

# “The Times They Are A-Changin’” but “The Song Remains the Same”

Climate Change Narratives from the  
Coromandel Peninsula, Aotearoa New Zealand

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## Introduction

The imperative for coastal communities to implement proactive and sustained measures to adapt to climate change is now well established (Boyer, Meinzer, and Bilich 2017; IPCC 2019). A little over a decade ago, this imperative was nascent in many parts of the world, including Aotearoa New Zealand (ANZ) (Rouse et al. 2017), the locus of this research. Pockets of overt climate change denial persist, even in the face of obvious climate change–driven impacts. Local calls for adaptation action are at times met with passive indifference by governing authorities, and, in some jurisdictions, thinly veiled reluctance to act is cloaked in a veneer of tokenistic gestures. At other times, bold steps are taken to reduce coastal hazard risk. What drives local responses to the unfolding climate emergency facing low-lying coastal communities? How might local communities and their governing authorities be galvanized to take meaningful action to reduce exposure and vulnerability to climate change impacts? Addressing these questions necessitates in-depth understanding of local community dynamics, cultures, histories, and livelihoods and the interactions between coastal communities, civic leaders, and governing authorities. Such understanding cannot be developed on the basis of short-term

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studies by outsiders. Yet, few longitudinal studies by researchers embedded in local communities have been undertaken to address such questions (Archer et al. 2017; Fawcett et al. 2017; Moreno and Shaw 2018), making it difficult to reveal the underlying nuances and drivers of adaptation action or inaction.

This ethnographic study of adaptation on the Coromandel Peninsula in ANZ traces the evolution of local climate change events, publications, and responses since 2009, focusing on local narratives about adaptation (cf. figure 7.7). We peer beneath the surface of rhetoric and superficial accounts that might otherwise be proffered in a one-off survey of a sample of the local community. Paul, the lead author, and his family have been part of a local Coromandel community for over a decade (since 2007), and Bruce has maintained a close association in his role as Paul's research supervisor and collaborator. We have thus been embedded in local realities for over a decade. Following the distinction between "thin" and "thick" descriptions popularized by Geertz (1973), we endeavor to present a "thick description" of local narratives, drawing on insights from and with community members and local stakeholders as we and they seek to make sense of climate change and face the challenge of escalating coastal hazard risk. Our description is complicated by the reality of multiple local narratives, divergent viewpoints, and contending voices within and between communities on the peninsula, within and between local government actors, and between the local authorities and the communities they seek to govern. In offering this thick description, we reveal the undeniable but, at times, "below-the-surface" influence of power and politics in shaping the trajectory of adaptation on the Coromandel Peninsula. The "story" has evolved in convoluted ways over the last decade, with adaptation responses waxing and waning. A persistent adaptation gap—the mismatch between rhetoric and institutionalized adaptation measures—has been deep and real. But recent initiatives driven by the Thames-Coromandel District Council (TCDC) signal the possibility of significant change: a shoreline management planning process involving local communities has been initiated, and it promises to address long-term coastal hazard risk. What precipitated this adaptation turn? And, given the vexed nature of climate change on the peninsula over the last decade, how deep is this adaptation move? As Bob Dylan mused, are we witnessing a time of change, or will the song remain the same, to invoke another music legend, Led Zeppelin?

We provide a brief description of our research approach before describing the Coromandel Peninsula setting and the institutional milieu within which adaptation has been and is being framed. On the surface, well-intentioned and robust legislation and policy provisions have been put in

place to enable local communities to institutionalize anticipatory actions to reduce coastal hazard risk and chart climate-resilient development pathways. However, things are murkier below the surface. Critical scholars from diverse disciplines bemoan the ongoing prioritization of short-term private interests over concerns about citizen engagement, Māori (the indigenous people of ANZ) rights and *Mātauranga Māori* (ancestral Māori knowledge), public safety, and equitable and environmentally sustainable coastal development. Blame is often sheeted home to the ANZ experiment with neoliberalism—hamstringing adaptation efforts, privileging elite interests, marginalizing Māori, stultifying authentic local democracy, causing environmental degradation, and encouraging high-risk shoreline development. We draw insights from political ecology to move beyond a macrolevel critique of neoliberalism to reveal the localized influence of power and politics on environmental governance and adaptation responses in ANZ. The many stories shared with us over the last ten years attest to the complex, contested, and changing drivers of local responses to escalating coastal hazard risk. We conclude by imagining how Coromandel communities and their governing authorities might chart alternative pathways that would institutionalize more engaged, equitable, climate-resilient, and sustainable coastal development pathways.

## **This Ethnography**

This research is grounded in a decade-long, and ongoing, ethnographic study of adaptation on the Coromandel Peninsula, ANZ (Schneider and Glavovic 2019). A community-based participatory research approach (Cvitanovic et al. 2019) characterizes our effort to “give voice” to local narratives about climate change and coastal hazard risk along with the barriers and enablers for developing effective strategies to reduce risk. We sought to conduct research *with* rather than *on* research participants; to probe the often invisible and unspoken elements of everyday life from the vantage point and lived experience of participants; and also to delve deeply into local nuances and context as opposed to being satisfied with a “thin description” of unfolding realities. We used an ethnographic approach to probe the multifaceted realities prevailing in the diverse communities of the peninsula. Our goal has been to craft a “thick description,” grounded in a deepening understanding of the cultures, histories, and livelihoods of the peninsula, of how local people, from their own perspective, view climate change, behave, and interact, leveraging our insights as researchers and with Paul actively participating in the life and seasonal rhythms of the Coromandel.

Trust was built over time with many key stakeholders as we sought to reveal the “local reality and the climate change adaptation dilemma” (Schneider 2014) and “contrasting climate change perceptions” (Schneider and Glavovic 2019; Schneider, Glavovic, and Farrelly 2017). Sixty-two in-depth interviews were carried out to understand how risk governance, resilience planning, and coastal adaptation were envisaged and being undertaken. Local participants included Māori (including *kaumātua*—elderly Māori of standing in an extended family group, i.e., *whānau*, and community members); elected councilors/politicians; local and regional council management; planning and engineering staff, as well as professionals contracted to the local council; independent specialists; and a wide range of community members, including shoreline residents, farmers, activists, and people involved in the spectrum of Coromandel livelihoods. Insights were also gained from interviews with key figures involved in climate change issues at the national level. Interviews based on open-ended questions were conducted at locations selected by research participants. Interviews were recorded, transcribed, and thematically analyzed for commonalities and differences. Braun and Clarke’s (2014) six-phase approach to thematic analysis was used, comprising (1) data familiarization, (2) initial sorting of issues for code generation, (3) the identification of themes, (4) the review of themes, (5) the definition of themes, and (6) the identification of research findings. Participants were asked to reflect on key themes, including barriers and opportunities, coastal issues, risk, extreme events, future prospects, coastal management issues, and governance roles and responsibilities. Together, these interviews and the stories shared help to build a holistic understanding of the complexity of social and biophysical coastal interactions, rooted in participants’ intimate connections to the peninsula, with many having lived here for decades. A council planner interviewed fittingly described the merits of this approach:

We’ve got records of people living in communities for generations. There are diary notes, photographs, and much more. The familiarity of a place. . . . You can draw on stories from that place. . . . Anybody who has been living in a particular locality for decades has stories to tell, and there’s good sound common sense. . . . And of course there’s always the photographs and stuff that get brought out from under the bed in the shoebox. (Council planner 2012, pers. comm.)

Photographs, or photo elicitation, were also used as “tools” during the interview process, often prompting what Pink (2008: 2) describes as “in-avoidably collaborative” storytelling. We also systematically reviewed news media for stories about climate change and adaptation on the peninsula. And we reviewed and analyzed scholarly publications and the “gray lit-



erature," including government and nongovernment reports, plans, and policy documents. Hence, we can share over a decade of multifaceted and continuously evolving stories about adaptation from the Coromandel Peninsula.

## **The Coromandel Setting and Institutional Context**

### *The Geography of the Coromandel Peninsula*

The Coromandel Peninsula is located off the North Island's east coast. It is one of ANZ's favorite holiday destinations (Davison 2011). The Coromandel offers four hundred kilometers of "iconic and diverse coastline" (TCDC 2018: 1): white sandy beaches, clear water, forest-clad hills, and a feeling of remoteness and wilderness, despite being only a couple hours' drive from the main centers of Auckland, Hamilton, and Tauranga. Communities comprise permanent residents, those on holiday, and Māori settlements. Each of the fifty-plus settlements has its own distinctive features, history, and lifestyle characteristics (TCDC 2016). Despite their geographic proximity, the communities have widely divergent values and views, including countervailing perceptions about climate change (Schneider et al. 2017). These differing values, views, and perceptions reflect stark differences in culture, historical experience, worldviews, interests, and socioeconomic and political standing.

Over the summer period (December to March), the peninsula is transformed by an influx of holidaymakers. Over the last fifty years, larger communities, like Whitianga, whose population swells by 600 percent in summer, morphed from quiet coastal villages into resort towns. Whitianga's resident population of 4,368 in 2013 (Statistics New Zealand 2013) is projected to reach a permanent population of up to 6,000 by 2040, located mainly on low-lying coastal land (Monin 2012), which is experiencing coastal squeeze and facing escalating coastal hazard risk. Seventy percent of the Coromandel's beach areas and dunes are developed within one hundred meters of the sea (ARC 2004), in areas prone to coastal hazards (TCDC 2015). The legacy of historical development decisions, dramatic increases in property values, ongoing pressure to develop the shoreline, and continuing approval of property development in "natural" coastal areas (greenfield development), some of which are high-risk locations, make this region a "hotspot" for climate change impacts and constrain adaptation prospects (Schneider et al. 2017).

Expected climate change impacts on the Coromandel include more frequent and intense heavy rainfall events and a rise in sea level (EW and TCDC 2003; MFE 2013, 2014) that push the sea inland, thus affecting



**Figure 7.1.** Coromandel beachfront property development at Hahei.  
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low-lying areas and estuaries. Under all climate change scenarios, sea level will continue to rise during the twenty-first century and beyond, and the rate of sea level rise will very likely be faster than in the past few decades (MFE 2017). Without well-planned and managed adaptation responses, many existing coastal defenses, such as sea walls, will be breached (Gluckmann 2013; MFE 2008; NIWA 2008).

The most obvious manifestation of changing coastal conditions on the Coromandel is “major erosion along several areas of our coastline” (TCDC 2014: 2). Local beachfront property owners tend to use rocks and ad hoc structures, such as wooden walls/planks and concrete, in desperate attempts to protect their properties against erosion. However, legislative and policy provisions and guidance by central government (Department of Conservation 2010; MFE 2017) discourages the construction of coastal defenses, as these interfere with dynamic coastal processes. They can also have a detrimental effect on public amenity values, and they tend to exacerbate erosion further down the coast. With private property increasingly exposed to adverse impacts, there have long been calls by many locals for a “right” to combat the erosion by constructing protective works to prevent deterioration of their low-lying coastal properties. In contravention to evolving legislative and policy stipulations, these calls have been

echoed over the past three mayoral terms. In 2014, the then district mayor (TCDC 2014: para. 5) supported beachfront property owners calling for protection of coastal properties, stating: "Protection work need[s] to be done sooner rather than later because every time we wait, we're losing more of our coastline." As a result, beaches such as Buffalo Beach, a "two-mile stretch of gleaming white sand" is now backed by "rock protection works" continually costing local ratepayers "about NZ\$120,000 per annum" in maintenance (EW 2006: E2). To add insult to injury, the "rock protection works have led to a "loss of high tide beach" (EW 2006: B10).

Until very recently, a deep and persistent adaptation gap prevailed on the Coromandel Peninsula—with palpable climate change denial commonplace and apparent at the highest level of the TCDC, the predominant response to coastal hazard risk tended toward reliance on protective measures (Schneider and Glavovic 2019; Schneider et al. 2017). But "change is in the air." Following the adoption of a Coastal Management Strategy and Coastal Hazards Policy in 2018, the TCDC embarked on an ambitious shoreline management planning process that signals a volte-face in adaptation prospects:

All of our coastal communities will be relied upon to tell us their coastal stories, pass on their knowledge of coastal environments, engage in discussions and work through solutions. We will work with communities at the grassroots level to inform, be informed by and collaborate in identifying objectives, issues and solutions. In recognising the coastal environment as taonga [treasures], we will work directly with mana whenua [those with power or authority over tribal lands] to ensure that SMPs [Shoreline Management Plans] reflect their objectives. (TCDC 2020a: 2)

What brought about this turnaround, and how deep does it go? To answer this question, one first needs to understand the institutional milieu that has shaped adaptation in ANZ.

## **The Institutional Setting for Adaptation**

ANZ is a small, developed island nation in the southwest Pacific Ocean, with a population of about five million people concentrated along the shoreline. The country was settled by Māori in the late thirteenth century. Indigenous ways of life were dramatically affected by European contact from the late 1700s. The Treaty of Waitangi, the country's founding document, was signed in 1840 by about five hundred Māori chiefs and representatives of the British Crown. Fundamentally different understandings about the Treaty were written into the English and Te Reo Māori versions

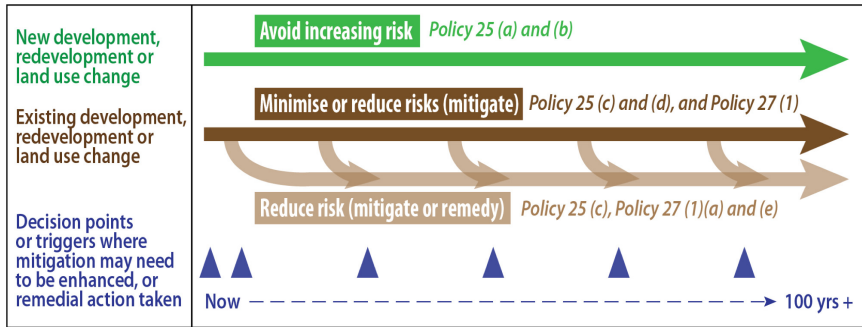
of it. Following the 1860s wars, which represented a gross imbalance of manpower and weaponry, lands were confiscated, access to traditional resources was cut off, and a series of persistent injustices invoked that continue to influence the well-being and prospects of Māori. The Waitangi Tribunal, established in 1975, was given authority to discern the meaning of the Treaty. An Office of Treaty Settlements was established to resolve claims of Treaty breaches, make restitution, and restore Crown relationships with *iwi* (Māori extended kinship group or tribe). Principles of the Treaty now underpin many laws, including statutes that shape coastal hazard risk and adaptation to climate change, and, among other things, require local government to consult local Māori as *tangata whenua* (people with ancestral roots in and authority over a particular locality).

From the 1980s, the country embarked on a bold neoliberal-inspired reform of the political economy and public sector management, moving from an interventionist state to deregulation and market self-regulation, privatization of the public sphere, and government and public spending cutbacks. Fragmented legislation and local government bodies were consolidated. The reform was deeper than parallel reforms in many other Western liberal democracies. Public decision-making responsibilities were devolved to local government, with paradoxical strengthening of provisions for public participation. Shortcomings were exposed by the global financial crisis, the devastating Canterbury earthquakes, and a series of social, economic, technological, and environmental stresses and shocks in the late 2000s and early 2010s. These were compounded by central government pressure on local authorities to exercise fiscal discipline in the face of these global trends and local stressors, while councils and ratepayers were simultaneously expected to assume ever greater financial responsibility for major infrastructure works, including deferred maintenance, and to make provision for environmental protection, and tourism and urban growth, without enabling government support. Recentralization of public decision-making responsibility and a strident agenda of debt reduction, containment of public services, and fiscal austerity were championed by the three-term center-right government under the New Zealand National Party from 2008. The relationship between local councils and the communities they govern reached a crossroads in the early 2010s (Asquith 2012). A robust legislative framework and strong local government managerial capabilities and financial autonomy were in place. Increasing attention was focused on managing natural hazard risk. But local action on climate change was stifled, local government's role in fostering community well-being was curtailed, many environmental aspirations were unrealized, and some lamented the caliber of elected members, community disengagement, and the "deepening democratic deficit"

(Asquith 2012; Cheyne 2015). From 2017, the election of a Labour-led coalition government with the Green Party and New Zealand First (which held the balance of power in ANZ's mixed-member proportional representation electoral system) saw a reinvigoration of climate action and restoration of well-being provisions through amendments to the Local Government Act.

Since the early 1990s, coastal hazard risk management has been governed principally through the Resource Management Act 1991 (RMA). The RMA comprises a hierarchy of regulatory provisions that guide how coastal hazards should be addressed. Since 2016, the amended RMA has included management of natural hazard risk as a matter of national significance—a regulatory provision invoked once the destructive potential of natural hazards was tragically underscored by the Canterbury earthquake sequence in 2010–11. A series of floods and other extreme events, the impacts of climate change, and the risks posed by rising sea level compelled more focused attention on natural hazard risk over the last decade, with a more intense spotlight on coastal adaptation in recent years (Rouse et al. 2017).

The RMA requires local government to “have regard to the effects of climate change” (RMA §7[i]). Several other statutes relevant to coastal hazard risk management and climate change adaptation include the Local Government Act (LGA) (with provisions for community well-being, Long Term Plans, and community engagement), the Local Government Official Information and Meetings Act 1987 (includes Land Information Memoranda for matters, like hazards, affecting private property), the Building Act 2004 and Building Code (addressing among other things the safety of buildings and flood standards), and the Civil Defence Emergency Management (CDEM) Act 2002 (including provisions for national and regional preparedness, disaster response, recovery, and risk reduction). Implementation of legislation is supported by national-level policies, including provisions explicitly focused on adaptation principally through the New Zealand Coastal Policy Statement (NZCPS). The NZCPS was first promulgated in 1991 under the RMA, was reissued in 2010, and is currently supported by national guidance for local government on coastal hazards and climate change (MFE 2017). The orientation of the NZCPS is precautionary, and it requires councils to have a planning horizon of at least one hundred years. The requirement to avoid increasing risks due to natural hazards and climate change (objective 5) is elaborated in policies 24–27, which include locating new development (including infrastructure) away from areas prone to coastal hazards, consideration of managed retreat for existing development exposed to natural hazard risk, and restoring natural defenses against coastal hazards.



**Figure 7.2.** New Zealand Coastal Policy Statement 2010 decision context for coastal areas exposed to coastal hazards and climate change. Note: uses terminology from RMA 1991 §5(2) (c). Source: MFE 2017.

Implementation of land-use planning provisions, emergency management, and the provision of basic services are devolved to regional and local (district and city) councils. For the Coromandel Peninsula, the former is the Waikato Regional Council (WRC); the latter is the Thames-Coromandel District Council (TCDC). Among other environmental and emergency management responsibilities, the WRC manages coastal erosion and flooding as well as water quality and quantity. The TCDC manages, among other things, land use planning, building control, emergency management, storm water, wastewater and water supply, infrastructure, and local roads. The avoidance, reduction, and mitigation of natural hazard risk is regulated through policies, plans, and rules at both regional and local council levels, through RMA Regional Policy Statements (RPS) (together with Regional Coastal Plans) and District Plans, as well as provisions in the statutes mentioned previously. The NZCPS and the Waikato RPS require that the District Plan identify coastal hazards and restrict subdivision, use, and development within areas subject to coastal hazards over a one-hundred-year timeframe, including increased hazard risk due to climate change (figure 3). Nonstatutory planning instruments, including Asset Management Plans and Hazard Mitigation Plans, are additional “tools” that can be used by the WRC and TCDC to facilitate adaptation. And Iwi Management Plans can be used by Māori authorities to address environmental and climate change concerns.

In summary, one might conclude that ANZ has robust statutory provisions in place to reduce coastal hazard risk, adapt to climate change, and build community resilience. More generally, Māori and citizens can participate meaningfully in governance endeavors that foster community well-being, public safety, and sustainability. Why then is there a growing

body of scholarship critical about the state of environmental and natural hazards governance in ANZ? Why are protests about climate change inaction taking place on the Coromandel Peninsula and elsewhere in the country, and why is a court case pending against the TCDC on the grounds that the council decided not to sign the Local Government Leaders' Climate Change Declaration? It is necessary to probe recent scholarship and local action to address these questions.

## **Critical Reflections on Environmental and Natural Hazards Governance in Aotearoa New Zealand**

In recent decades, the institutional setting for environmental and natural hazards governance at the local level in ANZ has been reshaped by complex interactions between seemingly unrelated and often "distant forces"—from globalization and neoliberal-inspired restructuring to opportunities for citizen engagement in local decision-making, political recognition of Māori customary ownership and natural resource management, as well as disasters and climate change (Cheyne 2015; Dinica 2018; Haggerty 2007; Haggerty, Campbell, and Morris 2009; Harmsworth, Awatere, and Robb 2016; Livesey and McCallum 2019; Memon and Kirk 2012; Schneider et al. 2017).

Concern about the closing down of opportunities for authentic local democratic engagement in ANZ has persisted over the last two decades (Bond and Thompson-Fawcett 2007; Cheyne 2015; Dinica 2018; Grey and Sedgwick 2015; Gunder and Mouat 2002). Notwithstanding a range of formal opportunities for participation in planning processes, in practice, meaningful participation is often restricted, dissent annulled, and dominant neoliberal norms bolstered, whether in the context of water governance (Kirk, Brower, and Duncan 2017), coastal and marine projects (Le Heron et al. 2019; Šunde et al. 2018), or oil and gas initiatives (Diprose, Thomas, and Bond 2016) and decisions about coal mining (Bond and Fougère 2018; Fougère and Bond 2016). Opening up democratic space necessitates openness to countervailing perspectives and even dissent. For Gunder and Mouat (2002), the RMA planning system provides little opportunity for meaningful choice or freedom to resist—compounded by the decision-makers and arbiters of appeal being the "oppressors." In so doing, the planning system institutionalizes "symbolic violence and victimization." In practice, exclusion from the planning system is commonplace, despite lauded provisions for citizen engagement (Cheyne 2015). In part at least, the system is driven by institutional performativity and efficiency, with unintended adverse public consequences (Gunder 2003;

Gunder, and Mouat 2002). Technical, scientific, and legal expertise is privileged in expert-driven analytical frameworks that lead to top-down decision-making and stakeholder tensions, and the inherently political nature of such judgments is masked (Tadaki, Allen, and Sinner 2015). While refinements to the “letter of the law” might be necessary, they are by no means a solution, because laws are a product of historically embedded societal norms and dominant discourses (Bond and Fougère 2018). Neoliberal restructuring, including the shift to a “contract state,” has profoundly affected the community and voluntary sector by, among other things, enabling community and voluntary sector inclusion in devolved local affairs but paradoxically limiting democratic debate and engagement by engendering a climate of fear, compulsion, and exclusion (Grey and Sedgwick 2015).

New public management practices are seen by some to be at the root of the inability of local government to secure authority and autonomy over freshwater governance, paradoxically deepening the very problems these practices were meant to solve (Kirk et al. 2017). Innovations in collaborative governance have done little to shift the overarching political economy goal to maximize primary production export-led growth (Kirk et al. 2017). Even major collaborative environmental governance “experiments” in the freshwater arena have led scholars to conclude that such efforts are “less than democratic, less than fair, and less than good for the environment” (Brower 2016; Roberts et al. 1995). Based on an investigation of environmental decision-making about freshwater in Canterbury, ANZ, Thomas and Bond (2016) argue that the practice of democracy is barely distinguishable from authoritarianism in the prevailing neoliberal regime. They identify the potential for counterhegemonic actions. Mediating the power differentials that exist between role players, especially between Māori, local and central government, local communities, and others holding political and economic power, is a real struggle but is foundational for realizing good public outcomes across the terrestrial and marine realms of ANZ (Barrett et al. 2019; Le Heron et al. 2019; Šunde et al. 2018).

Where planning authorities, resource users, and *iwi/hapū* (i.e., tribe/sub-tribe) build meaningful relationships, good community outcomes can be delivered using statutory provisions as well as tools such as Iwi Management Plans and co-management arrangements (Harmsworth et al. 2016; Makey and Awatere 2018; Thompson-Fawcett, Ruru, and Tipa, 2017). Where such relationships are weak, the planning process can be a drain on *iwi* and *hapū* and the resultant plans of little value (Thompson-Fawcett et al. 2017). Such interactions are, however, invariably complicated by the history of colonization. Even when Treaty settlements return



land to Māori tribal authorities, planning authority is retained by local and central government, and planners have to come to terms with decolonizing their practices in what Livesey and McCallum (2019) describe as a "settler colonial planning system."

The influence of power and politics—and social vulnerabilities—that may otherwise be invisible in day-to-day community life were starkly exposed in the devastating earthquake experience in Greater Christchurch in 2010–11 and in many other seismic and hydro-meteorological extreme events over the last decade. Living through the Christchurch earthquakes led Hayward (2013) to conclude that the notion of resilience needs to be expanded to include compassion—expressed as shared vulnerability—and political resistance, and that these are the bedrock of community recovery. A narrow framing of resilience limits postdisaster recovery to a return to the status quo, but an expanded view of resilience opens up the possibility of transformation and community empowerment that challenges the dominant neoliberal discourse (Cretney and Bond 2014; Cretney, Thomas, and Bond, 2016; Uekusa 2018). Public participation in recovery work is essential, but the ANZ experience reveals the limits of prevailing practices, which can verge on tokenism and paradoxically narrow the scope for authentic democratic engagement (Cretney 2018). The Christchurch disaster experience shows that governance practices grounded in neoliberalism have a profound depoliticizing impact—closing down the space for democratic engagement—but it need not extinguish hope for grassroots recovery and the potential for resistance and repoliticization (Cretney 2019). The value of culturally grounded responses was underscored by the Māori response to the Christchurch earthquakes (Kenney and Phibbs 2014, 2015).

Adaptation to climate change is an inevitable part of local democracy, community development, and well-being ambitions, and local government engagement with communities is integral to realizing these ambitions: it is not a one-off project consultation exercise (Simon, Diprose, and Thomas 2020). Community members and environmental activists in ANZ have mobilized to challenge "business as usual" practices, including state interventions, which drive inequitable and unsustainable development, and dangerous levels of global warming (Diprose et al. 2017; Diprose et al. 2016). Bond and colleagues (2015) argue that challenging the prevailing postpolitical hegemony requires vibrant contestatory politics and that instances of such contestations tend to have paradoxical outcomes—barely nudging and perhaps even reinforcing the dominant hegemony while offering a glimmer of hope about the potential for community protest and dissent to prompt change. Climate change may even create opportunities for strengthening communities and local democracy by leveraging emerg-

ing networks and emancipatory discourses, notwithstanding the real risks and challenges climate change poses (Diprose et al. 2017).

This brief survey of scholarship critical of prevailing environmental and natural hazards governance practices in ANZ contrasts sharply with the picture painted in the earlier synopsis of formal institutional provisions that promise to deliver local democracy, Māori rights, public safety, equity, and sustainable development in the face of climate change. A radical critique of neoliberalism helps to situate this dichotomy, but a deeper dive below the surface of such a macrolevel structural critique is necessary to unravel it. Delving into the microlevel adaptation narratives of and actions/inactions on the Coromandel Peninsula over the last decade enables such an exploration.

Political ecology is a useful framing device to craft this story because it sharpens the focus on power and politics, along with their impact on ecological values and environmental outcomes (Wolf 1972). Research with a political ecology orientation can help to “reveal winners and losers, hidden costs, and the differential power that produces social and environmental outcomes” (Robbins 2012: 20). Power and politics have a fundamental bearing on adaptation efforts (Tschakert et al. 2016). Policy provisions may become ineffective in enabling communities to adapt, not least because they are impeded by inequitable local power relations (Biesbroek et al. 2014; Huitema et al. 2016). Local leadership strongly influences the way adaptation unfolds over time (Termeer, Dewulf, and Biesbroek 2017; Termeer et al. 2011). The trajectory of adaptation is thus shaped by “entangled socio-political contestations, biophysical change, livelihood desires, struggles for authority to govern change, and desires for social and political recognition by both those promoting programs and recipients of them” (Nightingale 2017: 12). How have entangled narratives and adaptation moves evolved over the last few decades on the Coromandel Peninsula?

## **Reflections on Over a Decade of Adaptation Experience on the Coromandel Peninsula**

There is a wide diversity of views about climate change and adaptation within and between communities, levels of government, and other stakeholders associated with the peninsula. What is more, the adaptation story is continuously evolving. Its trajectory has been strongly influenced by the voice of the community and Māori in shaping local action, local leadership, power struggles, extreme meteorological events and their impacts, the legislative and policy landscape, and the growing body of scientific evidence

and media reports—all embedded in a recent history of globalization and the neoliberal political economy of ANZ. In this section, we offer a chronology of stories, events, evidence, and practices to reveal the complex assemblage of factors shaping adaptation on the peninsula. Perhaps “The Times They Are A-Changin’”; perhaps “The Song Remains the Same.”

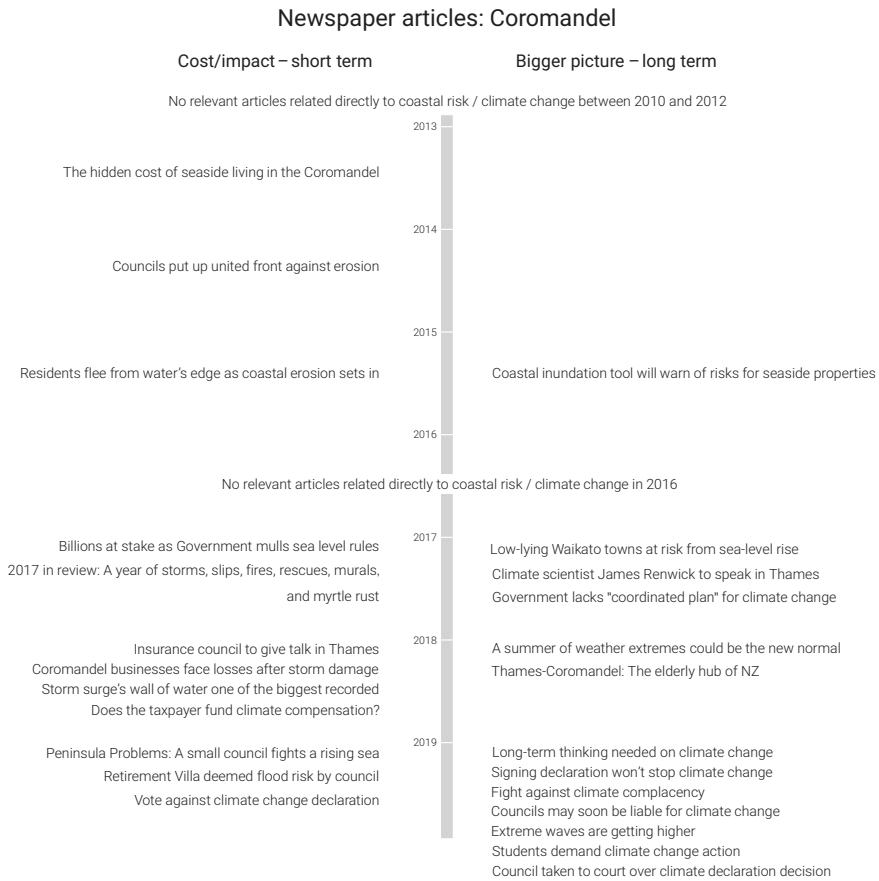
### *Climate Change Leadership, Science, and the Law: 2000–2010*

Notwithstanding scientific consensus about dangerous levels of global warming driven by greenhouse gas emissions that has been documented in IPCC Assessment and Special Reports approved by governments around the world from 1990,<sup>1</sup> it was not until 2002 that ANZ enacted the Climate Change Response Act, accompanied by the Resource Management (Energy and Climate Change) Amendment Act in 2004. The latter meant that the RMA was amended by the addition of provisions expressly addressing climate change. In short, climate change was well and truly on the table—a problem that would require action from all levels of government. Six years after the RMA amendment S.7(i)—having particular regard to the effects of climate change—the NZCPS stipulated a one-hundred-year-plus planning time horizon together with a range of other anticipatory provisions to enable local adaptation. These provisions were introduced at the time of the 2010–11 Canterbury earthquake sequence—a time when the entire country was galvanized to take natural hazard risk seriously. Local and regional government began to prepare for a future characterized by escalating coastal hazard risk in a changing climate (cf. figure 7.7).

In 2004, the Thames-Coromandel District elected its first female mayor, who was also at the time New Zealand’s youngest mayor. Philippa Barriball (2004–10) chaired the subcommittee for local government on climate change. She took pride in helping coastal communities understand the importance of the issue:

When educating the public about the anticipated climate change impacts, I don’t try to sell climate change to people. I’m trying to sell what is important to people and how this might be at risk. I tap into the emotive side of people and ask questions like, “Which is your favourite beach? How would it affect you if we were to build a rock wall around it? (Barriball 2010, pers. comm.)

In hindsight, Mayor Barriball was ahead of her time with regard to climate change. There was little publicly accessible ANZ-centered climate science available, and there were virtually no newspaper articles explicitly about the Coromandel Peninsula, coastal risk, and climate change until 2013, when “The Hidden Cost of Seaside Living” was reported in a local newspaper (figure 7.3).



**Figure 7.3.** Newspaper articles covering coastal risk/climate change on the Coromandel since 2010. © Paul Schneider.

Following the election of Mayor Glenn Leach in 2010 (he held the seat until 2016), local leadership on climate change essentially came to a halt. Mayor Leach said:

I look at it and say, if there is a problem, we can only take leadership from what comes out of central government. (Leach 2012, pers. comm.)

*Climate Change Denial and Protection Works versus Storms, Science, Law, and the Media: 2010–18*

Mayor Leach seems to have been uninfluenced by the mounting calls for action, including central government’s regulatory provisions (such as the

2010 NZCPS) and guidance for local authorities on adapting to climate change (MFE 2017); the prime minister's chief science advisor's report on New Zealand's changing climate and oceans; the IPCC AR5 Working Group II assessment (published in 2013–14); and a 2015 Parliamentary Commissioner for the Environment (2015) report on preparing New Zealand for rising seas.

Notwithstanding the foregoing, climate change denial was prevalent on the Coromandel even in the early 2010s. According to a beachfront property owner, "We can worry about it once it takes shape" (beachfront property owner 2012, pers. comm.). Another said, "Don't know. Do I care? . . . Mmmh, don't know. All the global warming and sea rising, I don't think it's a major issue really. Although if anybody is affected . . . [pauses] . . . we are" (beachfront property owner 2012, pers. comm.). Others, including TCDC staff, emphasized the need for urgent action: "The question that has got to be asked: Is it acceptable for people to continue being exposed to these sorts of hazards?" (senior council planner 2010, pers. comm.). A local coastal scientist spoke about the influence of power and politics on local coastal decision-making:

In theory we could say, "Get your bloody seawalls off our land," but politically that would never happen in a hundred years. Any one of those guys has more access to political power than half of the rest of the community put together. I took that power on once in an environment court case with a very good environment court judge and a reasonable commission. They dealt to us very harshly. You don't buy a beachfront property if you are poor, so people have a lot of economic and political power. These people are simply the movers and shakers in our society. Beachfront properties, that's how it is . . . erosion reaches their boundary and it gets stopped and environmental regulations go out the window, public interests go out the window. (Local coastal scientist pers. comm. 2010)

A Waikato Regional Council hazards and emergency management officer (pers. comm. 2012) explained that while "council is subservient to the policies . . . [the] whole area is still a bit grey . . . so often you [still] see developments . . . [where] the developer will go through the environment court."

Councilors on the Coromandel demanded action to "protect" the coast, which, to them, was not happening fast enough. Local councilor Murray McLean gained popularity when he called for "decisive action" and "not just another meeting" before he took matters into his own hands (Preece 2012).

Major storms in 2015 and 2016 caused further damage along sections of the peninsula, and, together with the publication of a Royal Society report



**Figure 7.4.** Beachfront property development at Te-Whanganui-o-Hei/ Mercury Bay. © Paul Schneider.

on climate change implications for New Zealand (Royal Society of New Zealand 2016), added further weight to the local reality of climate change and the adaptation imperative. The need to take escalating coastal hazard risk more seriously was further underscored by the inclusion of “significant risks from natural hazards” as “a matter of national importance” in amendments to the RMA (§6[h]) in 2016.

Newly elected Mayor Sandra Goudie, who took over from Mayor Leach in 2016, faced mounting local concern about and central government attention on climate change from the beginning of her term. Several cyclones had caused severe damage to coastal infrastructure and communities. Cyclone Cook hit the region in April 2017, underscoring the relevance of the Ministry for the Environment’s “Coastal Hazards and Climate Change” guidance published in the same year. Projected climate change impacts and escalating coastal hazard risk were widely considered a priority for coastal communities and their governing authorities. The weight of scientific evidence, regulatory provisions, and local experience made climate change denial increasingly untenable. A major storm in January 2018 stands out as a focusing event (Birkland, 2019) that could mark a turning point in the long-standing adaptation impasse on the peninsula.

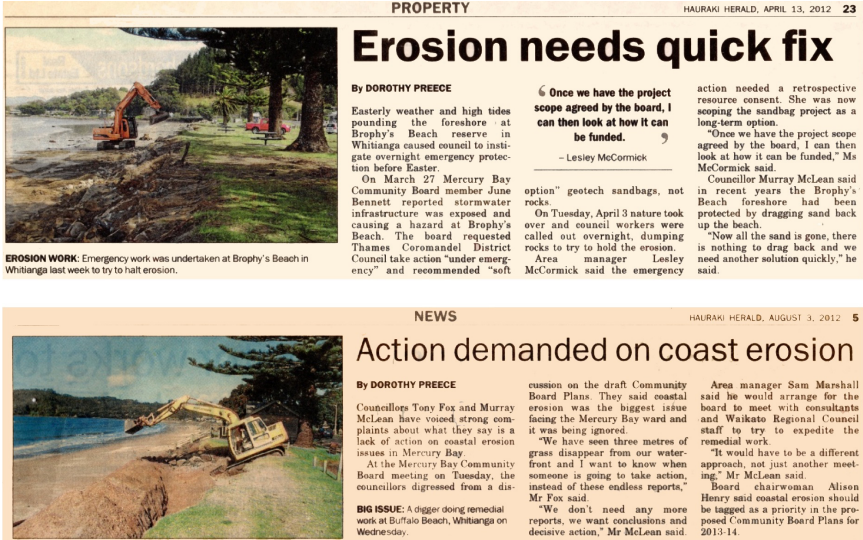


Figure 7.5. Local newspaper articles reporting on emergency action taken to defer coastal erosion. © Paul Schneider

5 January Storm Surge and a Plan for Action versus Protests and a Court Case: 2018–20

The 5 January 2018 storm surge hit the Coromandel's west coast rather unexpectedly. A low-pressure system had been anticipated, but the extent of the associated storm impacts went beyond predictions. Water levels reached 2.8 meters above normal spring tide, only 0.2 meters short of the highest recorded level in 1938. The WRC described the storm surge as a one-in-two-hundred-year event. This extreme event was almost entirely due to coastal influences. Thames, the region's biggest town with a population of 6,693 at the last census in 2013, regularly experiences river flooding as a result of high rainfall events. Storm surge flooding, however, had not been experienced in the living memory of most residents. The Thames Coast highway, the only road along the Thames Coast, was extensively and severely damaged. In many places, the road was eroded up to the centerline. Many coastal properties were damaged. One home was rendered uninhabitable, and nine homes were moderately damaged on the western coast (Thames Coast) of the peninsula. There were thirteen uninhabitable and seventy-two moderately damaged houses along the Kaiaua/Miranda coast.

The New Zealand Transport Agency (NZTA), responsible for highways, decided to repair the Thames Coast highway as quickly as possible to enable traffic flow on the peninsula's only north-south route on the west coast. An NZTA spokesperson said, "We've had to come in and reconstruct the rock wall to protect the road, to protect it from further damage coming into the winter season . . . so we've imported just over 100,000 tons of armor rock. . . . If we'd decide to do nothing, we lose the highway" (NZTA spokesperson 2018, pers. comm.). How can this short-term decision be reconciled with the NZCPS requirement to make decisions with a one-hundred-plus-year timeframe in mind, given rising sea levels? Regardless, on the ground, the reality of coastal hazard risk was unmistakable. And the prospect of escalating coastal hazard risk in the face of climate change was too obvious for most people to ignore, especially after a further two cyclones in 2018 and the publication of the Climate Change Adaptation Technical Working Group recommendations on adaptation to climate change (CCATWG 2018). One local councilor described the storm event as a "game changer" (local councilor 2018, pers. comm.).

In June 2018, after extensive community consultation, the TCDC issued its 2018–28 Long Term Plan (LTP)—a key provision under the LGA that details community well-being outcomes that the council aims to achieve—and associated priority investments, services and projects, and associated costs. Annual Plans provide a more detailed breakdown of work proposed over each successive year. The 2018–28 LTP for the Coromandel details projected expenditure on measures to reduce coastal hazard risk and adapt to climate change and follows the most recent government regulatory provisions and guidance. To give effect to these provisions, and synchronous with approval of the LTP, the TCDC approved a Coastal Management Strategy (to guide use and protection of the coastal environment, within a partnership framework, based on coastal management principles, objectives, policies, and implementation measures) and a Coastal Hazards Policy (which describes how to sustainably manage the effects of coastal hazards on the district's coastal foreshore). Furthermore, a three-year process to develop Shoreline Management Plans (SMPs) was initiated in 2019 to define flooding and coastal erosion risks to people, and the social, cultural, economic, and natural environment of the district over the next century and beyond, "through active involvement of all key stakeholders" (TCDC 2019: para. 14). For implementing the Coastal Management Strategy, NZ\$2.6 million was budgeted in the LTP, NZ\$1.9 million of which was awarded to Royal HaskoningDHV, headquartered in the Netherlands, to develop the SMPs. These SMPs are "part of the focus on ensuring our communities are engaged, prepared, protected and safe in the long-term" (TCDC 2019: para. 17).



These actions signal a volte-face in the TCDC's approach to coastal management and coastal hazard risk: "The Times They Are a-Changin'," or could it be that "The Song Remains the Same"?

In a Radio New Zealand interview in February 2019 with Mayor Goudie (Gudsell 2019), the interviewer asked the mayor: "Don't you believe you have an obligation to tell your ratepayers whether you believe climate change is happening?" Her response was: "No, I don't." On 2 March 2019, the TCDC voted 6–3 against signing the Local Government New Zealand Leaders' Climate Change Declaration—an aspirational document signed by fifty-nine mayors and regional council chairs declaring that councils have an important part to play in tackling climate change (nineteen are yet to sign).

School students voiced their anger over the council decision. One of the students, Helena Mayer, pointed out that the actions that the TCDC "are



**Figure 7.6.** Fifteen-year-old high school student Helena Mayer and Coromandel residents Nancy and Eric Zwaan protesting in front of the Thames-Coromandel District Council office in Thames (day 12 of 38). © Beaton, 2019.

currently taking in response to climate change are not leading the way, nor do they reflect the urgency of the disasters that have been predicted” (Tantau 2019: para. 12). A local climate change activist, Sheena Beaton, interviewed in 2020, said that she and the group Hauraki Coromandel Climate Action (HCCA)

spoke at every council meeting leading up to the decision [to not sign the Local Government Leaders’ Climate Change Declaration]. And then the decision was made, but in a pretty shonky sort of fashion. It was clear that the penny hadn’t dropped, and there were red flags right from the start. For example, Sandra [the mayor] had written her own report. . . . It was kind of underhanded and, you know, Sandra had clearly swayed the decision to go [the way it did]. (Sheena Beaton 2020, pers. comm.)

In 2019, the Local Government Funding and Financing Productivity Commission draft report was published, and the Climate Change Response (Zero Carbon) Amendment Bill was passed in parliament. The pressure was and continues to be on the mayor and the TCDC to translate 2018 promises and investment into effective local action that creates “solutions . . . to help our communities adapt to coastal hazards and risks” (TCDC 2020b: para. 1). The rhetoric is encouraging, with Mayor Goudie observing that participatory planning or “coastal panels” are to “be the engine for our Shoreline Management Plan project, which is all about building resilient coastal communities” (TCDC 2020b: para. 10).

On 3 July 2019, the HCCA applied to the High Court for a judicial review of the decision by the TCDC not to sign the Local Government New Zealand Climate Change Declaration.

Through the 2019 winter (3 July–23 August), climate change protesters held a vigil in front of the TCDC offices, holding a banner inscribed: “We are in a climate and ecological emergency.” The protest was then moved “to the main street as part of the #FridaysForFuture<sup>2</sup> movement.” When asked if, during the over thirty-eight days of standing in front of the local council building, anyone from the TCDC attempted to engage in dialogue, climate activist Sheena Beaton replied that “staff were advised not to talk” to her and that the mayor “wouldn’t talk” to her (pers. comm. 2020).

In March 2020, the TCDC’s response and applications to the court were rejected, and the matter is now proceeding to a substantive hearing. An HCCAG member (2020, pers. comm.) explained that “[the TCDC] tried to ping us for costs and stuff, but that was thrown out . . . so basically the case is proceeding in front of the High Court.”

To complicate the story, some interviewees paint a picture of a local council in strife as a result of local politics and power struggles, com-

A risk-shaping pathway: key events for Aotearoa New Zealand 2010–2019

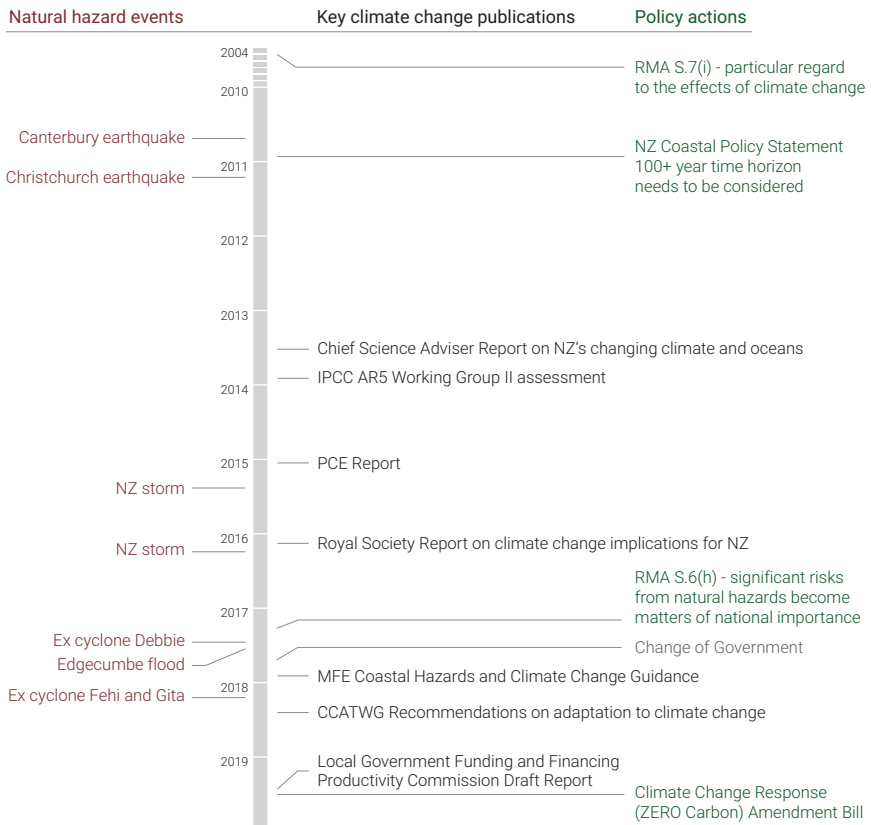


Figure 7.7. Key events, publications, turning points, and policy actions affecting climate change action and adaptation on the Coromandel.

© Paul Schneider.

pounded by staff turnover and organizational turmoil: “With a bit of history from previous councilors and officers, and quite a bit of shake up and restructure . . . a lot of ‘us’ and ‘them’ sort of thing” (former local council staff member 2018, pers. comm.), with “high staff turnover and politics going on in there” (coastal specialist 2020, pers. comm.). A coastal specialist interviewed to gauge the extent to which this picture was accurate quickly pointed out that the situation is “problematic, to say the least.” The high staff turnover resulted in the project coordinator of the vital SMP process leaving “this gaping hole” with “no one with any coastal expertise within council.” This informant expounded further:

For whatever reason, and I don't know the internal politics of it, they haven't appointed anyone. There are probably not that many coastal engineers, in inverted commas, around. I think they're quite keen to have an engineer. That's because the budget is attached to the infrastructure team within council, and the person leading the infrastructure team in council is an engineer, and they're all engineers. And it's that culture of engineers. Therefore only an engineer can do it. But there are other ways of thinking about that. (Coastal specialist 2020, pers. comm)

To complicate the story further, preparation of the SMPs has been outsourced to an international consultancy, which makes it difficult to fully account for the intricacies of local community dynamics and realities— notwithstanding subcontracted local specialists:

Council has this outsourced model, completely outsourced model, where they had this massive budget and they've got these international consultants to do this coastal hazard modeling and stuff, which is where the bulk of the budget goes. And they sort of seem to be going down the track of every other coastal management coastal adaptation program ever made. (Coastal specialist 2020, pers. comm.)

According to this key informant, the consultants responsible for developing the SMPs “don't understand what the Treaty [of Waitangi] is; they don't understand the RMA or the Local Government Act . . . any of the context within which they're working and they're not communicating [well].” Building partnerships and collaborating with local *iwi* will be key to the success of the SMPs. But, as suggested by this key informant, “there is the *iwi* partnership as well, but they don't really want to progress that.” This is cause for concern given that Māori have faced historical injustices and grievances that continue to cast a shadow over social-ecological debates, including responding to climate change.

The local council–Māori relationship appears entrenched in hardened positions, and reconciliation may be difficult to achieve. On the one hand, the extent to which the local council is seeking genuine partnership with local *hapū* and *iwi* has been questioned, while on the other hand, there is long-standing and deep mistrust, as signaled by this insight:

We don't trust any of the government departments. We don't need them. . . . Council is just a pack of arseholes there to gather revenue . . . you can fight them and they'll go away, but not for long; they come back from a different angle. (Māori research participant 2014, pers. comm.)

The overall challenge of communication, coordination and engagement is clearly vexed. The previously quoted coastal specialist (2020, pers.

comm.) views collaboration between the local and regional councils as essential to the SMP process but observed that

they [TCDC] don't want to partner with the regional council. I don't know where that's coming from. I've been told it's a Mayoral directive. So [they are] gonna end up with these plans. . . . And, you know, . . . [they are] not going to have the buy-in from the people who are able to implement the bloody plans. And so [they are] going to end up in the same space, I think, as where [they] have always been. But with sort of a shinier cover.

The "shinier cover," however, is unlikely to be sufficient to address the concerns raised by some community members, specialists, and activists about the need for urgent and authentic adaptation action, as explained in 2018 by local lawyer Denis Tegg (2018, pers. comm.):

What really shocked me when I got started to research this . . . you know, I sort of thought that maybe Thames was at risk . . . but when those coastal inundation maps came out from the Regional Council. . . . Once I got my head around how to use that tool, I started to get really concerned. Subsequently I stumbled on this risk census from NIWA. It has nationwide figures, and you can drill down into individual towns and extract the figures. When I did that, it just blew me out of the water. I mean, and there was even a graph in there showing you know the 15 most at-risk towns and cities in New Zealand. And Thames is number 8. I mean come on! I mean, why is it that? Why aren't we shouting that from the rooftops? You know, that rather than sort of pretending there's not a problem we should be, you know, thinking: "God we've got a problem here," like Dunedin and Hawkes Bay are recognizing it, and are putting their hand up for funding, and all the rest of it, and we're just sort of pretending it's not a problem.

In a conversation with a local coastal specialist in 2020 (pers. comm.), the following came to light:

TCDC certainly made a good start with their SMPs in terms of addressing coastal risk. The criticism is that they are behind in terms of the timing. But then again better late than never. . . . There are some issues. A key one is the extent to which they are—and planning to—engage with iwi. They are expecting iwi to come in at a later stage. That's not the way to gain confidence if you set up the structure and then later ask iwi "how are you going to fit in'? The extent to which they are engaging with iwi just isn't robust at the moment. . . . Another one is the overall governance that they've approved, which sees the local council and the regional council separated out and where they don't have joint decision-making. We've seen from other examples, such as in the Hawkes Bay, that joint governance oversees the project and is really important. But TCDC have said that this is "their" project and that they don't want to collaborate with anybody else. There's quite a bit of to-ing and fro-ing. They drafted this governance

structure where they had two versions. One that involved regional council and one that didn't. But local councilors didn't see this, they were only shown one version, which is the one where regional council is separate.

A local activist pondered how the TCDC might take responsibility to "avoid the unthinkable" (implying regular destructive coastal storms and dangerous global warming), which "surely would be in everybody's interest" (local climate activist 2020, pers. comm.). She said that the unwillingness of the TCDC to take meaningful adaptation and mitigation action

just astounds me. I know she [TCDC mayor] is appealing to the farming community and all that, but I think there's gotta be a way to also get through to them. The farmers rely on the environment just as much as everybody else, and they're feeling it now with the drought . . . there's just so many connections.

With the onset of winter in mid-2020, over a decade on from the initiation of this ethnographic research, where do things stand? A one-off survey of perceptions by an outsider is unlikely to have revealed the historically embedded and complex interplay of worldviews, contradictions, contestations, and complex interactions that cut across (and within) geographies, sectors, communities and time, and ultimately the waxing and waning of this adaptation story. Depending on who one might speak to: "The Times They Are A-Changin'" or "The Song Remains the Same."

## Conclusions

We set out to address two overarching questions: What drives local responses to the unfolding climate emergency facing low-lying coastal communities? And how might local communities and their governing authorities be galvanized to take meaningful action to reduce exposure and vulnerability to climate change impacts? Our decade-long ethnography exposes a complex, contested, and still-unfolding adaptation cacophony on the Coromandel. An adaptation deficit or gap prevailed until two years ago—notwithstanding decades of mounting scientific evidence and robust regulatory provisions at the national level intended to enable local coastal hazard risk reduction, adaptation, and resilience building. A severe storm in January 2018 appears to have been instrumental in mobilizing local council to initiate participatory shoreline management plans with an outlook of one hundred years. A cursory scan of recent actions might lead one to conclude, much like Bob Dylan mused during an earlier time of social and political change: "The Times They Are A-Changin'." On closer inspection, these recent adaptation moves are part of a more convoluted

narrative. Even as the local council initiated its SMPs, the TCDC councillors, led by the mayor, voted against signing a declaration to signal that the council would take leadership to address climate change. This prompted some community members, including local activists, schoolchildren, and local specialists, to express their dismay, using protest and even court action against the council to expose what they felt was a perpetuation of climate change denial and inaction. For them, instead of this being a time of change, "The Song Remains the Same," to invoke Led Zeppelin.

What drives such countervailing and contradictory action and inaction? Our thick description of adaptation on the Coromandel Peninsula exposes the pervasive influence of power and politics in shaping local choices that are historically embedded in an assemblage of disparate local and distant forces that intersect in complex ways, including the lingering effects of colonialism that impinge on Māori rights, ancestral knowledge, and practices, and the impact of neoliberal-inspired restructuring and continued privileging of private economic interests. Absurdly, protecting those interests, literally, adversely impacts community well-being and risk exposure—and deepens the democratic deficit at the local level, even if ameliorated for a moment by visionary local leadership.

How might the communities and governing authorities of the Coromandel be galvanized to chart pathways that institutionalize more engaged, equitable, climate-resilient, and sustainable coastal development pathways? Our still-evolving ethnography suggests that there is no panacea, no blueprint of "pathway choices" from which adaptation courses can be chosen and "engineered." Turbulence, surprise, and shock are inevitable, and these will be compounded by continued technological, social, and environmental change. Adaptation trajectories are emergent with a complex array of intersecting factors having influence. What is clear is that continuing the trajectory of the last few decades—of climate change denial and reliance on protective measures and emergency responses—will entrench exposure and vulnerability. Reinvigorating local democracy is foundational for charting a more promising pathway. Paradoxically, this involves a struggle against the prevailing hegemony, even in ANZ. It necessitates vigorous contestatory politics at the local level, bolstered by an enabling regulatory setting, and more engaged and visionary community and council leadership. Perhaps questions to consider in preparing the SMPs have less to do with risk modeling and analysis and more to do with the shared vulnerabilities of all Coromandel inhabitants—including nonhuman inhabitants and all those past, present, and future: How would *tangata whenua* institutionalize risk reduction and resilience building measures to last a century or more? How might the most marginalized be given voice in the process of addressing climate change and adaptation?

When the inhabitants of the Coromandel look back one hundred years from now, what will they say about the choices made today, and tomorrow, and the next day?

## Acknowledgments

With thanks, the authors acknowledge support and funding from the Aotearoa–New Zealand Earthquake Commission (EQC), Massey University, and the CALENDARS project. The views expressed here are solely those of the authors and neither reflect nor are necessarily endorsed by these organizations. The authors thank all research participants for sharing their stories and providing insight into this adaptation narrative. We thank Axel Kreuter (Medical University of Innsbruck) for his design work on figures 7.3 and 7.7. Further, we thank Trisia Farrelly for providing insights into the scholarly and real-life world of ethnography and political ecology.

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*Report on the Ocean and Cryosphere in a Changing Climate* (2017–19), and is a lead author in the IPCC's *Sixth Assessment Report*.

## Notes

"The Times They Are A-Changin'" is the title track of the third studio album by Bob Dylan, released on 13 January 1964. The song captures the spirit of the prevailing social and political upheaval. "The Song Remains the Same" is a song by Led Zeppelin released on the 1973 album *Houses of the Holy*, and also lends its name to the band's concert film released on 28 September 1976.

1. The Kyoto Protocol was adopted in 1997 when the parties to the Framework Convention agreed to the imposition of specific targets for thirty-six developed countries, including New Zealand.
2. #FridaysForFuture is a movement that began in August 2018 after fifteen-year-old Greta Thunberg held a vigil in front of the Swedish parliament for three weeks to protest against the lack of climate action (<https://fridaysforfuture.org>).

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