from partial damage to complete destruction. Those who experienced total or severe property loss were generally more receptive to relocation supported by the financial provision than those minimally affected. For some, willingness was influenced less by the size of the incentive than by participants' broader financial situations. Those gainfully employed or had savings were more inclined and less critical of the buyout package than others. Additionally, home ownership status played a part in willingness and satisfaction as those who owned their homes outright faced different challenges than those with mortgages. Across accounts, many emphasized the difficulty of rebuilding with the compensation provided "We only built back because we owned our home. I can't imagine anyone with a mortgage having to pay off the mortgage and then build." Some people were nevertheless appreciative of the financial incentive since losses were not covered by their insurance. As one person cited: "at least it is better than being left to your fate. I can't imagine doing this without any support because the insurance companies bailed out on us after contributing for years."

Economic deliberations were further influenced by the cost of land. With respect to land compensation, they could either receive a cash payment for land or be provided with a "suitable land option," in line with the Newfoundland and Labrador Disaster Financial Assistance Program (Department of Justice and Public Safety, 2020). In Channel-Port aux Basques , this meant building in a newly developed municipal subdivision or purchasing land elsewhere of the person's choice. Persons who chose to build outside the subdivision received a flat payment of $30,500, while those who opted for the subdivision had land purchased for them by the provincial government (with lot values ranging from $35,000 to $45,000). Participants who purchased land outside the subdivision described the compensation as insufficient (i.e. barely covered the cost of

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land and did not account for additional expenses such as land servicing). One person argued: “Not enough that we could come up here and buy a piece of land, so if we wanted to build, we never would've been able to afford it.” Notwithstanding the discrepancy, some, mainly older residents and others who chose not to rebuild, were more satisfied and less opposed to relocation. In all, financial compensation played a significant role in shaping responsiveness to the policy given the fact that it was compulsory for everyone in the impact zone.

Climate knowledge, perception, and relocation intentions

Different perceptions of risk and willingness to relocate emerged and were largely shaped by the severity of impact experienced. It was also partly informed by the knowledge of climate change and the attribution of occurrences to it. While some attributed change to climate change, others did not. According to one person, “I could see that [the climate is changing] though when we first moved here, we didn't even imagine it was climate change. But as I got older living next to the water, we knew something was not right.” But others were indifferent. “I’ve heard that the climate [is] changing [but] I’m not sure how bad it really is.” After the storm, affected population constitute diverse experiences. Persons less severely affected were generally less willing to relocate. influenced by their limited perception of risk. Meanwhile some who were severely impacted expressed a lack of interest living in proximity to the coast. For instance, person who lost everything to the storm narrated:

“*After Fiona, I don't think I could ever live anywhere near [the ocean]. This is probably as close as I'd want to be because I respected and I realized it's reclaiming what it owns, you know, so I had a lot of respect for it. I think they're beautiful, but at the same time, you know, I respect the fact that you don't take chances; it just waits and reclaims what it owns”*

Alluding to the increasing frequency and severity of storms the above participant determined not to live close to the ocean. Others, however, owing to their strong awareness of climate change and increased risk perception, resorted to protective measures rather than considering retreat in the past (Mavhura, 2025). But after Fiona that position was amended. They narrated: “for all the years we lived in this spot, we were building a sea wall behind our house, and we thought we were safe there forever. But Fiona came and cleaned it all up. I don’t think we would ever be safe in that spot anymore.” Others with an increased risk perception felt nowhere is really safe, informing their reluctance to move. One person who sustained minimal damage but was outside the relocation zone argued: “nowhere is really safe enough [and] this might never happen again, or maybe it'll happen next week.” According to the participant, “you can move in the woods, and there is a forest fire; you can move next to a river, and there is a flood.” While his accounts reflect an awareness of climate change and being attuned to risk uncertainty, lack of interest in relocating could be explained by being outside the designated impact area. Though conversations with a municipal official from the town office revealed some residents outside the designated impact zone expressed interest in relocating over fears of future situations. These convey how risk perception and climate knowledge could produce different behaviour based on the severity of impact endured.

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Alternative considerations for relocation decision making in Channel-Port aux Basques

Place attachment and relocation behaviour

Channel-Port aux Basques has existed for thousands of years, and most participants came from families that have lived in the community for generations, with only a few having moved there later in life. All participants demonstrated strong historical roots and deep connections to the community. Approximately 83% of dwellings were constructed between 1960 and 1990, reflecting the town's relatively recent housing development (Statistics Canada, 2021). The community is located only a few metres from the ocean, a pattern common to many coastal communities in Newfoundland and Labrador and Atlantic Canada, where fisheries historically shaped settlement patterns. Proximity to the ocean has fostered strong social, cultural, and emotional ties to the marine environment, with oceanfront living remaining highly valued. Participants consistently expressed a strong affinity for both the ocean and the community, prompting some who had worked elsewhere to return upon retirement. One participants stated that "[they] just wanted to come back and be where [they] grew up and be around familiar things and people and family." These decisions were rooted in place attachment and satisfaction derived from past experiences, and a desire to maintain valued lifestyles and social connections as in (Haney, 2019; Holley et al., 2022). For example, one participant returned to live near the ocean to support an aging parent, while another purchased a coastal home driven by attachment to the community, the ocean, and the close-knit nature of local social relationships. She stated:

When we thought about retiring…… we've got a lot of family here, and so this is the draw, plus NL is one of those places a little unique; people are very kind and caring and compassionate … a little more noticeable here, so we just wanted to come back and be where we grew up and be around familiar things and people and family.

For these participants, the satisfaction derived from living near the ocean, close familial ties, and the social capital embedded within the community were central to their sense of belonging and resilience as seen elsewhere (Qing et al., 2022). These interconnected factors made relocation, particularly away from the ocean environment, deeply undesirable as participants feared detachment from both place and social relationships and the loss of familiar daily activities (Feng et al., 2022; Xu et al., 2017). One participant who moved 20 minutes outside of town reflected that "being able to get up in the morning and go down and check on my dad… or drop by my buddy's place for a game of darts and a beer is not going to happen the way it did before." Such reflections highlight how strong ties to place and family, and the perceived social consequences of relocation, reduce willingness to move voluntarily (Cunsolo et al., 2018; Feng et al., 2022; Mavhura, 2025). Consequently, this participant was less willing to relocate and also heavily criticized the relocation process over a lack of consideration and uniformity. Dimensions of place attachment in Channel-Port aux Basques reflected those of previous findings in rural and peri-urban settings (Lie et al., 2023). Beyond connections to the ocean and community, they expressed deep attachment to their homes and neighbourhood and viewed them as places they intended to inhabit for life. One

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participant stated, “we didn’t want to move, we just wanted to stay here until we die.” Others similarly described their connection to coastal living, including the ability to observe marine life as a key components of identity making those places difficult to give up and triggering psychological and emotional reactions over the destruction caused by the storm and involuntary nature of the retreat program (Cunsolo et al., 2018). Thus, despite an awareness the dimension of attachment made relocation unacceptable to some.

Psychological factors and relocation

One dominant negative emotion from the storm and relocation was grief. Participants identified grief as a key factor shaping relocation decisions. This grief stemmed from detachment from place and the destruction of symbolic memories connected to identity (Lie et al, 2023). One participant described profound grief after losing her home to the hurricane, including the loss of childhood photographs of her children, writings on the walls, and family heirlooms inherited from her parents. Another recounted the emotional impact of losing her home, underscoring how it was deeply intertwined with personal and familial memory. They stated:

I raised my children in that house (sobs). I just felt that it took a lot of mental strain. It's going to take a long time to get over it. I just feel that it took a lot…I know I can carry my memories with me, but I love the scenery where I lived; I loved watching the boat come in, I loved the ocean.

For some, the emotional toll of anticipated detachment in addition to grief over losses was strong enough to rule out any argument for voluntary retreat. One participant indicated “I wouldn’t really want to [move]. Because I am here. I have been here for 30 years.” This position reflects deep place attachment and suggests that decisions to abandon place are often delayed until the last possible moment. In this instance it was clear it would not have happened at the person’s own volition. Some expressed anger about inaction when climate threats were very evident, including perceived detachment from place. But it was not clear what actions they would have taken as one person who expressed rage over the destruction of her house indicated wanting to die with the house and had to be pulled out by her husband at the last minute. For another participant, destruction of her house paired with the understanding she could not live there any longer invoked suicidal thoughts and mental health problems during the initial stages. She narrated: ‘I was in a really dark place. I didn't want to be here. I was very lethargic. I didn't want to get up, I don't want to see anybody, I just wanted to die”. This deeply intertwined personal experiences with climate change and mediating factors make relocation decision complex.

Discussion

This study examined the factors shaping relocation readiness in Channel-Port aux Basques following Hurricane Fiona with particular attention to three assumptions commonly embedded in climate adaptation scholarship and policy: that direct exposure to climate hazards increases willingness to relocate, that heightened climate awareness and risk perception encourage retreat, and that financial incentives can overcome resistance to relocation. While the findings demonstrate

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that these factors remain important in shaping relocation reasoning, the Channel-Port aux Basques case reveals that they do not operate as direct or independent predictors of retreat behaviour. Rather, their influence is filtered through psychosocial relationships, emotional attachments, lived histories, and perceptions of agency. The Channel-Port aux Basques case demonstrates that relocation readiness is not the direct outcome of hazard exposure or climate awareness, but the product of how these conditions are emotionally and socially interpreted through additional factors such as attachment, identity, memory, and material circumstances. Relocation decisions thus not simply rational responses to environmental threat but socially and emotionally mediated processes rooted in how people interpret risk, belonging, and loss. The table below provides and overview of the assumptions and associated findings.

Assumptions		**Findings**	**Connection to literature**
Limiting Assumptions	Exposure to climate change	• Observed climate trends and impacts (erosion, winds, reduced snow cover etc.) • Severity of impacts • Perceived vulnerability	Vulnerability perceived through exposure or severity of past experiences initiates thinking about response approach (coping strategy). Anticipated severity of impacts shapes interventions; boost in situ measures or kick starts thinking about retreat/ eventual retreat.
	Financial Incentives	• Compensation package amount • Individual financial position • Degree of impact sustained • Insurance failure	Financial incentives work for those who have the money and are inclined to relocation. Retreat is mediated through severity of impacts and fear of abandonment. ('Better than nothing situation").
	Risk perception and climate knowledge	• Observed environmental change • Risk evaluation • Loss of coastal defence infrastructure (sense of security) • Climate experience	Increased risk perception may trigger voluntary detachment (give up place) or reinforces connection to place (to protect places of historical and cultural relevance). Knowledge of risk can lead to place detachment or a stronger sense of place (precipitating coping strategies)
Alternatives to the Limiting Assumptions	Psychosocial factors	• Place attachment • Fear of social fragmentation • Sense of place • Social capital (place embeddedness	Places are difficult to give up with a strong attachment. The depth of connectedness (i.e. place identity, dependence, bonding) mediates in decisions to retreat.
	Psychological factors	• Storm induced anxiety • Fear of the ocean • Mental health concerns • Ecological grief and trauma • Survival guilt and exhaustion • Depression and suicide ideation	Fear that threats may persist but emotional attachment to place discourages retreat. Anxiety over trepidation may trigger retreat but may lead to mental and psychological health problems (grief, guilt, suicidal thoughts etc.).

Table 2: Overview of assumptions and associated findings

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What matters to people considering relocation?

A central finding of this study is that relocation decisions were shaped less by exposure or risk alone than by the meanings participants attached to place, identity, and social continuity. Existing relocation literature frequently frames retreat as a logical adaptation response that becomes increasingly likely as environmental threats intensify (IPCC, 2022; McLeman, 2014). The Channel-Port aux Basques case complicates this assumption. Exposure does not produce uniform behavioural outcomes even among individuals affected by the same hazard event. Differences may be shaped by histories with place, social relationships, emotional attachments, and perceived ability to rebuild their lives elsewhere.

For many, the community represented more than a physical location vulnerable to climate threats but rather an extension of family history, identity, memory, and everyday social life shaped by connections to the coastline, neighbourhoods, family networks, and community routines. Consequently, retreat was not interpreted solely as movement away from danger, but as potential detachment from social worlds that gave meaning and stability to life which could be understood as carrying the same risk as the climate threat itself. Attachment operates not only as an emotional bond to landscape but also as a relational infrastructure through which people maintain identity, social belonging and continuity across generations. This suggests that relocation readiness is conditioned by whether individuals believe social and emotional continuity can be maintained after displacement. Participants who expressed reluctance to relocate often emphasized fears of fragmentation from family, community routines, social connections, and familiar forms of social interaction rather than concerns about the physical act of moving itself. This indicates that retreat decisions cannot be adequately understood through environmental exposure models alone but must instead be conceptualized as a social and relational process in which decisions are shaped by anticipated disruptions to identity and belonging and in some cases everyday life.

Do psychosocial and emotional attachments override risk and incentives?

The findings further demonstrate that psychosocial and emotional attachments frequently outweighed the influence of both risk perception and financial incentives. Previous studies have shown that strong place attachment can reduce willingness to retreat despite increasing climate risks (Holley et al., 2022; Lie et al., 2023). Climate risk can reinforce fear of risk and strengthen attachment to place rather than weakening them as was the case. Participants who experienced severe destruction expressed heightened awareness of future climate risks and vulnerability, but this awareness produced divergent responses. While some grew disinterested living near the coast, particularly where impacts disrupted their sense of safety and future security, others responded by strengthening their commitment to remain to protect place and preserve social and cultural ties. Here heightened risk awareness reinforced rather than displaced emotional attachment and place-based identity. Here risk perception interacted with emotional and social meanings attached to place to shape highly uneven responses within the same community.

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The study also unravels understanding associated with the prevailing assumptions surrounding compensation-based relocation policy. In the Channel-Port aux Basques case, compensation clearly influenced practical decision-making particularly among participants facing severe losses and limited insurance coverage and insecurity. But participants did not interpret compensation as an attractive incentive to relocate. For several respondents, acceptance of the buyout reflected constrained choice and fear of being left unsupported rather than genuine willingness to retreat. As some recounted it was "better than nothing", revealing that the financial acceptance was a result of perceived limited viable alternatives, some being told to take it or be left to their fate. Additionally, as the case elucidated, financial compensations worked better for some based on their financial and home ownership status.

The insight is that compliance in relocation programs should not be automatically interpreted as endorsement of retreat policy. Rather, acceptance may reflect unequal bargaining conditions and post-disaster vulnerability, or perceptions that decisions have already been made by authorities as in this case study where the impact zone was delineated by municipal officials, making retreat mandatory for all residing within it. Consequently, evaluating relocation programs primarily through how participants rates risks can obscure the emotional tensions, social losses, and constraints embedded within retreat processes. These findings challenge technocratic approaches that assume relocation resistance can be resolved primarily through compensation or risk communication strategies.

Contribution of the Channel-Port aux Basques case to relocation theory and scholarship

Exposure, risk perception, and financial incentives function better as enabling conditions in relocation reasoning to determine outcomes. While existing adaptation frameworks frequently treat these factors as linear causal drivers, findings from this study support a more relational understanding of relocation behaviour in which structural conditions are interpreted through psychosocial and psychological processes before decisions are formed.

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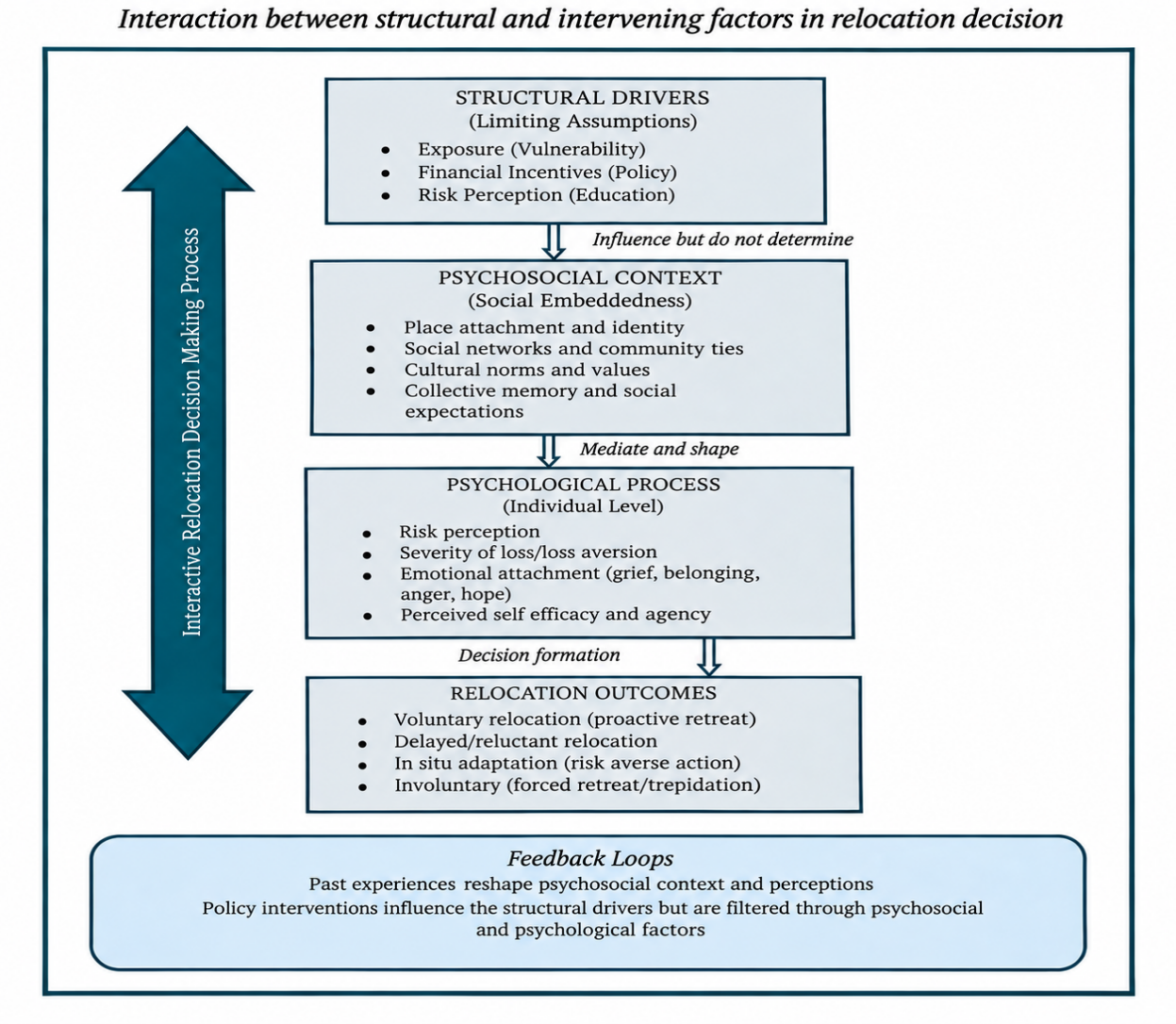


Fig 2: Interactive relocation decision making process

The framework illustrates how relocation decision-making involves continuous interaction between structural drivers, psychosocial context, and emotional interpretation. Exposure to climate hazards heightens awareness of vulnerability, while financial incentives alter perceptions of feasibility juxtaposed against available options. However, these factors are filtered through social embeddedness, historical attachment to place, cultural expectations, emotional responses to loss, and perceptions of future belonging. Consequently, individuals exposed to similar environmental risks may arrive at different adaptation pathways, including proactive retreat, delayed relocation or protective in situ adaptation.

The findings also point toward the importance of emotional thresholds in shaping adaptation behaviour. Participants who experienced moderate impacts often described attempts to remain in place through protective measures such as seawalls or preparedness strategies. But catastrophic destruction could produce emotional rupture and alter perceptions of future safety. In these cases,

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grief, exhaustion, fear, and loss may disrupt emotional attachments sufficiently to make retreat possible or necessary. This findings are significant for understanding relocation as intertwined with psychosocial and emotional characteristics like grief, trauma, memory, and identity. For them, homes represented places of family history and social connection and interaction, and the destruction or abandonment of these spaces produced emotional consequences extending beyond physical displacement. This reinforces the need to understand relocation not only as a spatial or infrastructural intervention but also as an emotionally disruptive social process with significant implications for mental health and wellbeing.

Within the Global North context our findings further contribute empirical insights from a relatively underexplored region. Much relocation scholarship has focused on highly vulnerable communities in the Global South where retreat is often framed through resource scarcity and institutional limitations. The Channel-Port aux Basques case demonstrates that even within high-income contexts characterized by state-led compensation and formal recovery programs, relocation remains are highly contested and socially complex. Financial capacity alone does not resolve the relational and psychological dimensions of retreat, which suggests that the challenges of managed relocation extend beyond questions of technical planning or economic provision.

Implications for relocation policy and future research

The findings carry important inferences for climate adaptation policy and retreat planning in coastal communities on the imperatives of a different starting point in relocation programming. Effective relocation planning requires approaches that engage directly with lived experiences, social attachments, and the meanings communities associate with place. To be effective, relocation initiatives must be understood as long-term social processes rather than singular policy events. As participants' accounts revealed, retreat involves profound disruptions to identity, memory, social support systems, and overall emotional wellbeing. Hence planning must center culturally and psychologically informed mechanisms capable of supporting continual community, social cohesion, and mental health throughout displacement and resettlement processes.

Additionally, while this study is grounded in the experiences of a single post-disaster community and therefore does not claim generalizability, the findings may hold transferability and significance for other coastal communities characterized by similar socio-demographic and psychosocial characteristics. Future research should further examine how emotional attachment, social embeddedness, and perceptions of agency shape adaptation pathways across different environmental, political, and cultural contexts. Additional longitudinal research would also help clarify how relocation intentions evolve over time as communities continue to navigate recovery, uncertainty, and changing climate realities. The Channel-Port aux Basques case demonstrates that relocation readiness is not the direct outcome of hazard exposure or climate awareness alone, but the product of how these conditions are emotionally and socially interpreted through attachment, identity, memory, and perceived agency. Recognizing these relational dimensions is essential for

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developing climate adaptation strategies that are not only effective, but also socially just and responsive to the lived realities of coastal communities.

Conclusion

Relocation is emerging and although several nations are turning to it, decisions in communities can prove far complicated than the current policy landscape portrays. The study shows that climate relocation is not just a rational response to risk, but a deeply personal, emotional, and relational process with disasters sometimes strengthening both risk awareness and attachment to home at the same time. Hence, these findings demonstrate the need for climate relocation policies that move beyond risk and compensation frameworks to account for the emotional, social, and lived realities of affected communities. In Channel-Port aux Basques relocation decisions were shaped not only by exposure and financial considerations, but also by grief, uncertainty, attachment to place, and constrained choices. This suggests that successful adaptation policies must prioritize human experiences, community identity, and social wellbeing alongside physical safety.

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