Working with Nature in Aotearoa New Zealand: An Ethnography of Coastal Protection

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Title figure: Waihi Beach, Aotearoa New Zealand, 2015, picture by author.

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Acknowledgements

Introduction and Outline

This book employs ethnography for the analysis of emerging soft coastal protection practices in Aotearoa New Zealand[1]. My goal is to understand coastal protection projects as situated, material practices of making coastal natures that are meaningful in a specific cultural, social and political context. In the limited space of the coast, erosion emerges as a sociomaterial phenomenon that is neither fully attributable to a natural sphere outside human influence, nor to human actions, values and perception alone. In this book, I develop a take on coastal natures as naturecultures (Haraway 2008; Choy et al. 2009; de la Cadena and Weiss 2010) while I analyse exemplary practices of soft coastal protection situated in Aotearoa New Zealand. Drawing upon a formulation I encountered in the field (Trade Publications Ltd 2003), I argue that the discourses and practices emerging beyond hard coastal protection can be understood as a new "sociotechnical imaginary" (Jasanoff and Kim 2009; 2013; 2015). This imaginary provides a shared vision about the common future that is framed as 'working *with* nature' (and not against it).

The importance of the topic itself is by no means limited to Aotearoa New Zealand. Significant problems with coastal erosion are experienced on coastlines worldwide and bound to be aggravated by the effects of climate change as well as coastal change, including residential development and increasing concentration of the world's population in coastal areas (McGrahanan et al. 2007; Nicholls et al. 2007; Church et al. 2013; Wong et al. 2014). At the same time, a growing community of coastal management experts argues against the widespread use of coastal protection structures like seawalls, groynes or revetments which are common ways of protecting public and private assets against erosion and flooding. They suggest that instead and wherever possible, so-called soft approaches should be preferred. A conglomerate of ideas and practices is emerging

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1   Here and in the following, I will use a composite for the name of the country in both official languages: New Zealand in English language, and Aotearoa in native Te Reo Māori. After its use was discouraged throughout the 20th century, Te Reo Māori has undergone a massive revitalisation in recent decades, and was declared an official language (besides English and New Zealand sign language) with the Māori Language Act in 1987 (Ministry for Culture and Heritage: 2013b). A number of institutions now refer to Aotearoa New Zealand (with or without separating the two terms by a slash), including the Green Party, most churches, and the Association of Social Anthropologists of Aotearoa/New Zealand (ASAA/NZ).

in relation to soft coastal protection, including the restoration of natural barriers, the adaptation of human uses of the coast (including retreat from the shoreline), and soft engineering options like beach renourishment or artificial reefs. Widespread discussions around the notion of the Anthropocene (Crutzen and Stoermer 2000; Johnson et al. 2014; Sayre 2012) are likely to accelerate this rethinking of coastal protection policies currently happening around the globe. Chapter 1 discusses examples for recent developments in coastal management and engineering along the binary of soft and hard measures that is constantly reproduced in this field. The framing of soft protection as 'working with nature' is shown to be entangled with normative questions as well: what is the right coastal management for the Anthropocene? How to deal with the threats of eroding coastlines in the light of climate change and ongoing coastal development booms worldwide emerges as a sociotechnical question, and to tackle it means engaging in the politics of nature.

In Chapter 2 I develop my take on natural-cultural imaginaries and practices of nature-making that I see realized in the projects I encountered during my fieldwork in Aotearoa New Zealand. I argue for a refined attention to the role of more-than-human practices and material forces and introduce the main aim of the book: to show how coastal protection practices are engaging in the production of natural *and* cultural orders. To this end, I followed the practices of a loosely defined community of practice (Wenger 1998) consisting of restoration volunteers, coastal management practitioners, scientists and others, who promote the use of soft coastal protection measures in Aotearoa New Zealand. In Chapter 3 I provide a description of my research design and problematize the concept of the field site for doing multi-sited research on coastal protection. I elaborate on conceptual collaborations with coastal management experts, and the challenges of bringing ethnographic work back to the field by discussing the concepts of para-ethnography and the para-site (Holmes/Marcus 2008). Chapter 3 also puts the beach and coast into the context of Aotearoa New Zealand's historical and contemporary political landscape. I discuss the role of the beach "bach" myth and the family campsite in the national imaginary, and the perceived threat to iconic landscapes posed by the ongoing coastal boom. In relation to the contested space of the foreshore and seabed, I show how coastal conflicts reveal deep-seating anxieties over the future of the bi-cultural nation.

While Aotearoa New Zealand's coastlines remain relatively sparsely populated compared to many other coastal nations, coastal hazard risk is growing, as increasing development of coastal areas factors in with the anticipated effects of climate change. Coast-

lines that feature accessible sandy beaches are mostly characterized by "traditional 'new world' low density individual dwelling subdivisional development" (Healy and Soomere 2008: 456). However, many of these settlements (for example in the North Island's Bay of Plenty, but also on the Coromandel Peninsula and other places) were located very close to the shoreline when they were first developed during the second half of the 20th century (Blackett et al. 2010). It was common practice to level the foredunes with bulldozers to allow houses to be built directly bordering the beach, offering unimpeded sea views. The limited space between private properties, the public space of the beach and the ocean means, according to coastal scientists from the National Institute of Water and Atmosphere (NIWA), that "communities and coastal margins in many localities are on a slow, but sure, collision course" (Bell et al. 2001: 12).

About a quarter of Aotearoa New Zealand coasts are subject to coastal erosion (De Lange 2012), and where seaside developments are impacted, the preferred answer is usually the construction of (hard) coastal protection structures (Pilkey and Hume 2001). Such approaches however have come under critique for their negative effects on sandy beaches, ranging from aesthetic impact to the complete loss of high tide beaches (see Chapter 1). Mike Jacobson, a government commissioned coastal hazard management expert (Jacobson 2004a/b), argues that seawalls threaten to destroy a coastal nature of nation-building character:

> Coastal hazards, property protection works and coastline natural character are intimately connected in a story that goes to the heart of a Kiwi icon – holidays at the beach, the beach bach, and generally the important part that the coast plays in growing up as a Kiwi. Unfortunately, it is a story that has yet to take root in the national psyche in the same way as the stories related to New Zealand's native forests or endangered species. It is a story that needs to be adopted and acted on by communities before development (and the seawalls built to protect that development) 'kill the golden goose'. The important place of natural beaches and dunes in the lives of most Kiwis is rapidly becoming a thing of the past. (Jacobson 2005: 6)

Recent developments in New Zealand's national coastal policy are also evidence to a longer-term trend of policy-making that aims to move beyond hard-protection structures (Department of Conservation 1994; 2010).[2] Orrin Pilkey and Terry Hume, two coastal

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2   The current 2010 New Zealand Coastal Policy Statement (NZCPS), issued by the Department of Conservation (DOC) under the Resource Management Act (RMA) is a binding reference for regional-level coastal policy-making. Policy 25 requires to "discourage hard protection structures and promote the use of alternatives to them, including natural defences" (Department of Conservation 2010: 24f.);

scientists that have been vocal in criticising hard protection approaches, argue that Aotearoa New Zealand as a relative late-comer in coastal development and hazard protection law could benefit from the lessons learned elsewhere, in terms of scientific knowledge as well as legislation:

> While it is still not easy to solve the erosion problem, we can conclude on a bright note. The New Zealand circumstances, our much-improved scientific knowledge of coastal processes, and the uptake of this knowledge into coastal hazard and erosion management initiatives by regional Councils, mean there should be no excuses for not 'living by the rules of the sea' and getting it right from now on. (Pilkey and Hume 2001: 23)

This statement however reveals a rather linear understanding of how scientific knowledge production informs political processes, which does not shed too much light on the role of others with vested interests in the politics of coastal nature. Scientists from Waikato Regional Council on the North Island of Aotearoa New Zealand have tried to investigate "how coastal residents react" towards approaches of what they call "living with nature". Comparing the level of agreement with the statement that "we must accept that coastal erosion is a natural process at the coast" with peoples' preferences in terms of coastal management options, they found that respondents who favour the construction of hard defences are less likely to agree, while those who prefer a "doing nothing" approach towards coastal hazard, perhaps not surprisingly, show higher agreement with the statement that coastal erosion should be accepted as a natural process. The authors conclude that this phenomenon is partly a result of people's "day to day experience of living at the coast" (Stewart et al. 2011: vi) – something that geographers Collins and Kearns might call "everyday" or "emotional geographies" (Collins and Kearns 2012: 948). On the other hand, they write,

> [t]hese findings perhaps indicate a link between accepting coastal erosion as natural and being willing to work within a management paradigm of 'living with natural processes' as opposed to 'taming natural processes' (Stewart et al. 2011: vi).

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the use of public land for the protection of private property should be prevented in the future. As mandatory guidelines, the NZCPS provisions are mirrored on the regional level. New Zealand is divided into 16 regions governed by Regional Councils which are responsible for questions of coastal management (besides other aspects of resource management, land use and transport). The Proposed Bay of Plenty Regional Policy Statement (Bay of Plenty Regional Council 2013b), for example, includes policies on "Discouraging hard protection structures" for areas potentially affected by coastal hazards over at least the next 100 years (Policy CE 10XB), on "Avoiding inappropriate hard protection structures in the coastal environment" (Policy CE 11B) and for "Protecting and restoring natural coastal margins" (Policy CE 4A).

This mirrors my own initial fieldwork experience, where I encountered a small number of coastal experts who put much effort into spreading the message of sustainable coastal management through public lectures, workshops, and the media. Often, these pioneers were "preaching to the converted", as a listener put it after a public lecture entitled "The BOP Coast in 2050: How Today's Decisions Will Affect Our Grandchildren's Future" held in Tauranga in March 2010 (Fieldnotes March 2010). The speaker, who worked for a consultancy and a volunteer dune restoration programme, presented geomorphological insights into the mechanisms of coastal erosion in the Bay of Plenty, spoke about the anticipated effects of climate change and sea-level rise, discussed policy provisions like hazard lines and sets backs, and finally showed a number of impressive pictures from elsewhere: houses on stilts in Massachusetts and others that had fallen off eroding dune scarps into the sea. He did not have the solution himself, the speaker declared, "but we have to get our head around this". He defined adapting to coastal hazard as "living with nature", asking: "is it nature's problem or ours?"

His dramaturgy seemed to point strongly to the conclusion that managed retreat, the relocation of existing buildings and infrastructure, would be the only viable strategy in the long run, but he did not explicate this point. His audience understood his argument nonetheless and commented correspondingly. During the question and answer session, a man who introduced himself as a volunteer with the community dune restoration programme Coast Care and member of the Waihi Beach Environment Society requested, "Can you give this talk at Waihi Beach?". Everybody in the room knew where he was coming from: a small coastal settlement at the fringes of the Bay of Plenty that has become the scene of a decade-long conflict over the use of hard coastal protection measures. My analysis of the Waihi Beach case in Chapter 4 and 5 will serve as the opening for the empirical parts of the book. Since I worked simultaneously on/in several field sites, starting the narrative with the Waihi Beach case is a dramaturgical decision, taken because it allows me to show how the sociotechnical imaginary of 'working with nature' emerges in the scope of a conflict about hard and soft protection. Controversies are useful as entry points because they explicate what usually goes without saying. By unwinding a local history of coastal development and coastal protection measures, and by analysing the decision-making process for the common future, I show coastal erosion has emerged as a longterm problem. Eventually, a massive seawall protecting multi-million dollar houses has been built on a public beach, notwithstanding widespread

agreement that in the long run, coastal protection should acknowledge and work with natural coastal processes

Chapter 4 provides a short history of the coastal settlement at Waihi Beach and the coastal protection works that have been built to protect it. I go back to the beginnings of coastal development at Waihi Beach and identify three crucial points in time with wide-ranging consequences for today's situation. I unravel an (unsuccessful) Environment Court appeal lodged by local residents opposing the unpopular coastal protection scheme, which was proposed by the local Council and backed by beachfront residents. Following the conflict into the courtroom and drawing from court proceedings, witness statements and other material, I observe how the case was decided by the judge as a question of science, not politics.

Chapter 5 broadens the perspective towards the socio-technical and political future of the Waihi Beach protection scheme, looking beyond the preliminary closure of the conflict after construction of the seawall. Picking up on the idea of the coproduction of social and natural orders, I focus on the political repercussions of the conflict, including changing understandings of what it means to be a community for the locals, including tangata whenua (local Māori). The chapter zooms in on the role that the materiality of the seawall itself might play in the coastal policy arena in the near future. Can Waihi Beach serve as a last example of its kind before the tides will eventually turn against hard protection measures?

The second empirical part (Part III of the book) focuses on practices of caring for the coast, or 'making coastal naturecultures'. Spanning from the use of dune plants as a means of do-it-yourself coastal protection to the development of large-scale soft-engineering technologies, Part III engages with exemplary cases of soft coastal protection. The chapters show how the socio-technical imaginary to 'work with nature', as well as specific coastal naturecultures, are coproduced in the process. With the current move beyond hard protection advocated by a growing number of coastal experts in the country, the dunes are receiving more and more attention as a central feature of natural coastal protection, and their widespread modification is now increasingly considered a historical mistake. The majority of dune restoration projects in Aotearoa New Zealand are carried out by organized volunteers. Chapter 6 introduces the country's first and today largest volunteer dune restoration programme Coast Care Bay of Plenty (BOP) and describes its shared practices of planting, weeding and pest control, which are all part of what could be called maintenance work in the dunes. Chapter 7 looks at 'working with

nature' by zooming in on the meaning of work and community. I analyse a large-scale dune restoration project in suburban Papamoa Beach, where Coast Care collaborates with the local authorities to tackle private gardens that have been extended into the dune reserve. This anti encroachment project uses dune restoration to reclaim the dune as public space. The project becomes possible only by harnessing the workforce of international volunteers, school classes and people on periodic detention serving community labour hours. I discuss the complex economies of Coast Care work, the diversity of volunteers' motivations, and show how a continuum of paid and unpaid, voluntary and involuntary work is emerging through practices of caring for coastal naturecultures.

Chapter 8 focuses on examples where dune restoration is explicitly used as a means of natural coastal protection, in the scope of Coast Care projects and also beyond. Serving as low cost 'do-it-yourself' protection, dune restoration and dune-scraping techniques build upon people accepting erosion as a natural process. Instead of settling things once and for all, these soft measures require ongoing human maintenance work, including the replacement of "sacrificial plants" washed away in returning storms. The chapter shows how people's enthusiasm for Coast Care is used by dune management experts to promote soft approaches in general, and addresses the connection between dune restoration and climate change politics.

Chapter 9 addresses once again the question "which nature(s)?", but more specifically aims to unwind the role of native nature as a concept that drives dune restoration practices as they are embedded into the naturecultural assemblages of postcolonial Aotearoa New Zealand. Erosion control remains a central goal of Coast Care, though many projects increasingly focus on coastal protection in a different sense: the protection, preservation and reconstruction of native coastal nature. The contemporary renaissance of native nature and culture in Aotearoa New Zealand, spanning across biodiversity conservation and bicultural politics, forms a backdrop against which the 'working with nature' imaginary currently fuels coastal restoration practices. This reconstruction of an imagined New Zealand coastal nature is another example for the coproduction of natural and cultural order. Restoration practice emerges as a way of translating the ongoing self-reflection about the country's bicultural past, present, and future into practices of nature. What is at stake here is the distinctiveness of Aotearoa New Zealand's natureculture, that is at least partly expressed through the native plants and the coastal landscapes they inhabit.

Chapter 10 broadens the scope of caring for the coast to multipurpose reefs, a so-called soft engineering technology used for coastal protection, but also to enhance marine biodiversity and surfing conditions. The chapter focuses on fieldwork conducted at ASR, a former New Zealand-based company which developed artificial reefs for multiple uses. It deals with this high-tech intervention whose merits are argued on basis of its innovative and science-based character, and which has been promoted by ASR as an approach to coastal protection working "in concert with nature". The chapter illustrates the integral role that coastal science and surfing as well as the dream of artificial surf breaks have played for this technology in order to work technically, socially and economically and discusses how the approach has been framed as soft and multifunctional.

In the conclusion, I discuss how these different practices of 'working with nature' coproduce specific understandings of coastal nature and culture for the Aotearoa New Zealand context. I finally argue that practices claiming to 'work with nature' can be understood as strategic attempts to naturalize nature by less powerful actors. Against the backdrop of the increasing popularity of concepts that claim to enhance nature or use it as (green) infrastructure (Carse 2012), however, I call for a close ethnographic look at such practices. What natures are actually made by whom, and to whose benefit remains a contested political question that cannot be answered by simply referring to a singular, universal concept of nature. Instead, the theoretical challenge of thinking multiple natures makes it possible to analyse coastal protection and other practices as a politics of nature.

Part I:
Introducing Ethnography to
Coastal Naturecultures

1. Working with Nature, Working with Water: A Globalized Imaginary

> "It is quite easy to make a compelling large-scale strategic case against the construction of coastal defences. (Those still arguing for defences are clearly swimming against the tide in regard to the sustainability ethos and concerns about sea-level rise and increased storminess.)" (Cooper and McKenna 2008a: 304)

This chapter explores recent trends in coastal management and engineering worldwide, characterized by various actors as 'working with nature' approaches or described with similar expressions. The chapter critically reviews some of these concepts and also collects some first pieces of evidence for the entanglement of epistemology with normative questions. There is a larger question addressed throughout the field by a variety of actors with possibly conflicting agendas – what is good, desirable, sustainable coastal protection?

The popularity of approaches that speak to the idea (or imaginary, see Chapter 2) to 'work with nature' in coastal protection and flood risk management is a relatively recent phenomenon. Related concepts, however, already circulate and travel through many contexts, especially in Europe, where they have gained political currency in recent years. From current EU flood risk management policy including the EU Floods Directive 2007/60/EC and the Recommendation on Integrated Coastal Zone Management (European Parliament and Council 2002; 2007) to the British Department for Environment, Food and Rural Affairs' initiative for "Making space for Water" (Defra 2005), or the Dutch "Building with Nature" program (De Vriend and Van Koningsveld 2012), ideas like the construction of retention areas for rivers, limitations for structural coastal protection measures, or the recreation of coastal marshlands through managed realignment (Ledoux et al. 2005; French 2006; Rupp-Armstrong and Nicholls 2007; Early

2008) are increasingly in demand. In relation to riverine flood risk, recurring flooding events in the UK (Moss 2014) feed into discussions about managed realignment and the abandonment of protection structures, while in Germany discussions about natural or ecological versus technical flood risk management regularly reappear (Kuhlicke et al. 2013). The British Sand Dune and Shingle Network, an organization for the protection of coastal habitats and member of the European Dune Network that traditionally focuses on the biodiversity aspect of coastal landscapes, states in its newsletter that "[i]ncreasingly our work is addressing the 'flood risk management' function of these habitats" (Sand Dunes and Shingle Network 2013: 1). And in regard to managed retreat, Catherine Early observes that in the UK context, "[…] recent years have seen government policy on coastal erosion and flood risk moving away from the traditional stance of maintaining hard defences towards working with nature" (Early 2008: 36).

Ironically, it is the challenging prospect of anthropogenic climate change and sea level rise that seems to have triggered a rethinking of coastal protection policies from many sides. In a 2010 Nature Reports article under the title "Working with water", Mason Inman states that "[n]ations threatened by sea level rise are starting to look at how they can work with nature to defend their coastlines" (Inman 2010: 39). The article mostly draws on the example of the Netherlands and declares that the country – known for centuries of experience with coastal protection – is now, under the impression of rising sea levels, "pioneering a soft approach to self-defence" (ibid).

However, the issue can be controversial. Referring to the substantial loss of (undeveloped) land on the southern tip of Germany's most prominent island of Sylt, the Schleswig-Holstein Minister for Energy Transition, Agriculture, Environment and Rural Areas and member of the Green Party, Robert Habeck, declared that

> [t]he function of coastal protection is to protect human life and not to stop all natural coastal processes. The Hörnum Odde area has always been subject to change. The Bundesland, federal and EU budgets can only be used to protect humans against storm tides. (Pfeifer 2014, translation FG)

This comment, a reply to local residents who argued for the expansion of protection measures, pits coastal processes and coastal protection against one another, which invites us to take a step back and ask a very fundamental question: what actually *is* coastal protection? Cooper and McKenna have argued that the ambiguity of the term is the crux for understanding social and political struggles over coastal protection issues:

> The term 'coastal protection' means different things to different people. To the ecologist it may mean enabling coastal ecosystems to function naturally while to the engineer it means constructing something to halt coastal erosion and protect property. To the environmentalist it might mean letting nature take its course, enabling ecosystems to function while to the coastal landowner it means protecting property. This diversity of views, coupled with the overwhelmingly positive connotations of the term 'protection', means that it is easy to gain agreement that 'coastal protection' is desirable and necessary. Who could argue against protecting the coast when the opposite must imply damage or degradation? (Cooper and McKenna 2008b: 315)

These different meanings, Cooper and McKenna argue, entail a great potential for conflict: it is difficult to define a common understanding of the term, and different interpretations imply different priorities and decisions that need to be taken. The most common understanding of coastal protection, however, remains in the sense of "protection of coastal assets against erosion or flooding" (Fröhle and Kohlhase 2004, quoted from Cooper and McKenna 2008b: 315).

Coastal protection is of course only one potential step that can be taken in the light of coastal hazards; most commentators from academia and the policy world categorize the possible approaches along the lines of protection, retreat, or accommodation. This definition dates back to a 1990 IPCC report (IPCC Response Strategies Working Group 1990). Under these three basic rubrics, the UNFCCC groups a larger number of "technologies for climate change adaptation in coastal zones" (UNFCCC 2006: 13). Retreat entails instruments like relocation of existing buildings, coastal setbacks to prevent new development, or so-called rolling easements. The latter approach aims to allow the gradual landward migration of coastal ecosystems under the conditions of rising sealevels (Titus 2011). Accommodation includes insurance schemes and technical solutions such as relocatable buildings or houses put on stilts.

Protection approaches work in a fundamentally different way. Their focus is not on managing human uses of the coast, but on the attempt to intervene in coastal processes (Turbott 2006: 6). The term protection is again applied to a number of different approaches that are commonly distinguished as "hard" and "soft". The UNFCCC, for example, defines the protection option as follows:

> For protection, the most visibly reassuring option may be to build hard structures such as sea-walls. But apart from being very expensive these can have damaging side effects, for example by displacing erosion and sedimentation. It may be better therefore to consider soft options that involve restoring dunes or creating or restoring coastal wetlands, or continuing with indigenous approaches such as afforestation. (UNFCCC 2006: 13)

As seen in the quote above, hard protection measures are criticized for a number of reasons. Seawalls – structures that are built parallel to the shore to prevent erosion and coastal flooding – are especially effective in protecting the land behind the structure, but do not stop ongoing erosion in front of the structure (Dean and Dalrymple 2004: 404f.). This can cause an effect called "coastal squeeze": the loss of accessible high-tide beaches. Because seawalls can aggravate coastal erosion at the endpoint of the structure and change the sediment dynamics of adjacent areas, the construction of such defences often leads to a gradual armouring of long stretches of coast, sometimes referred to as "New Jerseyization" (Pilkey 1998: 13f.). As Cooper and McKenna put it, "[t]he ultimate manifestation of this approach is the replacement of all sandy coasts with hard defences" (Cooper and McKenna 2008a: 301).

Furthermore, seawalls are usually not removable; once built their maintenance causes financial obligations for future generations. Other negative effects noted in the literature include their possible contribution to a false sense of security for property owners. This is especially problematic in sparsely populated coastal locations which are subject to increasing hazard risk, but where hard protection might cause disproportionate negative effects (Arnell and Chatterton 2007: 366).

On the other hand, "soft" protection is regularly mentioned in definitions, reports, plans and policy documents, though the term is often introduced without much of a definition. Generally, the distinction that is being made between "hard" and "soft" has become ubiquitous in the context of coastal protection policy and practice. People reasoning about and arguing for or against particular ways of defending the coastline (or not) continuously (re)produce a dualistic distinction between hard and soft that merits a closer analytical look. In relation to the proliferation of term "soft", it seems as if only the relatively recent introduction of the term "soft" into coastal protection debates[1] implicated the demarcation of its opposite: hard being defined as what is undesirable because it is *not* soft. It often remains implicit which qualities of actual coastal protection measures are taken into account in order to measure the softness or hardness of the approach. Is the material – stones, concrete, metal versus sand, vegetation, brushwood – the defining factor? Or is it the procedure, the scale of invasiveness or the outcomes of

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1 In the context of river restoration, the term „soft approaches" has been used at least since the late 1970s. Thanks to Jan Scheve for this comment.

the intervention? Furthermore, whenever the distinction between hard and soft measures is made explicit, a normative dimension resonates as well. Just as much as it seems inappropriate to argue against "protection" (see above), softness and the accompanying implications of managing, flexibility, and adaptive capacities seem to fit much better with contemporary concepts of social organization when compared to the rigidity of hard structures, the worldview of an "engineering perspective" (Cooper and McKenna 2008b: 316), coastal armouring and "holding the line"[2]. A coastal engineer who works for a soft engineering company explains this along with his thoughts on gendered representations of nature:

> [T]here is something very visceral and human about building a big fuck-off seawall or a big massive something that's gonna stop this other big massive something [the sea] that's coming in with seemingly Armageddon like power. So for your own property, I can completely understand why something is... I mean, I'm sure there's some psychological male/female thing going on too; it's sort of like the [artificial] reefs are seen as [a soft measure]. I mean they're called hard and soft structures, I mean. [The reefs are soft because] sediment moves and it changes and it's more, it's pliable, the whole... it forms and changes around. (Interview with Tommy Hamilton, ASR)

Cooper and McKenna argue that while "the concept of 'working with natural processes' has wide currency in coastal zone management", a considerable range of visions and interpretations are in fact subsumed under this heading (Cooper and McKenna 2008b: 317). They arrange different understandings along an axis between what they respectively call the engineering and ecosystems perspectives (Cooper and McKenna 2008b, 18).

Only those measures on the latter end of the spectrum, they argue, truly allow sufficient space for natural processes to operate. Interestingly, Cooper and McKenna see beach nourishment – a typical example often given for soft engineering approaches – as just another, though more indirect way, of fighting nature. They criticize the ongoing maintenance required for the technique to work:

> [W]hile nourishment strategies do factor in the subsequent operation of morphodynamic processes on the nourished material, it is disingenuous to claim that these processes are allowed to operate in a natural way (after all, natural waves still con-

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2   In relation to this point, see for example Emily Martin's (1994) seminal study on how the social and political currency of the concept of flexibility structures contemporary interpretations of the body and the immune system.

tinue to operate on a seawall). Human interference with the natural system is simply done in a more subtle way. While on the face of it nourishment may seem less damaging than construction of a seawall, it involves a similar open-ended commitment to an engineered process designed to fight nature. (Cooper and McKenna 2008b: 329)

Cooper and McKenna discuss the conditions under which a considerable shift towards "working with natural processes" could be accomplished in coastal protection. They believe that "a vigorous campaign of education" (Cooper and McKenna 2008b: 337) is needed to address problems in what they call "the perceptual domain" (ibid). This demand refers on the one hand to the inconsistence of definitions described above, and on the other hand to what the authors perceive as a necessary "fundamental change in attitude from the prevailing view of coastal erosion as a problem" (ibid) towards an understanding of coastal erosion as a natural process (see Chapter 8.1). Cooper and McKenna perceive a number of obstacles in the political and social domains, especially in relation to existing land management systems and administrative boundaries. While legislative changes are conceivable in principle, they are complicated by the political influence of coastal property owners. Additionally, the authors observe more latent levels of meaning attached to the seemingly technical questions of coastal protection:

There is also an emotive element attached to individuals losing property. In part this is responsible for the traditional view of the sea and the erosion it causes as an enemy. This prevailing 'protection' paradigm is a traditional one which has proved resilient in the face of several decades of modern environmentalism. The language used is redolent of war against a ruthless enemy remorselessly attacking a treasured birthright. The words 'coastal erosion' are routinely followed by the word 'problem'. It is little surprise that those wedded to such a view have fundamental problems with the concept of allowing natural processes to function without interference. (Cooper and McKenna 2008b: 328)

This view is echoed by Collins and Kearns (2012), who recommend that emotional discourses are taken more seriously in the analysis of conflicts over coastal natures. Their discussion grounds on an empirical case of local resistance against coastal development on a sand spit in northern Aotearoa New Zealand. While theirs is not a conflict over coastal protection decisions (or not yet, one could argue – see Chapter 4 and 5), they trace emotional dimensions of "everyday geographies of the coast" (Collins and Kearns 2012: 948) as an important backdrop against which such conflicts develop. This can be easily translated into the realm of coastal hazards and coastal protection as well, as will

be shown in the scope of Part II that deals with the decades of political and legal conflict provoked by the construction of a hard protection scheme.

With these considerations in mind, I would like to screen a few more examples of 'working with nature' discourses before I focus on the situation in Aotearoa New Zealand more specifically. The reason for me to follow such an order of things already points to the methodological questions that will be raised in the following chapter. I noticed the significance of the 'working with nature' theme at different points throughout the research, and research partners pointed me to some of the examples I discuss. At the beginning, I was framing my research interest in my own words as looking for approaches going 'beyond hard protection'. In this context, I encountered the discourse about 'soft protection'; the expression 'working with nature' came to my attention at a later point.

I soon realized that the discourse was by no means limited to the Aotearoa New Zealand context. One of the examples I was made aware of by an interview partner is the EU-funded research project EUROSION, which set out to investigate ways of "living with coastal erosion" (Eurosion 2004). The EUROSION report centres on the idea that coastal erosion is becoming a problem only because it interferes with human uses of the coast. Instead of locally addressing the problem with hard protection, risking "a domino effect of hard constructions" (Eurosion 2004: 23), the report recommends rethinking coastal management along the concept of the "sediment cell", a spatially defined area within which sediment (sand) is redistributed over time[3]. In order to prevent coastal erosion from becoming a problem, it is necessary to keep the total amount of sediment within the coastal system:

> Therefore, fixing of sediments (due to hard constructions) is less favourable than using measures that disturb the natural processes to a lesser extent or measures which even make use of the natural processes, for example beach and foreshore nourishments. The latter choice is called 'working with nature'. (Eurosion 2004: 23)

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3 Time is also the limiting factor of the sediment cell concept, because over long time frames, the exchange *between* what has been defined as separate sediment cells might become non negligible (Eurosion 2004: 23). Another problematic point is the inability of the concept to grasp land-based processes that influence erosion and accretion, e.g. changes in the sediment transport of rivers discharging into the sea (ibid).

The report further recommends to prioritize interventions and to "try to work with natural processes or leave natural processes as undisturbed as possible. If no other options available, use hard constructions to keep sediments in its position." (Eurosion 2004: 23) The best results until now, the authors conclude from their review of existing schemes, have been achieved by combining different types of coastal protection, including hard *and* soft solutions (ibid).

Also focusing on the situation in Europe, the Nature Reports article introduced above explains that what is called ecological engineering "encompasses a variety of approaches for working with nature rather than confronting nature's forces head on" (Inman 2010: 39). Inman quotes a professor from Wageningen University who speaks about the new guidelines of the Delta Commission (the body responsible for coastal protection decisions in the Netherlands) as having "changed the philosophy completely" (ibid). Under the public-private 'Building with Nature' initiative (De Vriend and Van Koningsveld 2012), large-scale beach renourishment projects aim not only to keep the current position of the coastline, but also to add an additional buffer of one or two kilometres to the beach. Dune vegetation could then be established as a means of stabilization; Richard Klein from the Stockholm Environment Institute is quoted stating this would "certainly be the first time that natural coastal processes would be used to protect urban areas" (Inman 2010: 40).

'Building with Nature' was started in 2008 by a Dutch public-private research consortium called Ecoshape. Variously referred to as an "innovation program", a "philosophy", and a "paradigm shift", 'Building with Nature' also aspires to think big. The website introduces the program as follows:

> The Building with Nature innovation program is committed to the integration of infrastructure, nature and society in new or alternative forms of engineering that meet the global need for intelligent and sustainable solutions. (Ecoshape 2012)

Van Koningsfeld and Van Raalte elaborate on the approach in a 2012 conference paper on how this approach meets the challenges of urbanisation and economic development under the conditions of a changing climate, all of which

> demand an innovative approach to hydraulic engineering that aligns the interests of economic development with care for the environment. Building with Nature responds to this demand: working with natural systems in such a way that meets the need for infrastructure while creating opportunities for nature. (Van Koningsfeld and Van Raalte 2011)

They establish that 'Building with Nature' essentially means that "surface water infrastructure development works with nature rather than against it" (De Vriend and Van Koningsveld 2012: 1). The authors argue that early infrastructure projects have been realized without taking the environment into account – neither negative effects, nor the potential usefulness of natural processes from the project point of view. This they call "building instead of nature". Following this, they observe "a paradigm shift" leading from subsequent "building in nature", which has focused on minimising environmental impacts, to "building of nature" – mitigation and compensatory measures like the creation of wetlands, eventually to "building with nature". The examples given in the 'Building with Nature' image brochure include oyster reefs, "coastal protection for the tropes", the use of mangrove forests, coral reefs and seagrass meadows, and the Delfland Sand Engine project. This large-scale sand nourishment project on the South Holland coast aims to combine erosion protection with other benefits while limiting the ecological impacts (De Vriend and Van Koningsveld 2012: 13f.). Instead of applying repeated localized beach nourishments, very large quantities of sand have been deposited offshore. The sand engine was designed in the expectation that the natural coastal processes would distribute the sediment over a time span of 20 years, according to the results from geomorphological computer modelling. As such, the project is 'working with nature' in two senses: creating new spaces for nature (in the sense of providing habitats, for example for seals and flatfish) and working with natural coastal processes.

The 'Building with Nature' concept also has a noticeable normative underpinning that becomes evident when the authors paraphrase its development as sketched above as "[i]n other words: from doing not too bad, via doing no wrong, to doing good" (Van Koningsfeld and Van Raalte 2011: 2). In fact, infrastructure project are presented as a chance for better natures in an online introduction to the concept:

> Man-made projects are an inherent part of the environment. They provide a unique opportunity to induce positive change! (Deltares 2013)

This normative dimension is inextricably linked to questions of knowledge-making, technology and governance. The prerequisite for 'Building with Nature', Van Koningsfeld and Van Raalte argue, is that "we want more", "we know more", and "we can do more": multifunctional designs, increasing scientific knowledge about natural processes and how they can be used, as well as technological improvement are employed to provide "new opportunities for nature development" instead of mere compensation (Van

Koningsfeld and Van Raalte 2011: 3). A similar argument of understanding nature through science as the backbone of 'working with nature' will be discussed in Chapter 10 in relation to soft engineering.

PIANC, the World Association for Waterborne Transport Infrastructure, has also worked out its own 'Working with Nature' strategy, addressing "navigation development projects" (PIANC 2011). The position paper with the same title remains remarkably unspecific when it comes to what kinds of actual projects are envisaged by this strategy; however, the goal is defined around "understanding the environment" and "project proposals/design to benefit navigation and nature" – producing "win-win solutions" (PIANC 2011: 1). The crux is to consider the environment at the beginning of the project, and not as something to be resolved after the fact – a kind of mainstreaming ecology approach:

> Working with Nature is about more than avoiding or mitigating the environmental impacts of a pre-defined design. Rather, it sets out to identify ways of achieving the project objectives by working with natural processes to deliver environmental protection, restoration or enhancement outcomes. (PIANC 2011: 1)

'Working with Nature' is not a small change, the strategy paper asserts, but accounts to a "new way of thinking", which "requires a subtle but important evolution in the way we approach project development" (PIANC 2011: 1). This socionatural vision also has a coproductive dimension (Jasanoff 2004), because the right governance structures organizing decision-making, and evaluation and monitoring technologies are an essential part of the task:

> A transition from a philosophy of 'control' to one of 'management' is needed and the cultural differences between ecologists, civil engineers, planners and politicians similarly need to be addressed if 'Working with Nature' is to be embraced. (PIANC 2011)

One could argue that the changes described in science, technology and politics are mutually dependent or coproduced as a necessary prerequisite for the realization of infrastructure while 'working with nature'.

Looking beyond Europe, the idea to think of nature as infrastructure has also been emerging in the US context. The NYS 2100 commission, assembled by the State of New York in the aftermath of the 2012 hurricane Sandy, recommended to "[e]ncourage the use of green and natural infrastructure" as one of nine crosscutting recommendations with reference, amongst others, to the Dutch sand engine as a pioneer project

(NYS 2100 Commission 2013: 123). The report advocates a mix of hard and soft infrastructure, includes the recommendation to assess the feasibility of a storm surge barrier for the whole New York Harbor area and warns not to overlook the limitations of natural infrastructure. However, the commission also observes that most of the Manhattan areas that were flooded during Sandy "overlap with man-made areas", or land reclamations, and asks to address the root of the problem: the loss of "many of the Harbor's natural defenses" due to waterfront development, the destruction of wetlands and oyster reefs, and the construction of a 100,000-foot-long seawall with deep-water access:

> Over the course of more than 350 years, New Yorkers dramatically reshaped, expanded, hardened, and deepened the waterfront to accommodate an ever expanding population and critical maritime commerce. (NYS 2100 Commission 2013: 118)

As an immediate response, the report calls for sand nourishments to repair beaches and dune areas, and argues to use material gained from dredging for navigational purposes for coastal protection (NYS 2100 Commission 2013: 123f.). As a strategy for the future protection of coastal and Great Lakes communities including the New York Harbor area, the report speaks of the potential use of "soft infrastructure coastal protection strategies" (NYS 2100 Commission 2013: 118f.). Five main approaches are listed: barrier beach and dune systems, tidal wetlands, oyster reefs, natural berms and levees, and so-called "living shoreline techniques", defined as the creation of "coastal areas that are designed with salt-tolerant plantings, riprap, and other measures to prevent or reduce shore erosion and dampen wave energy while emulating the physical and biological conditions of naturally occurring, stable shorelines" (NYS 2100 Commission 2013: 122). The report states that "[n]atural infrastructure has been increasingly recognized and promoted among hazard and climate planners and managers" and recommends

> to restore the resilience of the harbor area through a combination of natural shoreline restoration and hard infrastructure improvements where appropriate. This would require the development of a comprehensive strategy comprised of both ecological system restoration and construction of sophisticated engineering projects designed to support or mimic natural processes. (NYS 2100 Commission 2013: 118)

The commission not only expects better mitigation of coastal risks, but also additional "co-benefits": the cleansing and absorption of urban storm water, the overall improvement of water quality, the creation of new habitats and recreational opportunities, cooling effects and in result an improved quality of life for urban residents. The report also refers to studies that prove the cost-effectiveness of 'working with nature':

> From an economic standpoint, natural solutions require lower maintenance and management costs when compared to traditional built infrastructure. (NYS 2100 Commission 2013: 120)

The idea of 'working with nature' in coastal protection is also promoted by non-governmental actors like the US-based Nature Conservancy, which suggests looking at diverse contexts, from the urban environment of Post-Sandy New York City to environmentally degraded coasts beyond the industrialized world. A brochure named "Using nature to reduce climate and disaster risk" presents nature as "part of the solution" (The Nature Conservancy n.d.: 2). Similar to the NYS 2100 report, the emphasis lies on the combination of engineering options and natural defences. One major argument brought forward by the NGO is that of cost-effectiveness:

> Compared to the cost and maintenance of engineered or structural flood protection, nature's infrastructure can provide a cost-effective first line of defense against storms. (ibid)

Consequently, the organization is trying to assess "how much can nature protect?" (ibid), producing quantifiable data on the risk reduction function of coastal ecosystems, in order to assess their effectiveness in comparison to seawalls and other structural defences.

Looking beyond the industrialized world, The Nature Conservancy and the United Nations University Institute for Environment and Human Security (UNU-EHS) collaborated with the Alliance Development Works to publish a "World Risk Report" in 2012 (Alliance Development Works 2012). Focusing on environmental degradation and disasters, and containing a World Risk Index developed by UNU-EHS scientists, the report illustrates the links between environmental degradation and climate change, poverty and disaster risk. Coastal hazards are identified as a major issue: 8 out of 15 countries with the highest disaster risk (understood as a function of exposure and social resilience), according to the World Risk Index, are island states (Mucke 2012: 9), most of them small, developing states in the Pacific with Vanuatu topping the ranking.

As part of the report, Beck and Shepard discuss coastal habitats in their risk reduction function (Beck and Shepard 2012). Against the backdrop that coastal and marine habitats – especially coral reefs and wetlands – are suffering the greatest damage from ongoing coastal development and climate change impacts, they argue that that "conservation and management of coastal habitats can play a key role in reducing coastal haz-

ards" (Beck and Shepard 2012: 32). Especially mangrove forest and reef restoration are mentioned. The authors observe that "[n]atural conservation solutions, so-called 'green solutions', are gaining ground" and explain this "growing awareness" with increasing availability of scientific evidence for the role of ecosystems for coastal protection, their cost-effectiveness and the opportunities to create sustainable livelihoods, e.g. in fisheries and tourism in developing countries (ibid). Beck and Shepard use the terms "gray" and "green" solutions for coastal defences (Beck and Airoldi 2007) and argue that "the incorporation of natural solutions is imperative given the very high costs to society of engineered, 'gray' solutions" (Beck and Shepard 2012: 35):

> The range of solutions for reducing coastal hazards ranges from 'green' to 'gray' solutions. Green solutions comprise the conservation and restoration of natural coastal ecosystems. Here wetlands and reefs are conserved, replanted or restored to reduce the impacts from waves and erosion on the coastline. There is a growing interest in green solutions – but this is also urgently needed. Worldwide, gray solutions have been used the most. Here, coastlines are artificially hardened, and gabions and breakwaters made of rock and cement are dumped on shorelines to stabilize them. […] Gray solutions cause continuous maintenance costs, whereas green solutions are more sustainable and can grow naturally. Mangrove forests, wetlands and coral reefs also offer additional benefits to people including fisheries and livelihoods (e.g., harvest and tourism). (Beck and Shepard 2012: 33)

Inman, referring to the situation in South East Asia after the 2004 tsunami, explicitly states that "[…] not just well-off countries […] are looking to restore their coastlines as a way of protecting against rising seas" (Inman 2010: 40), but also that there are limits:

> Even the supporters of ecological engineering realize that it can go only so far in staving off the damage caused by rising seas. 'You can work with nature all you want,' says Klein [from the Stockholm Environment Institute], 'but it's all academic if we lose Greenland.' For now, though, the softer approaches of ecological engineering are catching on, says Nicholls. 'All of coastal engineering is moving in that direction, with people nourishing beaches instead of armouring coasts.' (Inman 2010: 41)

This exemplary assemblage of various elaborations of 'working with nature' demonstrates that there is a specific idea, a formation of discourses and practices currently emerging in different contexts of coastal hazard protection; possibly on a global scale. The following chapter will work towards building a theoretical framework for the analysis of such "soft" approaches to coastal protection in the Aotearoa New Zealand context.

2. Natureculture Imaginaries

2.1 Making Multiple Natures

In Chapter 1, I have developed my argument about the global emergence of soft coastal protection without further discussing the term *nature*. Now it is time to open this black box and let nature emerge: a contested concept that is central in my analysis of these practices. As I have shown in the previous chapter, the 'working with nature' framing is prevalent in the field, although some of the examples I have discussed are expressed in slightly different terms: 'working with natural processes', or 'working with water'. Pointing towards the multitude of accounts on water – as a substance and a symbol – Stefan Helmreich suggests that there might be no ultimate answer to what "water *is*" (Helmreich 2015: xvii). In the discourses on coastal management, water is described as a *physical substance* that circulates through the atmosphere and earth system, that rains down, forms rivers and streams, and flows towards the oceans. Erosion and accretion are understood as *natural processes,* forming one part of the interaction of multiple forces and materialities that coastal scientists call a *coastal system* (Wong et al. 2014).

   The question I want to address is, what do people refer to when they argue for coastal protection that works with nature? What *is* nature? A definition of nature that remains fundamental for the social sciences has been provided by Marxist cultural critic Raymond Williams in his 1976 "Keywords: A Vocabulary of Culture and Society", where he discusses the origins, cultural meanings and political implications of common words of the English language. He argues that "nature" is

> perhaps the most complex word in the language. It is relatively easy to distinguish three areas of meaning: (i) the essential quality and character of something; (ii) the inherent force which directs either the world or human beings or both; (iii) the material world itself, taken as including or not including human beings. (Williams 1976: 219)

Williams continues to argue that these different senses have developed successively, though the earlier meanings have continued to exist. Yet sense (i), he writes, is by definition a specific singular, "whereas senses (ii) and (iii), in almost all their uses, are abstract singulars – the nature of all things having become singular nature or Nature" (Williams 1976: 220). This "reduction of a multiplicity to a singularity", he argues, resonates with the emergence of a concept of "God", an abstraction from the earlier under-

standing of "a god" or "the gods". As a result, "[a]bstract Nature, the essential inherent force, was [...] formed by the assumption of a single prime cause" (ibid).

However, it is exactly this abstract singular of "capital-N nature" (Hinchliffe 2007: 3; Tsing 2005: 88f.; Castree 2005: 8) that has come into question in a world where the entanglements of social and natural worlds are constantly getting messier. In his "Geographies of Nature", Steve Hinchliffe (2007) suggests that contemporary understandings of nature – present in scientific discourse, but not limited to it – can be subsumed to three perspectives: nature independent, nature dependent, and nature co-produced. In the first understanding, nature is defined as what is "out there": wilderness, an "independent state", ideally located outside the sphere of human interference and "distinct from, absolutely separate to, the social world" (Hinchliffe 2007: 7). This, he argues,

> is probably the most common version of nature in Western societies. It informs many types of environmentalism, from the triumphalism of human mastery over nature to Western versions of stewardship and even some deeper green philosophies where nature needs saving from humankind, and humankind from itself. (Hinchliffe 2007: 8)

Such a worldview is, for example, echoed by Marc Tercek, president and CEO of The Nature Conservancy, when he claims that while natural disaster will always happen, "it turns out that nature can also help protect people" (The Nature Conservancy 2014). Nature is defined as an abstract universal concept that does not include human actions. Orrin Pilkey, the geologist and hard protection opponent encountered already in the Chapter 1, employs a related concept when he speaks of the beach as a thinking organism in a documentary film on sand mining (Delestrac 2013). During storm events, Pilkey argues, the beach is eroded, which means that in effect it changes its form in order to better absorb the force of the waves. He describes the beach as an organism that has the ability to survive through conscious movement. Consequently, Pilkey calls for the revival of a more systemic, relational thinking. This holistic concept of erosion and accretion implicitly implies that humans can only be a source of interruption and damage to these purely natural processes. And if nature is understood as independent of human doings it is best left alone and undisturbed by human interventions.

Another, radically different approach stems from a social constructionist concept which sees nature as "social all the way down" (Hinchliffe 2007: 8). On the one hand, the argument goes, there is barely a realm of nature left that has been undisturbed by human interference, as landscapes and other natural features actually show the signs of

millennia of human-nature interaction (Fisher and Feinman 2005). On the other hand, this approach understands nature as always perceived and experienced through social and cultural categories. In contrast to the abstract singularity of Nature (and God), in this version of thinking nature becomes "but one of many categories that emerge from and exist within the realm of human actions and orderings. It is therefore dependent on and not prior to social relations" (Hinchliffe 2007: 9).

Hinchliffe puts forward for a third approach of thinking nature and society as neither totally independent, nor one of the two realms always shaping and defining the other. Nature and society, he argues, are rather mutually dependent and interacting, they coproduce or "make one another" (Hinchliffe 2007: 8). Hinchliffe admits that this concept is challenging as it is not easy to understand; it is "the least intuitive version of nature and requires us to do the most work" (Hinchliffe 2007: 9). However, the merit of this more complex coproductive understanding of nature lies in its opening up of new conceptual spaces (see Bingham 2006). Instead of Nature understood as an abstract singular, and instead of a clearly defined boundary between the binaries of nature and society, nature emerges as a matter of practices, of becoming and being enacted, and of multiplicity.

With his way of thinking about nature(s), Hinchliffe endorses a wider stream of work on "social natures" (Castree and Braun 2001) or "naturecultures" (Haraway 2008; Choy et al. 2009; de la Cadena and Weiss 2010), loosely following the Latourian argument that "We have never been modern" (Latour 1993). Bruno Latour has famously argued that Western modernism has put considerable work into "purification", separating two different ontological spheres of the natural and social, while at the same time constantly producing hybrid objects that break these ostensible barriers between the natural and the social world (classic examples include the ozone hole or global climate change). There is now a growing body of work from the environmental humanities that directly challenges such blackboxing of nature (Castree and Braun 2001; Whatmore 2002; Law 2006; White and Wilbert 2009; Law 2010; Goldman, Nadasdy et al. 2011; Lorimer 2012; 2015).

Instead of insisting on a clear distinction between social and natural worlds (and locating phenomena neatly into the respective fields of the sciences and humanities), such work shows how the proliferation of hybrids or cyborgs (Haraway 1991) is steadily accelerating in times of "technonatures" (White and Wilbert 2009) with objects like DNA or cryo-preserved embryos that are intrinsically linked to emerging technoscientific

practices (Fischer 2005; Franklin 2006). However, Noel Castree, who discusses the work of what he calls "'after'- or 'post-natural' geographers" amongst other approaches to "Nature" in his book of the same name (Castree 2005), warns against the "fundamental error" to assume that the society-nature dualism had been an adequate description of the world only until recently, when technoscience disrupted and destroyed the ontological divide between society and nature. Castree stresses that, rather, these scholars

> maintain that we have always lived in a mixed-up, hybrid and 'impure' world where it is difficult to disentangle things from their relationships. Technoscientific developments like transgenic pigs, smart robots and microchip implants are, in these geographers' estimation, just the latest examples of a long history of society-nature interfusions. (Castree 2005: 225)

This has direct consequences for the politics of nature. Damian White and Chris Wilbert for example discuss the normative and political implications of the holistic concept of "capital-N Nature" and argue that it symbolizes the desire to return to a pristine, unspoiled nature. With the boundaries between society and nature long having been blurred, such anachronistic objectives render problematic "an environmental politics that has been premised on a naturalistic politics of Nature" (White and Wilbert 2009: 4). Importantly again, this diagnosis not only describes contemporary socio-natural worlds. White and Wilbert argue that

> [e]pochal rhetoric can obscure how diverse peoples have always been enmeshed and entangled in complex social, ecological, and technological networks. Human history has always been entangled with the histories of diverse non-human agencies. (White and Wilbert 2009: 9)

Consequently, these new ways of thinking about nature also concern how the human is positioned vis-à-vis the non-human world. Rejecting a perspective of human exceptionalism, recent literature from the intersections of cultural anthropology, Science and Technology Studies (STS) and those branches of geography that go under the names of human, more-than-human, political, or cultural, focuses on humans as being entangled into "more-than-human worlds" (Whatmore 2002). This now includes work on fellow critters and "companion species" (Haraway 2008; Hayward 2010; Kirksey 2014; Kirksey and Helmreich 2010; Choy 2011; Cassidy 2012), plants (Choy 2011; Hustak and Myers 2012; Myers 2014), microbes (Paxson and Helmreich 2014), and even stones (Raffles 2012).

Furthermore, and following from this, the critique of capital-N nature not only targets the coproduction of the natural and the social, but also the singularity of the con-

cept of Nature. Instead, the multiplicity of natures in the plural is moved into the focus of attention. Already in 1999, anthropologist Arturo Escobar pointed out the need of what he then called an "antiessentialist theory of nature", a theory that embraces social constructionism as much as it acknowledges the materiality of nature. In his paper "After Nature" (Escobar 1999), he asks for an approach that looks exactly for this specificity of nature(s) (Escobar 1999: 2). Escobar argues for a political ecology that historicizes nature and analyzes what he calls the specific articulations in which nature and society, or biology and history, interact, in order to find "new ways of weaving together the biophysical, the cultural and the technoeconomic for the production of other types of social nature" (Escobar 1999: 4).

The focus on such articulations of social nature has important implications in two regards. Firstly, only through empirical work can these specific instances and practices be grasped. Nature is not only put into practice, but it also does not exist outside practice (Hinchliffe 2007: 165f., see Mol 2002). For Hinchliffe, natures are end points, more or less stable assemblies, which are the products of work, and not starting points (Hinchliffe 2007: 190). Secondly, the normative question is always already implied here as well. These questions can have potentially far-reaching implications for a politics of multiple natures: "Life without Nature is proving confusing and there is a widely shared recognition of the need for new ways of thinking," geographer Jamie Lorimer observes in relation to biodiversity conservation in the Anthropocene starting to incorporate the idea of (small-n) multiple natures (Lorimer 2012: 593). Lorimer argues that within some parts of conservation science, "the recognition of the Anthropocene challenges prevalent and powerful understandings of biodiversity as Nature – a pure and timeless collection of objects, best removed from Society" (Lorimer 2012: 594). Instead, an ethics of experimentation is emerging, visible for example in recent enthusiasm for rewilding projects (Lorimer 2015).

This resonates with Hinchliffe stressing the analytical need to figure out "how nature is 'done', how it is practised, how it materializes as an active partner in and through those practices" (Hinchliffe 2007: 1). Hinchliffe treats representation and perception as one of many practices of nature-making (he lists growing, infecting, digging, and counting as other examples, Hinchliffe 2007: 1). Importantly, not all of these practices are centred around human actors (ibid). Equally important for his goal of achieving "better" ecologies is being attentive to closures and exclusions, looking at "what is outside the current set-up" (Hinchliffe 2007: 186) – and to extend the detached mode of scientific

analysis in order to become part of the experiment of creating spaces for nature. Programmatically, he writes:

> The assemblage of nature is in process and the processes can be engaged in through many different activities, practices and places. How to engage in the making of better natures is a fraught empirical and political question. […T]he question is both ontological and political, and requires detailed engagement in the multiple practices of nature making. If nature is done, in lots of ways, places and with lots of others, then rather than offering interpretations of nature, or analytical concepts, the injunction must be to join the doings, to experiment, to engage in the doing of environments, to environ in different and better ways (Thrift 2005). (Hinchliffe 2007: 191)

So far, the environmental humanities have not given too much attention to issues relating to coastal protection or flooding, however there are some notable exceptions. Cultural anthropologist Michael J. Fischer discusses flood management in the scope of his essay on "Emergent Forms of Un/Natural Life", where he weaves together larger, potentially global discourses and localized practices of nature. In the opening, Fischer defines nature as "an ambivalent term meaning both what is other to us and what is essentially ourselves" (Fischer 2009: 114). He observes the emergence of "four kinds of nature as both other and self-defining" (ibid) that have occupied contemporary politics and cultural analysis: natural catastrophes, industrial accidents, biotechnologies and multispecies connections. Fischer sees the sociotechnical arrangements of US flood control as exemplary for the first kind. In his analysis, he takes the 1927 Mississippi flood as the historical point when the US Army Corps of Engineers changed its approach toward the Mississippi river:

> [T]he flood changed the way in which the Army Corps of Engineers attempted to control the river. From trying to work against the river's momentum, containing the river within narrow banks to increase the speed of water flow and self-dredging for navigation – the so-called levees only strategy – the corps moved to a strategy of working with and leveraging the flow of the river, directing it via outlets and [James] Eads jetties. (Fischer 2009: 118)

Flood control is not only understood as coproductive of political relations and responsibilities between the federal government and the states; Fischer also describes the catastrophic event as an instance of "deep play" in the Geertzian sense (Geertz 1973), as "sites where dynamically an increasing number of meaning structures implode or intersect and where society dramatizes to itself the meaning of its own representations about the moral order":

> [T]he struggle with the Mississippi has also been seen as the grandest of human agons: the Army Corps of Engineers against Nature. The struggle with the Mississippi is a deep play in the Geertzian sense, giving meaning to endeavors to define human nature against its others. (Fischer 2009: 119)

Fischer also recapitulates changes in the Dutch flood management politics after the 1953 flood and refers to intense public debates around a new protection scheme that included the maintenance of wetlands behind the defence line. The reorganization of governance structures in the form of central and local Water Councils, as well as the involvement of private sector actors, shows how flood management coproduced political institutions in the Netherlands (Fischer 2009: 120).

In a special issue of the journal Architectural Design on "Post-Traumatic Urbanism", Christopher Hight and Michael Robinson from the Rice School of Architecture present student projects focusing on Galveston, a city located on a barrier island in the Texas Gulf (Hight and Robinson 2010). The city was already destroyed once by a hurricane in the year 1900; hurricane Ike, in 2008, left the island devastated and further contributed to acute coastal erosion issues. Approaching the problem of city planning for a climate-changed future, the authors state that such attempts have so far been hindered, "because to do so requires reconceptualising the material relationship between city and sea, and through it the humanist division between culture and nature" (Hight and Robinson 2010: 81). But this, the authors assume, would be necessary in order to be able to think through the possible interventions, especially in relation to an existing seawall that ends its life span and needs replacement. The seawall is conceptualized as a visualization of a false dichotomy of nature and culture: Hight and Robinson argue that it "conceptually and quite literally serves as an infrastructural line that delineates natural forces from human orders" (ibid). The answer given by students Nkiru Mokwe and Viktor Ramos, as part of their project called "Energe(ne)tic Fields", is to disturb and question exactly this naturalcultural boundary work. They propose

> a buoyant structural component that proliferated into performative assemblages. These allow opportunities for habitation or flexible membranes to respond to wave energy, beaches and pockets of leisure. […] The simple line of the existing sea wall and its modern dichotomies of nature versus culture are delaminated, modulated, and otherwise transformed into a complex territory that suggests entanglements of nature-cultures. (Hight and Robinson 2010: 81)

Hight and Robinson also discuss land reclamation – the construction of islands from sand dredgings that created habitats and allegedly fuelled ecotourism in the Gulf area,

arguing that "such artificial landscapes can be understood as 'restoration' projects in that they attempt to return the bay to at least elements of its preindustrial – its natural – state" (Hight and Robinson 2010: 81f.). Importantly, Hight and Robinson try to get at the latent dimensions of meaning by asking questions, rather than giving answers. Pointing to the history of natureculture entanglement in this highly developed coastal area, they wonder "what is at stake in the fantasy of restoration and conservation, since it is only possible by embracing the total technological refashioning of the area" (High and Robinson 2010: 82).

Cultural geographers Robin Kearns and Damien Collins also try to "reclaim the coast" for cultural analysis. With their recent empirical work about public resistance against coastal development on Aotearoa New Zealand's North Island, they hope to

> open […] space to see the coast as generative of deeply human experience and more than simply property relations and geomorphic processes. If coastal studies has developed largely without explicit regard for this literal/littoral edge of our experience, then – echoing Smith et al. (2009) – our paper has sought to reclaim the coast as a site, as well as a set of sights, that is more geographically complete. (Kearns and Collins 2012: 952)

This larger completeness could also be achieved by employing a social nature or naturecultures perspective. However, the authors do not discuss the understandings of nature that emerge in the field. This is what Marc Tebboth attempts to achieve with his analysis of ongoing conflicts over coastal erosion in Happisburgh in Norfolk (UK) (Tebboth 2014; Tebboth 2013). Trying to explain why local pressure groups and the UK government continue to fail in reaching an agreement over how to address the erosion issue, Tebboth argues that this reflects implicit differences in how these actors "think the world works" (Tebboth 2013). Drawing on Cultural Theory developed by Mary Douglas (Douglas and Wildavsky 1982) and Erving Goffman's frame analysis (Goffman 1974), Tebboth uses five "social solidarities", different ways of understanding and interpreting sociality (or different ontologies of the social world, one could argue). These solidarities are individualism, hierarchism, egalitarianism, fatalism and autonomy (Tebboth 2014: 3), which Tebboth argues can be mapped onto a different system of meanings attributed to the natural world – the "myths of nature" developed by Michiel Schwarz and Michael Thompson (Schwarz and Thompson: 1990). Analogous to the different understandings of the social world, these natural ontologies encompass "nature capricious, nature perverse/tolerant, nature benign and nature ephemeral. Each

symbolises a different way of perceiving ecosystem stability and underpins a different management approach." (ibid)

As a result of his analysis, Tebboth then attributes the conflict over how to address coastal erosion to incongruent worldviews, which entail a different logic for explaining the causes of the problem. He argues that on the national level, a hierarchical worldview underpins an understanding of coastal erosion as a natural, inevitable problem, whereas on the local level, an egalitarian worldview stresses the function of (in the local's view insufficient) coastal protection measures and evolves around issues such as public investment and compensation. Unfortunately though, Tebboth's analytical procedure leaves the concept of nature itself being absorbed by the social and political registers he discusses, thereby effectively blackboxing nature again.

Bruno Latour suggests a similar, though more promising approach in his 1998 critique of political ecology (Latour 1998). Latour's bashing of political ecology, in his view not paying attention to the human-nature entanglements discussed above (Latour 1998: 228), is of less interest here than is his reception of the French philosophers Luc Boltanski and Laurent Thévenot (Boltanski and Thévenot 1991). These have proposed a concept of six different regimes of justification, each of which provides a complete, working understanding of the world and how it should be ordered. Importantly though, the different regimes are "utterly contradictory with the others". This means that "[e]ach of them […] has the capacity to denounce the others because they lack morality or virtue" (Latour 1998: 224).

Latour transfers these regimes to the sphere of ecology and discusses in detail four that he argues are particularly relevant: the domestic, industrial, commercial and civic regimes. The domestic regime revalues the principles of belonging, roots, attachment and stability. In the environmental context, he explains,

> many practical disputes in ecology are always a question of defending a particular territory, a particular aspect of national heritage, a particular tradition or territory [sic] against the de-sensitized, de-territorialised, stateless, monstrous character of an economic or technical enterprise (Latour 1998: 224).

This is the reason, Latour argues, for the "curious alliance between conservatives, conservationists of heritage and nature conservationists" – green politics that protect local natures and lifeworlds are not necessarily emancipatory. The industrial regime strives for efficiency and evolves around management, monitoring and business as usual, by for example turning pollution problems into a market of waste management and trada-

ble emission rights. The related commercial regime develops new forms of green products and thrives on a consumerist variation of capitalism. The civic regime argues from a universalist position and judges in relation to what is perceived as the general common good, seeking solutions that are not biased towards local interests and that take the needs of future generations into account. What Latour proposes is an addition to the original concept of Boltanski and Thévenot: a "green" or "ecological regime" that values open-endedness and uncertainty about existing relations. In order to make justifiable political decisions under this (seventh) regime, one has to "ecologise", to take everything into account that turns out to be part of the network:

> 'Ecologising' means creating the procedures that make it possible to follow a network of quasi-objects whose relations of subordination remain uncertain and which thus require a new form of political activity adapted to following them. (Latour 1998: 235)

This encompasses a departure from anthropocentrism. Not only human actors, nothing should be thought of only as a means, as Latour's goal is "a collective experimentation on the possible associations between things and people without any of these entities being used, from now on, as a simple means by the others" (Latour 1998: 234). Latour then uses river restoration as an example. He discusses several statements, some also referring to "soft approaches". A Department of Agriculture representative is quoted arguing against flood channels that destabilized a river – "an absurd system" (Latour 1998: 238; footnote 12). But the administrator's interest in the river is reducible to human interests in the river, not the "river *per se* and its interests" (ibid). It is therefore still subscribing to the "industrial regime". The same goes, Latour argues, for a river engineer who denounces his profession for not taking into account how "on the long range the respect for Nature will be beneficial" (ibid). Latour analyses a statement about why the engineer has been "converted to the softer sustainable development approach" (ibid). The reasons given are manifold:

> I have been converted by the aesthetic aspect of things, by the protection of the landscape, then by ecology; in terms of long-term management, it is better with a river that self-regulates itself than with a river that is degradating itself all the time,

the engineer argues (Latour 1998: 238). From Latour's point of view, this reveals him as a believer of the industrial regime as well: everything is thought and argued from the human point of view, and the river's own interests are going unnoticed.

However, other examples that Latour cites do link up the concern for the river to the green regime. The point is that the river is included into a politics that does not only treat the river as a tool for human projects. It is not even necessary to speak solely for the river's own sake; it is enough to not reduce it only to a means:

> Such an analysis does not confirm either the notion of nature saved for its own sake by sacrificing human interests or that of free human beings dominating nature to promote their own freedom alone. A canalised river is seen as something bad and undesirable within the 'seventh regime,' not because this futile development will be seen as expensive – taking thirty years to complete and being quickly eroded – but because the river has been treated as merely a means, instead of also being taken as an end. By conspiring with a 'law which could have its origin in the will of the subject undergoing their action', according to the Kantian expression, rivers are allowed to meander again, to keep their dishevelled network of rivulets, to have their flood zone. In short, we leave the mediators partially to deploy the finality which is in them. (Latour 1998: 233)

As Latour shows, river restoration provides a fruitful example to discuss the practices of naturecultures. Actor Network Theory (ANT), though only referenced in passing in the above essay, can be a useful tool to problematize a politics of nature which perpetuates too simple a distinction between the natural and the social.

Noel Castree and Tom MacMillan also use river restoration to illustrate the advantages of an approach that is informed by ANT (Castree and Macmillan 2001). They discuss a paper called "Translating nature: river restoration as nature-culture" (Eden et al. 2000) that builds on an analysis of the restoration of the river Cole. The specificity of the approach taken by Eden and colleagues lies in a view that neither thinks of restoration in a natural realist way as "all about getting 'back to nature'" (Castree and Macmillan 2001: 215), nor in a social constructionist fashion

> that it is about certain social actors changing rivers to conform with their culturally produced image of what nature is supposed to look like (here, then, the claim is that a 'fake nature' is being restored) (ibid).

Instead, the practice of river restoration is approached in a non-dualistic perspective that zooms in on the "'translations' that crosscut the social/natural binary, while highlighting the illicit 'purification' that enables many analysts to incorrectly think that river restoration is either a social or natural phenomenon" (ibid). As a result, the analysis shows that the categories of social and natural in relation to the river are produced in the process; they are not pre-existing the restoration project itself (Castree and Macmillan 2001: 216). The river is defined only in the ever-changing relations to other actors in the network, the restoration plan playing a key part. Any attempt to disentangle the social and

natural here in order to back up an environmental politics of capital-N nature would equal an inappropriate "politics of purity" (Castree and Macmillan 2001: 220). The "politics of impurity" that the authors suggest instead does not deny the hybridity of objects and networks and the multiple nature-culture(s) links they express.

Turning back from the library to my field, coastal erosion only becomes a problem and therefore a political issue when it emerges within a socio-natural assemblage characterized by an entanglement of the biophysical and ecological with cultural, political, legal, and emotional forces. Seen in this light, understanding erosion problems requires a perspective that is open and attentive to these socio-natural (or naturalcultural) nodes. An analysis that neatly separates the natural and social causes and effects of erosion does not simplify the issue, but to the contrary makes it more difficult to understand. My aim is to analyze soft coastal protection practices as a practical politics of nature, a politics of 'working with nature'. This requires not only thoughtful attendance to make these practices visible as practices of nature-making, as making coastal naturecultures. I will also need a heuristic framework that helps me understanding what sort of future worlds are conjured up when 'working with nature' is appealed to.

2.2 "Working with Nature": A Sociotechnical Imaginary

My aim is to show how soft coastal protection is realized in specific sociotechnical practices and discourses that are framed by a common objective: to 'work with nature' (and not against it). The function of this objective can be described as what Sheila Jasanoff calls a "sociotechnical imaginary", and defines as

> [a] collectively held and performed vision […] of [a] desirable future […] animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology (Jasanoff 2015a: 19).

Recently introduced by Jasanoff and Sang-Hyun Kim (Jasanoff and Kim 2009; 2013; 2015), this concept considers practices as well as the material realities of infrastructural projects and the latent processes of everyday meaning-making. Using the example of nuclear policy in the US and South Korea (Jasanoff and Kim 2009), Jasanoff and Kim show how two different national imaginaries have developed in the course of the 20th

century, with "atoms for peace" as the dominant narrative of the US policy of nuclear containment, and an "atoms for development" strategy in South Korea respectively. The authors argue that the different trajectories energy policy has taken in both countries are underpinned by collective imaginations of how the (future) world ought to be ordered with the aid of science and technology: the sociotechnical imaginaries concept

> helps explain how views of what the world is like and what it should be like get built into social identities, practices, institutions, and into the material infrastructures of society (Jasanoff et al. 2012: 4).

As a framework and a tool, sociotechnical imaginaries tackle the coproduction of discourses and sociotechnical practice. The term coproduction here is meant to express not only that things coproduce each other (with nature and culture, as described above, both emerging as outcomes), but also specifically describes the interrelationship of epistemic and normative dimensions of this process:

> Briefly stated, co-production is shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it. Knowledge and its material embodiments are at once products of social work and constitutive of forms of social life; society cannot function without knowledge any more than knowledge can exist without appropriate social supports. Scientific knowledge, in particular, is not a transcendent mirror of what we term the social. The same can be said even more forcefully of technology. (Jasanoff 2004: 2-3)

Coproduction alone, however, is not sufficiently operational to explain both durability and change, and the different avenues that societies chose in relation to scientific and technological developments (Jasanoff 2015a: 4). This is where the sociotechnical imaginaries concept comes into play. These shared visions of common futures are much larger and much more elusive than a policy directive, but nonetheless highly effective in structuring what can be conceived of as making sense, as an appropriate way to further national goals, and a vision of the world the collective "we" would want to live in. Imaginaries also have a normative dimension; they are "at once descriptive of attainable futures and prescriptive of the kinds of futures that ought to be attained" (Jasanoff et al. 2007: 1).

Jasanoff and Kim draw on Charles Taylor's work on "Modern Social Imaginaries" (Taylor 2002; Taylor 2004). Interested in how social structures attain durability, Taylor turns to the analysis of collective practices, stories and ideas. He believes that a social imaginary, which makes sense of such practices, is their necessary prerequisite. The

process is not one-directional though; shared practices are essential in producing a shared common sense of community, and this shared understanding in turn defines accepted and meaningful practices. As such, he argues,

> [t]he relation between practices and the background understanding behind them is […] not one-sided. If the understanding makes the practice possible, it is also true that the practice largely carries the understanding. (Taylor 2002: 107)

This interaction theory of practice is also important with regard to the introduction of new theoretical ideas, which are usually first expressed by experts and other elites. It is through the spread of new practices that novel theories and concepts gain hold outside these limited circles. Yet again, the process is reciprocal, because the new theories (or "outlooks") are used by people to make sense of the practices; "[…] the theory is 'glossed', as it were, given a particular shape in the context of these practices" (Taylor 2002: 111). This way, new scientific ideas can become naturalized into the practices of the general public, as it has been historically described with new regimes of hygiene (Latour 1988).

The role of scientists and their work in relation to social and cultural imaginaries has been investigated specifically by George E. Marcus in his 1995 volume on "Technoscientific Imaginaries" (Marcus 1995, see Jasanoff 2015a). Marcus analyzes interviews with scientists on their thoughts vis-à-vis the role of science for the political and social challenges at the end of the 20th century. Kim and Mike Fortun have further contributed to this line of work, writing on the role of scientific imaginaries of US toxicologists (Fortun and Fortun 2005).

However, the importance of the sociotechnical imaginaries concept lies in its focus on the broader society and its everyday engagements with science and technology (Jasanoff and Kim 2015: 10f.). A major theoretical inspiration for Jasanoff and Kim lies in Benedict Anderson's theory of modern nation-making. In his influential study on "Imagined Communities" (Anderson 1983), Anderson shows how modern citizens come to understand themselves as members of an imagined political community, furthered by modern technologies such as the production of printed newspapers, the census and the map. In fact, the work on sociotechnical imaginaries so far has mostly focused on the

scale of national political cultures (Jasanoff et al. 2007; Felt 2013; Jasanoff and Kim 2013)[4].

This links up with other work of Sheila Jasanoff addressing the modes of operation and authority of public science on a national scale. Her work on the coproduction of science and society through law (Jasanoff 1997; Jasanoff 2004; Jasanoff 2012) and her concept of civic epistemologies (Jasanoff 2007) are especially important here. In different national contexts, Jasanoff argues, there are different mechanisms at work in order to legitimize the use of expert knowledge for policy-making, to build trust and public accountability (Jasanoff 2007: 247f.). National political cultures are interrelated with the production of sociotechnical imaginaries, making projects in the realm of science and technology part of the nation-building process. Therefore, comparison across national scales and with a historical dimension attentive to change over time can be particularly fruitful (Jasanoff et al. 2007: 5).

The work by Jasanoff and colleagues remains especially attuned to the level of state power and the interrelation of sociotechnical imaginaries and national policy-making. However, while sociotechnical imaginaries are often bound to powerful institutions or expert bodies, they can also be "articulated and pressed for from below" (Program on Science Technology and Society 2011; see Barker 2015; Moon 2015). Importantly though, visions need to be social, in the sense that they are shared with others in order to become imaginaries:

> Individuals may conceive and communicate persuasive visions of the future, but these are not appropriately called imaginaries unless they take hold in other minds,

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4 Sheila Jasanoff and Sang-Hyun Kim have published an edited volume that focuses explicitly on further developing the sociotechnical imaginaries concept, and presents a refined typology of the stages of transformative ideas after my manuscript had already been completed (Jasanoff and Kim 2015). A thorough discussion of this latest publication is therefore not included in this chapter. I restrict myself to necessary updates, focusing on aspects that were not covered in earlier publications, and departures from previous statements about the sociotechnical imaginaries concept. The most obvious development in Jasanoff and Kim (2015) is probably their departure from a narrow focus on nation states as sole articulators of sociotechnical imaginaries (Jasanoff 2015a: 4). Yet the focus still remains on larger-scale power effects in terms of modern societies attaining stability and durability and on explaining why at certain points in history, change becomes possible. The aim is to "clarify why, at significant forks in the road, societies opt for particular directions of choice and change over others and why those choices gain stability or, at times, fail to do so" (Jasanoff 2015a: 14). My approach, on the contrary, is not intending to make general statements on Aotearoa New Zealand as a country and the social order it sustains. Instead it focuses on a detailed analysis of those fine-grained practices through which the sociotechnical imaginary of 'working with nature' becomes tangible and materializes in specific coastal naturecultures.

and people start working to convert what is imagined into actuality. Individuals who lead and shape institutions or social movements may be especially effective creators of sociotechnical imaginaries. (Program on Science Technology and Society 2011)

From anthropology's methodological point of view, the national scale is an uncomfortable level of analysis. But also for the ethnographic approach I use here, it is helpful to look at the national as a level of articulation that is important to understand the functioning of sociotechnical imaginaries. To draw on an example from Chapter 1, the 2008 Delta Commission strategy paper on "Working together with water" (Deltacommissie 2008) not only calls the new approach for protecting the Dutch coast a "sustainable strategy" with the goal to "harmonise [coastal protection] as far as possible with natural processes", to build with nature, and focus on multifunctional solutions which promise "added value to society", cost-effectiveness, flexibility and the possibility for gradual implementation. To qualify as part of this strategy, the approaches should also be "rooted in Dutch tradition" and have the potential to "serve as a beacon to the rest of the world" (Deltacommissie 2008: 15): a call for a specific national project of coastal natureculture. However, there might be competing discourses traceable within a singular national context. While imaginaries express a common belief in a joined future, "multiple imaginaries can coexist within a society in tension or in a productive dialectical relationship" (Jasanoff 2015a: 4), and exactly which imaginaries are put into practice depends on power relations and resources, amongst other things.

At the same time, 'working with nature' circulates through many national and regional contexts, and, in this sense, it is also already a globalized imaginary. To give another example, the NYS 2100 (see Chapter 1) report refers to the Dutch sand engine (the representative project of 'Building with Nature') and pictures an "engineered oyster reef" located at "North Coast, New Zealand" to illustrate its point on soft protection approaches (NYS 2100 Commission 2013: 123). Conversely, the New Zealand Herald featured an opinion paper by a scientist from Auckland Institute of Technology (Unitec) arguing, "Let's build green defences against rising sea" (Bradbury 2013). In response to the NYS 2100 commission's recommendations, Bradbury suggests to protect the Auckland CBD by installing a radically different waterfront, which "will be more like a park, a watery littoral with native wetlands and coastal planting" (ibid).

While such globalized ideas circulate, 'working with nature' can only ever gain ground in specific localities because it is at this level that the assemblage of material

and discursive practices, of ideas and materialities becomes productive. To analyze how the imaginary connects to discourses and practices prevalent in the Aotearoa New Zealand context, and how it possibly coproduces New Zealand coastal natures will be at the core of my ethnographic analysis in the coming chapters. How do New Zealanders acquire a sense of soft management that makes sense to them? What sort of common future is implicated in the idea to 'work *with* nature' and not against it? As Jasanoff and Kim argue, "the capacity to imagine futures is a crucial constitutive element in social and political life" (Jasanoff and Kim 2009: 122). Sociotechnical imaginaries express visions of desirable, feasible futures and how those could be achieved. This is why the authors call them "instrumental and futuristic" (Jasanoff and Kim 2009: 123).

The political and social dimensions of sociotechnical imaginaries suggest that the circulation of novel ideas about the common future can also be met with scepticism and resistance (Jasanoff 2015b: 329ff.). In complex societies, the collective imagination may always co-exist with scepticism as a counterpoint, even in a musical sense as Sheila Jasanoff notes. Therefore she suggests to look at an imaginary "where it runs up against a wall of scepticism" (Jasanoff, pers. comm.). In this vein, sites of conflict can reveal latent contradictions at stake. For this reason, I start my empirical chapters with a closer look at such a wall in the literal sense. The conflict about the installation of a new coastal protection scheme in Waihi Beach, combining hard and soft measures (see Chapter 1), is a useful starting point to analyze the success of the 'working with nature' imaginary in transitioning Aotearoa New Zealand's coastal protection politics.

This opens up the question of how the production of the 'right' coastal management links up with other powerful motives of collective imagination. Aspects that are noteworthy in this regard include: anxieties about the loss of coastal wilderness and the affordable low-key beach life of "Good Old New Zealand" (Chapter 3), the identity-forming role of do-it-yourself practices (Chapter 8 and 9.9), and the restoration of native biodiversity in the dunes (Chapter 9). In this sense, the study has a comparative element built in. An implicit discourse about what it means to be New Zealand(er), and ongoing self-reflection of the country's bi-cultural past, present, and future emerge through the process of engaging with, practicing, and making coastal natures. At the same time, people are drawing on international examples for soft management to make their case.

Jasanoff and colleagues recommend to be attentive to discursive figures that raise "recurrent themes or tropes in reference to national and cultural particularities" on their online "Research Platform Sociotechnical Imaginaries" (Program on Science Technolo-

gy and Society n.d.). However, not only the specificities of local settings and practices need to be taken into account, but also the situatedness of nature. If the 'working with nature' imaginary addresses and coproduces the natural and cultural order of coastal management, nature cannot be taken for granted as the passive backdrop against which imaginaries, discourses and/or practices emerge. On the contrary, to understand how 'working with nature' is put into practice, one has to question the concept of nature as well.

My coproductive approach to natureculture imaginaries differs from earlier work on "environmental imaginaries" by Michael Watts and Richard Peet (Watts and Peet 1996). Developing a "critical liberation ecology" as "a critique of the West, especially its environmental relations and practices" (Watts and Peet 1996: 261), these authors combine political ecology with poststructuralist philosophy in order to question dominant development rationales. For Watts and Peet, the environmental imaginary is specific to a society, grounded in the history of social relations of production and so-called regional discursive formations, and expresses normative understandings of the right way to relate to nature. As in the imaginaries concepts discussed above, discourse and practice levels interact. Interestingly, the concept Watts and Peet propose provides a link between nature and society that aims to move beyond social constructivism without resorting to natural determinism. The authors see a need to "counterbalance" the social construction of nature with "a profound sense of the 'natural construction of the social'" (ibid: 263). Drawing on Donna Haraway, they perceive of environmental imaginaries as "situated knowledge[s]" based upon people's relations to the natural environment:

> [T]hrough the concept of environmental imaginary, liberation ecology sees nature, environment and place as *sources* of thinking, reasoning, and imagining: the social is, in this quite specific sense, naturally constructed. (Watts and Peet 1996: 263)

While Watts and Peet stress the contested nature of environmental imaginaries and their vital role in political struggles over nature-society relations (ibid: 268), the concept remains overly static. Even though the authors point to the active role of subjects in creating environmental imaginaries, the possibility of imaginaries to travel and the creative forces of imagination involved in the process, they also argue that people inhabiting specific natural environments only possess a limited supply of images they can draw upon (ibid: 267). These images enable, but also restrict, the possibilities of imagination. This understanding makes it difficult to see the transformative role of imaginaries in constructing the new social forms the authors envision (ibid: 268). Eventually, the envi-

ronmental imaginaries concept re-naturalizes environment, place and landscape even as it draws upon a political ecology of social relations to nature and acknowledges the world-making power of discursive figures.

Central to my own approach to natureculture imaginaries is that I focus on the material practices of making natures. In his work on internet "geeks", Chris Kelty analysis the Internet as a recursive public, or particular form of social imaginary through which those taking part in its development "imagine[…] in common the means of their own association [and] the material form this imagination takes" (Kelty 2005: 186). Put differently, these geeks constantly build and rebuild the flexible infrastructures of the Internet itself, and when they discuss the Web publicly they also address the fundamental make-up of this public (ibid: 200). The technological practice of running code and other geek activities substantially blur the boundary between discourse and practice:

> To include the activities of building, coding, compiling, patching, hacking, redistributing, and sharing software code and networking tools under the banner of discourse is the first step toward understanding how the definition of a social imaginary is transformed by the internet. (Kelty 2005: 200)

In this sense, the social includes not only human interactions, but also technical networks, software and protocols. I take from this that the making of coastal naturecultures has a recursive element as well, as people engage in material practices that transform nature, while they argue with nature as foundational argument when they promote coastal protection approaches that 'work with nature – and not against it'.

By combining a sociotechnical imaginaries approach with a sharpened attention for the implications of thinking nature as multiple, practice-based naturecultures, I hope to gain a better understanding of the workings of 'working with nature' in soft coastal protection. To this end, I analyze the latent dimensions of imagining possible futures in relationship with the material dimensions of coastal natures, including the effects of past and present development decisions. Coastal protection rightly belongs to the political sphere, it is a politics of nature. As such, the naturalcultural politics of the coast are not separate from other areas of political contestation, and will need to be empirically grounded in the context of Aotearoa New Zealand, a postcolonial nation which takes much pride of its unique nature (coastal and otherwise) and bi-cultural society.

3.   The Context of the Coast

3.1 Coastal Change and the Bi-Cultural Nation

Located in the South-Western Pacific, Aotearoa New Zealand consists of two large and a number of smaller islands, and features a coastline of more than 18,200 kilometres – the seventh longest in the world (NIWA 2012: 16). The coastline is an iconic part of the national imaginary, and throughout the 20th century, a coastal lifestyle has become attractive and affordable for a growing part of the population. In recent years, the costs associated with seaside living have increased dramatically. Nevertheless, coastal development remains a massive growth market (Peart 2009). Sixty-five per cent of New Zealanders lived no more than five kilometres from the coast in 2006; a slight increase compared to earlier census data from the 1980s (Statistics New Zealand 2006: 4). In the light of a general increase in population size – which has roughly doubled since the 1950s, now approaching 4.5 Million – there is also anxiety growing about the possible loss of spaces that define Aotearoa New Zealand as a place of remoteness, scenic beauty and seclusion (Peart 2009).

The widespread apprehension that the coastal property boom of the recent decades – though somewhat suspended since the financial crisis after 2006 and the ensuing recession – will eventually destroy Aotearoa New Zealand's coastlines has, one could argue, as much to do with a feeling of loss of cultural space(s) as with physical space (Freeman and Cheyne 2008; Peart 2009; see Collins and Kearns 2010; 2012 for case studies). Concerns about the increasing transformation of agricultural lands by residential development first emerged in the 1970s (Morton et al. 1973), but have become much stronger since the close of the millennium. Feelings of loss and nostalgia about what is often called "Good Old New Zealand" are related to specific landscapes and natural environments. They revolve mostly around, though are not limited to, the Aotearoa New Zealand version of nature wild and untamed: the remote, undeveloped beach.

> Our identity as New Zealanders […] seems to remain closely tied to images of the natural landscape. You can see this in the enthusiasm we have for getting away from the cities – where the vast majority of us live and work – and getting into the countryside, and the wilderness. In 'getting away from it all' we also remind ourselves what the country is really like – and who we really are. (Clark 2004: 8)

Open (rural) space in general is highly valued, showing the signs of distinctive post-colonial forms of agriculture – iconic green hills of pastoral lands used for sheep-farming and, increasingly, for dairy cattle, sometimes directly adjoining coastal waters. However, most of all, it is the beach that has played a central role in the Aotearoa New Zealand national imaginary and life throughout history: the landing site of the waka (voyaging canoes) with which the first human settlers arrived from Eastern Polynesia, transportation routes in colonial and postcolonial times, providing access where no roads had yet been built through the rugged inland terrain, and playing ground for family vacations in times of increasing wealth since the end of the Second World War (Hayward 2008a; Peart 2009; Hickford 2012).

Although the traditional beach bach, a small and simple beach hut (often built on land leased by a local farmer or sometimes on public land, with or without seeking permission) has mostly vanished, replaced by larger houses and second homes, it remains a strong symbol for idealistic imaginations of the nation's remoteness, coastal identity and presumably classless society (Grigor 2008; Peart 2009: 75f.; Kearns and Collins 2006). The same goes for coastal "family campsites" of simple standard that once were, according to the dominant narrative, a sort of accessible summer home visited again every year by the whole kiwi family, producing childhood memories for generations of New Zealanders. Many have been converted into upmarket "holiday parks", or, in the light of rising coastal property prices, turned into private residential developments catering to the increasing number of city dwellers who are able and willing to afford a second home on the coast as a holiday destination and/or investment (Freeman and Cheyne 2008; Collins and Kearns 2010). Interestingly, coastal hazard risk or even visible erosion does not seem to have an impact on property values of these beachfront residences (Turbott 2006; Peart 2009: 167f.)[7].

Robin Kearns and Damian Collins argue that "real or perceived loss of access to coastal places associated with childhood, wilderness and the 'great outdoors' can prompt collective outrage" (Kearns and Collins 2012: 943). They underline the importance of such

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7   In New Zealand, protection schemes are sometimes built and maintained under the leadership of local authorities, but the costs for coastal protection measures are usually redistributed through rates to the citizens affected by the works. Before the introduction of the Resource Management Act (RMA) in 1991, beachfront property owners often took matters into their own hand and adopted do-it-yourself approaches like dumping rocks, tyres and rip-rap serving as makeshift coastal protection (Pilkey and Hume 2001).

attachment to the coast for the Aotearoa New Zealand identity and sense of community, which add up to "a conceptualisation of national identity as encompassing a 'birthright' to enjoy undeveloped coastal places" (Kearns and Collins 2012: 943). This "Feeling for the Coast", they argue, is also a mirror of the postcolonial situation, partly attributable to the strong role that coastal natures play for Māori:

> In addition to being the heritage of an indigenous minority, these feelings for the coast have purchase within New Zealand society more generally. This stems, in part, from a degree of empathy with Māori worldviews among the population but also from Pākeha (New Zealanders of European descent) having a distinct cultural relationship with the coast in their own right. (Kearns and Collins 2012: 942)

The concept of biculturalism has become the dominant narrative for defining the status quo of the postcolonial nation. The term reflects that two "cultures" are officially recognized: indigenous Māori and Pākeha New Zealanders of European decent. The concept clearly has its limitations; besides masking the multicultural reality and the presence of immigrants from the Pacific, East and South East Asia and elsewhere (Dürr 2007), the term ostensibly treats Pākeha and Māori as if these were distinctive cultures, while at the same time often effectively attributing "culture" to the indigenous alone, masking Pākeha as the unmarked norm (Goldsmith 2003a; Goldsmith 2003b). However, the term circumscribes a new phase in the postcolonial history, with a strong renaissance of indigenous identities, language politics, and a strengthening of tribal institutions following political fights that started in the 1970s[8]. Protest marches and land occupations surrounded the setting up of the Waitangi Tribunal (Te Rōpū Whakamana i te Tiriti) in 1975. The Tribunal hears claims by Māori groups relating to breaches of the Treaty of Waitangi (Tiriti o Waitangi). With this founding document of New Zealand, sovereignty over the new colony had been handed over to the British Crown, while guaranteeing property rights and citizenship also to the new Māori subjects[9]. Between 1985 and 2008, the Waitangi Tribunal's mandate was extended to address so-called his-

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[8] A prominent example of such struggles was the occupation of a beach-side golf course in Raglan, led by Eva Rickard. The site had been taken from Māori owners during the Second World War for military uses, but had never been returned and instead was used as a public golf course (Keane 2014; 2014a).

[9] The treaty was signed on 6 February 1840 by representatives of the British Crown and about 540 Māori chiefs. Differing English and Māori versions have since been subject of dispute, especially in relation to the interpretation of "sovereignty", which was translated into "kawanatanga" meaning governance in the Māori version of the treaty (Ministry for Culture and Heritage 2014b).

torical claims as well, with the consequence that treaty breaches dating back until 1840 could be brought up (Waitangi Tribunal 2012: 15). Until today, the settlement process continues for many Māori iwi and hapu (tribal and subtribal groups)[10].

Not surprisingly, the coast has also been central in the latest chapters of postcolonial politics, most prominently in the scope of the foreshore and seabed debate in the early 2000s. The seabed is the part of the coastal environment that is always submerged by the sea, whereas the foreshore is defined as the area regularly covered by the high tide, "the wet part of the beach" (Hickford 2012). About 70 per cent of coastal lands in New Zealand feature a so-called "Queen's Chain", a 20-metre reserve strip that remained in public ownership (Hickford 2012; University of Otago 2013). In 1997, eight South island iwi led by Ngāti Apa had taken a case to the Māori Land Court that hears all matters relating to Māori owned land (Whaanga 2012; New Zealand Ministry of Justice/Tāhū o te Ture n.d.). The plaintiffs had failed to secure rights to install mussel farming aquaculture and wanted the Court to investigate if they had customary rights over the foreshore and seabed. The High Court intervened, determining that the seabed has always been owned by the Crown and any customary interest in the foreshore had ceased once the dry land behind had been purchased by the Crown (Hickford 2012).

However, the Court of Appeal overturned this ruling and decided that the Māori Land Court could hear and decide the case. To prevent further access to the courts, the Labour government led by Helen Clark issued the Foreshore and Seabed Act 2004, which declared the Crown to be the owner of all foreshore and seabed except where privately owned. The Act guaranteed public right of access, including fishing and navigation, and protected non-territorial customary rights. It also opened the possibility to claim territorial customary rights for people who had occupied and used parts of the foreshore and seabed continuously since 1840 *and* had held a title for the adjoining dry land throughout this time (Hickford 2012).

This controversial political decision in effect closed down the way through the Courts and generally refused customary land titles as a form of collective ownership of the foreshore and seabed. It led to widespread protest by Māori, including a large hikoi (protest march) from Northland to the capital of Wellington, and the founding of a new

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10 Settlements with the Crown usually include monetary compensation as well as the return of lands that had not been sold voluntarily, but had been subject to unlawful confiscation or raupata, often used historically by the authorities as a punishment for Māori "rebellion" (Boast 2012).

Māori Party. The legislation was later redressed by the succeeding government. The 2011 Marine and Coastal Area (Takutai Moana) Act reinstalled access to the Courts and defined a test to prove the right to customary land titles to foreshore and seabed for Māori groups able to demonstrate exclusive use and occupation since 1840 without substantial interruption (New Zealand Ministry of Justice 2011).

The Act was met with criticism by supporters and by opponents of Māori rights to foreshore and seabed alike. While some of the former argued the test was setting unmeetable criteria, the latter mongered fears that this could lead to a loss of beach access, regardless of the fact that the 2011 law entailed mandatory public beach access through all public *and* customary-owned land – a requirement that does not exist for privately owned land. The newly formed interest group Coastal Coalition, for example, started a nation-wide campaign to "Save our Beaches", claiming to fight for "retaining the Foreshore and Seabed in Crown ownership for the benefit of ALL New Zealanders" (Coastal Coalition 2014). The Coastal Coalition's billboard advertisements, for example, showed Helen Clark's successor John Key, from the National Party, wearing a traditional Māori feather cloak and holding a tino rangatiratanga (tribal sovereignty) flag (Hartevelt 2010). Such comments implied that Māori titles would not be a redress of historical injustice suffered by the indigenous minority, but instead an instance of positive discrimination to the detriment of the white majority.

Michael Goldsmith, cultural anthropologist at the University of Waikato, also argues that the foreshore and seabed conflict has unearthed deep-seated anxieties of New Zealand Pākeha that have been "fanned by populist politicians" (Goldsmith 2009: 332). Commenting during the first stage of the conflict, he describes how Māori claims to the foreshore – it being an "iconic identity marker" – have been perceived as a threat to the national identity:

> Allowing Māori groups to assert ownership of these pieces of land would prevent the rest of society from gaining access to beaches. In this version of the white New Zealand imaginary, bits of foreshore may be for private use but beaches are for everyone. The beach […] represents a complex myth composed of freedom (from work, convention, clothes), access to fishing and other nautical pursuits, and nostalgia for the great New Zealand summer holiday. (Goldsmith 2009: 332)

This is, however, not the only latent conflict Goldsmith observes in this context. He goes on to argue that

> [t]he foreshore and seabed dispute derives much of its ferocity from an ongoing tension in New Zealand political discourse between, on one hand, privatiza-

tion/private ownership and control and, on the other hand, ideologies of collectivism and the common good. (Goldsmith 2009: 333)

Historically, the self-image of a classless society has been very influential for Aotearoa New Zealand's national identity (Sinclair 1969). Taken together with the perceived birthright of access to the beach, conflicts over this limited, liminal space are also expressions of clashing values. Against this backdrop, coastal erosion management also becomes a question of public versus private interests.

3.2 Designing the Field

The central question of this book is how specific coastal naturecultures (Haraway 2008; Choy et al. 2009) emerge through practices of soft coastal protection on the Aotearoa New Zealand coast. While the sociotechnical imaginary (Jasanoff and Kim 2009; 2013; 2015) of 'working with nature' circulates on a potentially global scale, only a close ethnographic look at specific practices of making coastal natures can show how things actually work in the Aotearoa New Zealand context. My aim is to analyse the coproduction of specific naturecultures in the process of putting 'working with nature' into practice. I use the term coproduction (Jasanoff 2004) here to indicate that this is not a one-way road. This perspective assumes that this is not just a matter of adapting pre-existing practices and technologies of caring for the coast to a specific place. Rather, these specific coastal naturecultures emerge from the entanglement of people and things, ideas and practices: natures as outcomes of practice (Hinchliffe 2007: 190).

Nothing stays the same in this process: the sociotechnical imaginary is neither an object that travels freely without changing its form, nor is the "local context" a stable background against which new ideas and projects play out. Seen in this light, zooming in on practices of 'working with nature' in Aotearoa New Zealand might tell us as much about soft coastal protection as it might tell us about Aotearoa New Zealand and the widespread preoccupations of its people with the country's past, present and future. Concepts of a bicultural nation and the on-going renaissance of indigeneity, concern about introduced species and increasing coastal development, the cultural value placed on do-it-yourself approaches, and the economic situation that complicates access to paid work are important factors that all play a role in the making of coastal natures.

Where to look for the imaginary and the practices of nature it entails? Where to start, and how to decide which connection to follow? In short: how to construct the field? The field-site is not a bounded entity, according to Akhil Gupta and James Ferguson; such a concept, they argue, would in fact conceal that locales are more rightly described as locations, as partial perspectives that have been chosen by the researcher: "'The field' is a clearing whose deceptive transparency obscures the complex processes that go into constructing it" (Gupta and Ferguson 1997: 5). The field is, first and foremost, a metaphor for where the anthropologist goes to do her work, which then might better be described as "location-work" (ibid). With such a move of conscious reappropriation, the situated-ness (Haraway 1988) of anthropological knowledge production, which concerns the research subjects as well as the researcher herself, can be made productive. Seen in this light, ethnographic fieldwork takes shape through the relationships of the researcher and her decisions about how to juxtapose, compare, or contrast them – and what not to include out of the multiple possibilities she encounters, as Vered Amit argues:

> [I]n a world of infinite interconnections and overlapping contexts, the ethnographic field cannot simply exist, awaiting discovery. It has to be laboriously constructed, prised apart from all the other possibilities for contextualization to which its constituent relationships and connections could also be referred. This process of construction is inescapably shaped by the conceptual, professional, financial and relational opportunities and resources accessible to the ethnographer. […T]he construction of an ethnographic field involves efforts to accommodate and interweave sets of relationships and engagements developed in one context with those arising in another. (Amit 2000: 6)

Therefore, George E. Marcus suggests talking about *designing* field sites (Marcus 1995; Marcus 2009; Hess and Schwertl 2013). This idea was first developed in Marcus' seminal 1995 article on "Ethnography in/of the World Systems" (Marcus 1995), where he coined the term "multi-sited ethnography" that since has become ubiquitous in anthropological research, but also beyond; it is one of the few methodological terms of the discipline that has been recognized broadly also in adjacent fields.

Sabine Hess and Maria Schwertl, however, criticize that Marcus' intervention all too often has been narrowed down again to mean field "sites" in a geographical sense, concentrating on a mobilized researcher subject tracking connections between certain localities (Hess and Schwertl 2013: 27). This reading overlooks the larger implications of Marcus' critique, especially his reflection on how to grasp globalized connections empirically without resorting to grand theories. Hess and Schwertl go on to argue with Deepa Reddy (Reddy 2009) that while movement between sites is important, it should

not be understood solely in a physical sense. In her article in the 2009 compilation "Fieldwork Is Not What It Used to Be", Reddy explains her interest

> […] in the 'field' as an almost random assemblage of sites that come into coherence through the processes of fieldwork itself: the field as deterritorialized and reterritorialized, as it were, by the question brought to bear on it in the course of research. This process entails much movement, as much between physical locations closer or further apart as between ideological positionings or frames of reference (as I call them). Tracking this movement, understanding the relationships between sites, one's own positioning within each, and the demands placed on the ethnographer coming-into-being – these, I believe are the means by which the field is made, quite alongside the objects of study that it yields then to ethnographic attention. (Reddy 2009: 90)

One could argue that anthropology has begun to work with a more complex understanding of spatiality, thereby potentially approaching considerations in human geography that see space not as an absolute category, but as a product of interrelations that is constituted through constant interactions. Space, therefore, is "always in a process of becoming; it is always being made. It is never finished; never closed" (Massey 1999: 28, quoted from Hinchliffe 2007: 84; see also Massey 2005).

Problematizing and mobilizing the concept of the field not only concerns its spatiality, but also its temporality. The classic setting of the extended fieldstay, or what Caroline Gatt calls "the Malinowskian archetype fieldwork" (Gatt 2009: 108, see Malinowski 1922), was in effect a result of the pragmatic decision of the discipline's foundational figure to rather stay in the Western Pacific than to return to possible internment in a war-ridden Europe (during WW1). Malinowski's influential position (Gupta and Ferguson: 7) has, however, contributed to the subsequent naturalization of this approach to a point where apprentice research today still usually adds up to a "roughly year-long, more or less continuous encampment at a primary physical site, [and] a few satellite trips here and there" (Faubion 2009: 163).

James Faubion attributes the continuation of this form that still characterizes most dissertation research first and foremost to the "marked inertia of granting agencies" expecting this conventional set-up (ibid). While the effects of a more conscious design of fieldwork, together with the effects of studying professional cultures, means that research time is often split between more locations, the aspect of research *temporalities* has not yet been discussed broadly in the literature. In fact, and as Gatt argues (Gatt 2009: 108f.), the recent proliferation of publications that still problematize the Malinowskian setting and elaborate on multi-sited approaches (Gupta and Ferguson 1997;

Amit 2000; Ong and Collier 2005b; Coleman and Collins 2006; Falzon 2009; Faubion and Marcus 2009) is a strong indication that the archetypical form is in fact still hegemonic.

My own fieldwork also followed this model. The project was part of an interdisciplinary German-New Zealand research training group for coastal research, providing postgraduate training to PhD students from various scientific backgrounds, mostly from the geosciences and engineering, but also from marine biology, law and human geography. Ironically, fieldwork in the sense of most of my colleagues from the natural sciences meant the production of a different type of data: taking sediment samples of iron sands at the beach, measuring photosynthetic pigment concentrations of seagrass in the mud flats, or going out on a boat to collect samples of the water column. Enrolled at the University of Waikato's Department of Earth & Ocean Sciences, I was at pains to justify my going into the field alone. This plan ran contrary to the Health and Safety regulations that demanded never to access the field without a research companion, or at least to determine a "research buddy" who would be minutely informed about the details of my time schedule and whom I would call immediately after I left the dangers of the field. As it turned out, the idea that ethnographic fieldwork would need about a year's time "in the field" was much easier to convey in this context, as this concept overlapped with what people where expecting of anthropologists to do anyway. Effectively, this natural science dominated context then provided ideal conditions for classical apprentice fieldwork: an explorative visit within the first half year of the project (February-April 2010), followed by a full year of fieldwork starting in November 2010. I returned to the field in February 2015 for two months revisiting fieldwork contacts and discussing an early version of the book.

In establishing field contacts, I partly drew on existing relations between the Bay of Plenty Regional Council and the University of Waikato. I chose the western part of Bay of Plenty (BOP) region as the main focus and the port city of Tauranga as an anchor point from where to start the research[11]. The Western Bay of Plenty (governed by the local authorities Western Bay of Plenty District Council WBOPDC and Tauranga City

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11 The western part of the Bay of Plenty, on which I concentrated, significantly differs from the Eastern Bay of Plenty in regard to natural features, development, socio-economic conditions and population density. While the western part is mainly made up of a stretch of about 85 miles of accessible sandy beaches, the coast gets rocky east of the town of Opotiki.

Council TCC) was one of the fastest growing regions in New Zealand during the mid and early 2000s, when the continuously increasing demand for coastal real estate led to significant development pressure in some parts of New Zealand. Even with the recession, the Bay of Plenty remains one of the fastest growing coastal regions in the country (Western Bay of Plenty District Council 2015). This is mostly due to the booming port city Tauranga. Tauranga has some popular coastal residential areas. Suburban Mount Maunganui and Papamoa Beach stretch along the beach on the eastern edge of the city. "If any coastal settlement in New Zealand is likely to become the 'Gold Coast' of the South Pacific, it is Mount Maunganui in the Bay of Plenty", writes Raywyn Peart in her comprehensive book on coastal development in the country, "Castles in the Sand" (Peart 2009: 134).

Under the so-called SmartGrowth-Plan, these eastern suburbs are planned to be significantly enlarged in the near future (SmartGrowth 2013). Already, new neighbourhoods have been built and major roads to improve the connectivity to the city centre are under construction. As is common in New Zealand, the developments exclusively consist of detached houses, which are often only single-storey; consequently, this requires large areas and has consequences in terms of land use in the area. Further to the east, though, the picture changes dramatically. Only a few settlements border the road that follows the coastline down to Opotiki. These areas are not showing the signs of rapid change as in Papamoa; the rural remoteness of the Eastern Bay of Plenty begins here, also an area with a large Māori population.

Following soft coastal protection meant that I got in touch with volunteer groups and engineers, took part in planting events in the whole region and conferences all over the country, read newspapers and scientific papers and spent time at the University of Waikato in Hamilton. Sometimes I simply contacted somebody I had been referred to and asked for a meeting and an interview. I visited places where soft protection projects had been realized, and for some months, I regularly drove to the west coast for my internship at a marine consultancy. Only some localizations can be pinned down to a particular place. The "meshwork" (Ingold 2007: 80) character of the project entails that not every place I went to, every person I spoke to or interviewed, every activity I witnessed or took part in can be clearly ascribed to a site or sub-field, though heuristically, my encounters might be grouped around the two issues that make up the empirical parts of the book: the Waihi Beach conflict about a controversial hard protection scheme, which I

analyse in Part II, and practices of making coastal naturecultures, which are covered in Part III.

The chapters in these two empirical parts are constructed around different blends of empirical material. This mirrors the fact that the various subfields and threads of the story have been enfolding their own logic, which sometimes affected methodological choices. Chapters 4 and 5, focussing on the Waihi Beach seawall conflict, rely more heavily than others on the analysis of documents that help me set the scene for my focus on the Environment Court appeal (the Court decision, expert evidence statements, but also reports and reviews of existing protection works, options considered etc.). Interviews do play an important role in this chapter; however, participant observation was limited to meeting different parties of the conflict, the experience of the beach itself during several stages of the construction project (often accompanied by fieldwork partners), and the participation in Coast Care events. Chapters 6 to 9 are based on fieldwork in the Bay of Plenty and, in small part, the Waikato region (where a so-called Beachcare programme operates, largely similar to Coast Care BOP). I did extensive participant observation at volunteer events and also established many valuable contacts with dune restoration professionals and volunteers from all over the country by attending three annual conferences of the New Zealand Dune Restoration Trust. Interview material used for this section stems from semi-structured and narrative interviews with people who worked with or for Coast Care/Beachcare in different positions: local and international volunteers, Council staff, contractors and detainees. Chapter 10 relies mostly on fieldwork diary entries and interviews with staff conducted during three months of participant observation at ASR Ltd. in Raglan, on scientific papers about artificial reefs, promotional material used by ASR (including social media and videos), as well as additional material collected from surfing magazines and websites[12].

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12 Over the course of the 14 months of the main fieldwork period in 2010/11, I conducted 61 qualitative, semi-structured interviews. I also kept a fieldwork diary (partly handwritten in a notebook I carried around with me, partly typed on the computer). According to the research ethics protocol followed by the University of Waikato's Faculty of Science and Engineering, I had to assure anonymity to all interview partners. Some research collaborators who were especially instrumental for the research, and mostly speaking from their professional point of view, I approached after the write-up was completed and offered to choose whether they prefer to remain anonymous or be acknowledged with their real names. All other interviews partners carry fictive names.

3.3 Para-Ethnographic Encounters and Para-Sites

According to my interest in the materiality and practicalities of soft coastal protection, the research focussed on gaining access to a specific community of practice. As such, I was often engaging with people who, in one way or the other, make a living of coastal management, including work as coastal consultants or engineers, in paid Coast Care positions, in native plants nurseries, as university teachers in coastal science, or a mix of the above. Through participation in New Zealand Dune Restoration Trust conferences and workshop series and the New Zealand Coastal Society conference, I got in touch with a handful of experts who are committed to promoting the sociotechnical imaginary of 'working with nature' in their respective fields. While non-professionals, especially dune restoration volunteers, or people owning houses on the beach were also important research partners, the project has important aspects of what Dominic Boyer and others have called the "anthropology of experts" (Boyer 2008; Schwegler and Powell 2008; Schwegler 2008): ethnographic research that centres on people's professional lives.

Such a methodical approach does not usually encompass the private life of the fieldwork partners in the sense of classic anthropological studies that were less centred on specific sites of expert knowledge and practice. These encounters can open up new modes of knowing for anthropological analysis. When coastal experts kindly shared their knowledge and experience with me, this sometimes included anecdotal meaning-making that was surprisingly familiar and reminded of the para-ethnographic collaborations that George Marcus and Douglas Holmes have explored in recent years (Holmes and Marcus 2005; Holmes and Marcus 2008). This mode of reasoning depends on encounters with a distinctive sort of expert subjects. The authors define them as firmly located within epistemic cultures primarily concerned with experimental and technocratic forms of knowledge production, but nonetheless employing reflexive practices, or what Holmes and Marcus call para-ethnography. The term is meant to encompass all sorts of informal or intuitive knowledge that is not part of the expert culture's acknowledged practices of knowledge production, and that is therefore officially marginalized to the point of being illicit, but that is often also a useful resource for the experts in exercising their designated tasks (Holmes and Marcus 2005: 237).

The latter also points to the limits of using this concept in my field. Douglas Holmes has been working in the banking sector, where numbers and quantification officially rule (Holmes 2009), and the real extent to which market predictions rely on informal

knowledge practices and gut feelings needs to be contained. In coastal management, the "human factor" gets theoretically acknowledged, especially in concepts like integrated coastal zone management or ICZM (Glaeser 2005). However, not only political dimensions are often sidelined in favour of seemingly objective management framings. Social and cultural dimensions are often grasped through simplifying approaches like socio-ecological systems analysis or qualitative modelling, and not necessarily incorporating the interpretative, anecdotal, deep knowledge of these experts interested in the broader social and cultural context of coastal protection. To give an example, one coastal expert repeatedly discussed the cultural significance of private property as something permanent, and never just temporary, which he saw as the main obstacle to his work and his ideas of a more sustainable coastal protection practice.

At the very least, the concept of the para-ethnographic turned out to be a useful tool to inspire a closer look at the reflexive, interpretative, "cultural" knowledge of experts in science and technology, and go beyond an understanding of technical experts as those simply presenting the facts for subsequent interpretation by the ethnographer. Holmes and Marcus' main methodological concern is not the following of experts or "studying up" in general. Moreover, they understand these expert subjects to have the potential to become research partners to a certain extent because they can offer insights closely related to the anthropological mode of thought. This concept of collaboration entails that para-ethnographer and ethnographer engage in shared conceptual work, or act as "epistemic partners" (Holmes and Marcus 2008: 83f.), opening up the very design of the ethnographic project to negotiation. Holmes and Marcus go so far as to postulate that this collaboration in the para-ethnographic sense has the potential to alter the discipline substantially, or to "refunction […] ethnography". However, some caution with the notion seems appropriate. This idea relies heavily on a distinction between "traditional" and "expert" subjects, as in the following mission statement on "Ethnography of/as Collaboration", which Holmes and Marcus quote from the website of the Center for Ethnography that George Marcus founded at the University of California, Irvine in 2005:

> As the subjects of anthropological investigation become ever more attenuated from the classical 'native on the beach', ethnographers increasingly find themselves confronted with people whose everyday theories and practices appear strikingly familiar to their own. The time has come for ethnographers to come to grips with the ways in which some mode of para-ethnography, undertaken by actors who are collaborators in (rather than subjects of) our investigations, is always already a part of sites where our research alights. (Holmes and Marcus 2008: 96)

This categorical divide, where the para-ethnographic subject is informing the conceptual agenda of the ethnographer in a way that the so-called "traditional research subject" presumably has never been able to, seems unfair towards the "native on the beach", downplaying her capacity to engage in reflexive practices as well. I do not believe this move is necessary to make the argument that there are knowledge practices imminent in contemporary fields, especially those structured by expert knowledge, which seem familiar to the intellectual work of the anthropologist and therefore need specific attention.

Drawing the line between native and expert seems like a reminiscence of anthropology's colonial past. At the same time, I do not want to completely reject the idea that experts in the field of coastal management, broadly speaking, form a distinctive category of subjects relevant for my research. My experience in the field showed me that it makes sense to maintain this category, because I observed significant overlap between my own understanding of what constitutes the field and that of the para-ethnographic experts. On a fundamental level, we shared the assumption that there is some sort of larger idea emerging within and through projects making reference to 'working with nature'. While I call this a sociotechnical imaginary (with Jasanoff and Kim 2009; 2013; 2015), my interlocutors would speak of paradigm shifts and the like; but there is agreement between me and these experts that the phenomenon can be followed through different settings and levels of comparison. My own mobility, the idea of multisitedness, of following the objective to 'work with nature', mirrored my proximity to the world of these experts, in the sense that my thinking through and connecting examples of coastal protection practices resembled the experts' temporal and spatial orders much more than, for example, the embeddedness of local dune care volunteers or protestors at remote Waihi Beach.

On an anecdotal level, I happened to encounter my most important interlocutor Jim Dahm even on occasions and in locations where I was unaware of his involvement – like at a planting day in Maketu at the Bay of Plenty coast east of Tauranga, where I shared a quad bike ride with a local volunteer along the uninhabited sand spit to examine a backdune planting trial. The driver sped past a group of people visiting the site, including Jim Dahm who later commented that I was just *everywhere* – the same I thought

about him in this moment[13]. Also, when examining technical reports or local newspapers from different regions, often, the names of the same highly mobile experts involved in projects as consultants for Councils or private clients, as scientific experts, or as witnesses in resource consent applications[14] continually came up.

In terms of methods, I found it remarkable how my fieldwork partners acknowledged the approach of being there and listening, of spending time to follow the logic of the field, or "deep hanging out" (a description of ethnographic fieldwork by Renato Rosaldo, quoted in Clifford 1997: 188). The coastal collaborations with dune restoration professionals and coastal protection experts showed that those you work with in the field are most likely to understand their work, however technical it may be, as somehow embedded into social and cultural worlds. If they perceive this as a nuisance or if they are genuinely interested into interpretive approaches remains a matter of personal preference, style and experiences made. Discussing the ethnographic method with Jim Dahm after the fieldwork had been finished, he strongly argued for "social science" approaches because they could provide novel perspectives beyond what he calls "sterile coastal management". He stressed that my being there, my immersion into the field and the contextualization work this entailed allowed me to connect small cases in order to draw a bigger picture of emerging coastal protection practices in Aotearoa New Zealand.

Figuring out how to use ethnographic methods for connecting the micro level of exemplary ethnographic cases with economic and political forces operating on larger scales is an ongoing concern in anthropology (for a great example see Tsing for the Matusutake Worlds Research Group 2009). The methods of participant observation and open-ended interviewing, and of drawing connections between projects, places, politics and people also across different spatial and temporal scales is what distinguishes ethnography. When Jim praises the promises of "social science research" to connect micro and macro levels, he specifically speaks of ethnography as a distinguished form.

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13 Jim was involved in Maketu in his role as a trustee of the Dune Restoration Trust of New Zealand (see Part III, especially Chapter 8.3), because the Trust carried out a backdune planting project there and at various other locations.

14 A resource consent is a permit required for activities that impact on the environment. There are five different forms of resource consents defined by the New Zealand Resource Management Act 1991 (RMA): land use consents, subdivision consents, water permits, discharge permits and coastal permits (Ministry for the Environment: 2015).

But there still remains the problem of what Jörg Niewöhner has termed the "ethnographer's third fear of the field" [15] (Niewöhner 2014: 211). Following Rolf Lindner's seminal publication reflecting on the anxieties of entering the field (Lindner 1981), and more recent considerations about "studying up" or the ethnography of experts, Niewöhner notes the fear of not being able to contribute anything novel that the field did not already know (Niewöhner 2014: 211). This is an anxiety that specifically grows out of the conceptual space of the „co-laborative" ethnography of urban infrastructures Niewöhner develops, which builds on epistemic partnerships between the researcher and a field populated with highly specialized experts and home to reflexive practices that are, more often than not, already in some form institutionalized (ibid).

However, I believe this "third fear" is not limited to situations with such radical epistemic symmetry, but generally plays a role in the later stages of an ethnographic project. Upon re-entering the field the question becomes inevitable: how can the ethnographic findings that have been fed into the academic discourse already be made relevant again for the collaborators in the field? After reading an earlier version of this book, my main fieldwork partner, Jim Dahm, commented on how it helped him to reframe the Waihi Beach conflict case discussed in the next part. He wrote me:

> [Y]our analysis and interpretation of what went on broke open the whole situation for me. To be honest, it was a case that that I barely dared revisit; partly because I was too angry […] – you have cracked it open and helped me put things in perspective. […] We need more social scientists on the coast to break the situation open and take us beyond the sterility that the present dominant players (scientists, engineers, planners) are trapped in. (Jim Dahm, pers. comm., February 2015)

This commentator has spent a considerable time of his life working towards coastal management beyond hard protection. But would my interpretation be helpful for others in the field as well, who did not operate in a para-ethnographic mode themselves? How can things be "cracked" open, and how to offer and convey some unexpected ideas to those very familiar with the field of study, but not with anthropological modes of reasoning (Ong and Collier 2005a)? Jim's support opened up the possibility to test this, when he invited me to give a keynote speech at the annual conference of the Dune Restoration Trust of New Zealand. This event provides a meeting place for experts and volunteers in dune restoration, and much of the conference time is devoted to field trips

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15 Original: "die dritte Angst des Forschers vor dem Feld", translation by author.

around the area, to visiting people and their projects, and to other "practical" things, such as monitoring experiments. The conference focuses on spreading knowledge on techniques and approaches rather than on internal scientific exchange alone. The keynote speeches at this conference are meant to provide additional, or contextual input: on climate change projections, on environmental law, or, in my case, showcase "an anthropological perspective".

This invitation opened the floor for something I later found comparable to what George Marcus and Douglas Holmes describe as "para-sites": the idea of staged events that "blur the boundaries between the field site and the academic conference or seminar room" by creating an "overlapping academic/fieldwork space" (Holmes and Marcus 2008: 99, Footnote 1; see also Marcus 2000). These events, organized by the Center for Ethnography at UC Irvine, are "attended by a mix of participants from the academic community and from the community or network defined by fieldwork projects" (ibid). Marcus and Holmes suggest that the creation of para-sites could become an integral part of the fieldwork design (ibid).

I tried to adapt my contribution to the Dune Restoration Trust conference for the occasion. To accompany my talk and to further the discussion, I designed a brochure that included pictures and text to describe the main findings of my research, which I distributed during the first two days of the conference. When I delivered my talk on the morning of the third (and last) day, many had already seen the brochure and recognized the design in my slides.

Both the brochure and my talk were structured not around specific sites and projects of dune restoration (which would have been the typical approach for this audience), but around central themes that had emerged from my analysis: dune restoration as a do-it-yourself approach to coastal protection (see Chapter 8), as restoration and maintanance of native nature (see Chapter 9), and as reclamation of public space (see Chapter 7), as well as soft engineering as a different approach to 'working with nature' (see Chapter 10). Besides a section on ethnographic methods, I included some theoretical input, asking what nature is and briefly explaining the notion of multiple natures and the sociotechnical imaginaries concept (see Chapter 2).

Ending the talk with remarks on the contested politics of nature emerging through issues of soft (and hard) coastal protection, I eventually asked: "what nature do you want?". I was trying to invite the audience to look at their projects as practices of nature-making, and therefore political. However, I expected that for this audience, the
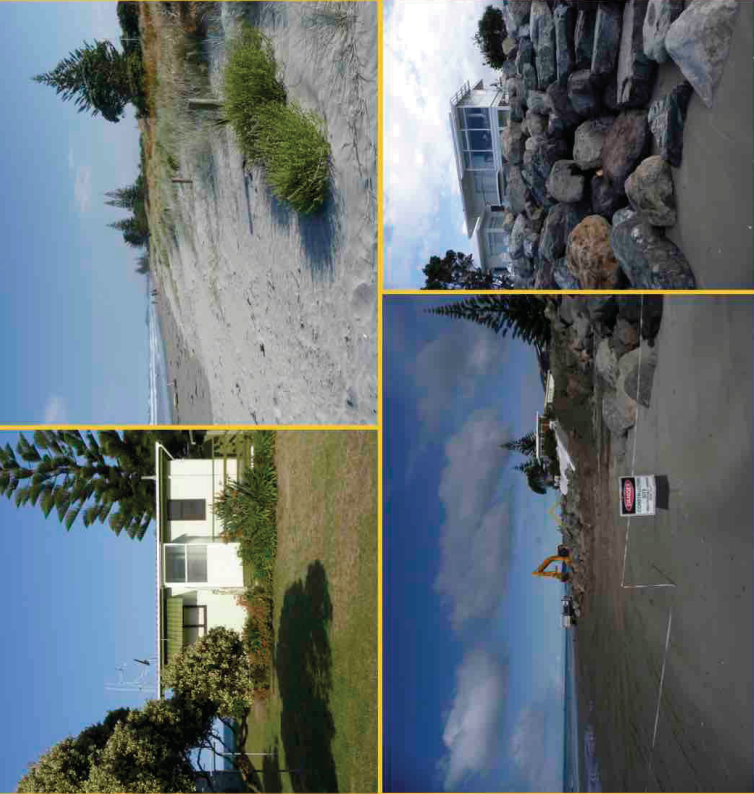
most useful part would be the drawing of conceptual connections between different dune care projects – especially after Jim's comments about contextualization and making connections as the contribution that ethnography has to offer. I was surprised that it were the more theoretical and generalizing considerations about nature as practice that people from the audience commented on after the talk.

In the plenary discussion, a Coast Care volunteer remarked that she found the imaginaries concept very inspiring to think with. She went on to explain that unicorns or Santa Claus were "imaginary" as well, but have a material reality in terms of their outcomes: children believe in Santa Claus, festivities are organized and presents received. While my "anthropological perspective" provided some food for thought for her, I was inspired, too, by this straightforward discussion of what Donna Haraway calls material-semiotic practices elsewhere (Haraway 2008)[16]. For the lady commenting from the audience, the sociotechnical imaginaries concept seemed to have opened up nature as a practical political space framed by organizing visions. In the following empirical parts of the book, I will try to illustrate how an analysis of coastal protection practices can "crack open" and make visible the politics of nature at the Aotearoa New Zealand coast with the tools of ethnography and anthropological modes of reasoning.

16 Isabelle Stengers (2010) has discussed the world making powers of unicorns and other fantastic creatures in particular.

Fig. 1: Title and first page of brochure designed for Dune Restoration Trust of New Zealand annual conference 2015 in Whitianga.

Part II:
Beyond Hard Protection?
The Waihi Beach Case

Starting with a close look at a localized conflict about coastal protection measures, this first empirical part aims to set the stage for the discussion of soft protection in Aotearoa New Zealand. By unwinding a local history of coastal development and existing coastal protection measures, and by analysing the decision-making process for the common future, I will show how in Waihi Beach, coastal erosion has become a tangible, visible problem. For the time being, hard protection has been defined as part of the solution by politics and legal action, but it remains detested and disapproved of by significant parts of the local community as well as by the larger community of practice promoting soft protection. In spite of increasing controls regulating the use of hard protection works in coastal policy and planning, a new coastal protection scheme has recently been built in the small coastal town of Waihi Beach. The local Western Bay of Plenty District Council (WBOPDC) aimed to protect about 80 beachfront houses by replacing existing, mostly defunct protection works. The Waihi Beach protection scheme now consists of a mix of measures and also includes soft ones: the construction of an artificial dune and the use of geotextiles. The controversial part, however, remains the seawall, consisting of rocks placed along approximately 1 km of the beach: large boulders of about 0.8-1.2 meters in diameter, piled up to a rock revetment of 3.5 meters height and 3.4 meters depth (Western Bay of Plenty District Council 2010).

Years of searching for options to replace the existing older structures that preceded the construction revealed the complexity and political dividedness of the question of how to address coastal erosion in Waihi Beach. Disagreement grew between beachfront property owners who supported the Council scheme and the majority of Waihi Beach residents who opposed it. Political struggles over the right science ensued, with experts commissioned and the public engaged. For those resisting the Council's plan to protect beachfront houses against erosion – arguing it was not in the public interest to impede public enjoyment of and access to the beach – the case was about democratic representation and procedures as much as it was about the question of how to best deal with natural coastal systems. Disappointment over the Council's approach to dealing with its

dissenting citizens finally culminated in an appeal to the Environment Court by two Waihi Beach residents, trying to stop the revetment plans. The appeal was declined in 2008 and the scheme built. However, although construction of the seawall and creek training parts of the scheme had been completed in 2011 (the artificial dune proved more complex a task, which will be addressed in more detail in Chapter 5.1), the case has yet to be settled. On the one hand, the political repercussions still remain noticeable on the local level. On the other hand, the scheme has only been granted a temporary resource consent, and by 2020, the Council will have to present a long-term solution – a condition that recognizes the wide-spread understanding that the seawall cannot be the long-term option to deal with coastal erosion at Waihi Beach. Two possible long-term options – rediverting beach creeks and managed retreat of existing houses – had already emerged during the years of consulting and evaluating options preceding the current measures; however, both turned out to be technically, but not politically, doable. It is relatively unlikely that within a few years' time, new technical options will be on the table, which makes it difficult for people involved in the Waihi Beach case to imagine possible futures – especially without the seawall.

Although the scheme consists of a bundle of measures, it is consistently referred to as the "Waihi Beach seawall" – also in official documents (Environment Court of New Zealand 2007; Chadwick 2008), a name under which it has gained notoriety in Aotearoa New Zealand's coastal management circles. While the resource consents were issued at a time when an earlier version of the New Zealand Coastal Policy Statement was still operative (Department of Conservation 1994), a newer version of the current statement had already been proposed, further tightening the rules for hard protection and supporting the viewpoint of many commentators that this scheme represents a largely outdated way to deal with coastal hazards (Department of Conservation 2008; Department of Conservation 2010).

While following 'soft protection' through many diverse fields and locales, coastal experts and other interested people alike were asking me: "Have you seen Waihi Beach?" My interlocutors were probing if I was aware of the possible pitfalls of advocating soft protection, and at the same time insisting that the seawall as a monument of failed attempts to do so would actually be the best place to start investigating soft protection put into practice. With the following empirical part (II) I will do just that. By starting off with what might be understood as an example of failure to realize a 'working with nature' approach, I want to provide room to show that the emergence of a soci-

otechnical imaginary does not necessarily come without conflict and contradictions. Looking into what the actors involved perceive to be the heart of the problem at Waihi Beach, and what people agree and disagree about, I aim to develop an understanding of the political, social, and cultural dimensions at stake when coastal protection options are discussed, negotiated, decided, and those decisions acted upon. In the process of these decisions about coastal protection technology, the community and its representation are coproduced, as is the authority of experts that comes into being through the practices of consultations, hearings, and reports.

Chapter 4 introduces the community of Waihi Beach in the Western Bay of Plenty. The chapter lays the foundation for the in-depth discussion of the case as a failed attempt to move beyond hard protection measures. I first provide a short history of the coastal settlement and the events leading up to the Council's decision to build the seawall, and discuss the options for future works that have been on the agenda so far. This is followed by a close reading of the Environment Court appeal decision that allowed the project to move ahead, concentrating on how the options and the decision-making process were framed by the two parties and the Court.

Chapter 5 looks beyond the preliminary closure of the conflict after the resource consent for the protection scheme was granted and the construction had started. This broadens the perspective towards the sociotechnical and political future of the Waihi Beach protection scheme. I will pick up on the idea of the coproduction of social and natural worlds and focus on the political repercussions of the conflict. I will discuss the transition to soft methods in the Waihi Beach case (5.1) together with changing understandings of what it means to be a community also in the political sense (5.2). Tangata whenua (local Māori people) have not been a very visible political force in this conflict so far, but as will be shown, this might change in the near future when the protection scheme needs to be reassessed (5.3). This might happen rather sooner than later, since the seawall has only a temporary resource consent that expires after 25 years. The last part of the chapter (5.4) assesses a situation where "the science is done", as fieldwork contacts put it. It zooms in on the role that the materiality of the seawall itself might potentially play within the coastal policy arena. Can Waihi Beach serve as a last example of its kind before the tides will eventually turn towards coastal protection that works with nature, and not against it?

The chapters consult documents produced before and during the Environment Court appeal: scientific reports, minutes of Council meetings, brochures and newsletters to in-

form the residents, submissions to the resource consent, evidence produced by appellants and witnesses, and the Court decision itself. The more ethnographic layers of the analysis build on fieldwork experience: participant observation and extensive interviews with actors central to the Court case, or otherwise involved at Waihi Beach. This material is used to work out underlying themes that address what people envision, embrace or reject as possible futures; perspectives that were negotiated inside and outside the courtroom. In this case, the sociotechnical imaginary that promotes 'working with nature' (and not against it), although welcomed by many involved in the case, has run up against resistance from powerful positions: the Council, the property owners, and the Environment Court, which in the end made it impossible to turn ideas into realities (for now). This will be a useful starting point to illustrate the backdrop against which soft coastal protection is emerging in Aotearoa New Zealand, and demonstrate the political significance of the topic. Choosing a site of conflict allows zooming in on different actors' tacit understandings of coastal natures, rendered intelligible through a close reading of their epistemological and normative positions.

4.   Historical Transect of a Coastal Protection Conflict

4.1 "Have You Seen Waihi Beach?"

Waihi Beach is a small town in the very northwestern corner of the Bay of Plenty region. The permanent population is just below 2,000 (Statistics New Zealand 2013c), but during the summer holiday season about ten times as many people stay in Waihi Beach (Waihi Beach Community Board 2007). The season roughly spans from November to February in this region of Aotearoa New Zealand's North Island, which is a popular family destination thanks to its favourable climate, sunny weather and accessible sandy beaches.

Peak time is around Christmas, when much of the country files to the coast for the typical antipodean combination of summer break, Santa Claus and beach barbecue. The Western Bay of Plenty is becoming increasingly popular not only as a holiday destination, but also for a coastal lifestyle endorsing second homes or retirement villages, with new suburban areas sprawling around the port city of Tauranga, about 45 minutes to the southeast. Waihi Beach, however, still has the kiwi "feel": there are no larger hotels or apartment blocks and most visitors stay at the holiday park camping sites, motel or self-contained accommodation. Many have come here for years or even decades. The town centre consists of not much more than a main road with a supermarket, some restaurants, fish and chips and a pie shop – and real estate agents, evidence to a vivid coastal property market, indicating that coastal change has not passed by the town. However, still "people can do the real kiwi thing at Waihi Beach" (WBOPDC 2007)[17]: hanging out at the beach, boating, fishing, surfing, or going for a hike over the headland to Orokawa Reserve where the landscape is dominated by stands of beautiful Pohutukawa, which are covered in characteristic crimson blossoms around December.[18]

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17 The Waihi Beach Ward 20-Year Community Forum Minutes (WBOPDC 2007) also mention "the sixties feel", and describe Waihi Beach as a "beachy", "family-oriented place". Residents at the meeting are quoted stating "we would like to keep the simplicity of Waihi Beach" and "we don't want another Mount Maunganui".

18 This has been the traditional image of the New Zealand Christmas since the Pohutukawa was dubbed the "Settlers' Christmas Tree" in the 19th century (Ministry for Culture and Heritage (2013a). Until today it remains "the most recognised plant of the whole wonderful New Zealand Scenery", a central icon of the postcolonial country found on all matters kiwi, from postcards to artworks (The Complete New Zealand Holiday Guide 2008-2013).

The "kiwi thing" very much evolves around the enjoyment of nature, the sea and the beach; there is not much happening in town in the sense of urban pleasures, the next cinema is a 45-minutes drive away, and social life evolves around lifeguard events, the pub, and the RSA (Royal New Zealand Returned and Services' Association). Waihi Beach is a "laid-back village" (WBOPDC 2007) and the sandy beach is its primary raison d'être, stretching from a headland in the north almost nine kilometres down to the Bowentown Heads, marking the entrance into Tauranga Harbour.

At the northern end, where the beach is bordered by the headland, access ways marked by the local volunteer dune restoration Coast Care group lead from the big parking lot onto the beach, passing through 20-30 metres of shallow dunes, cordoned off with knee-high timber bollards and thick rope. Much of the dunes have been replanted with striving native plants – mostly *Spinifex* and *Pingao*, and a sign explains how these help to build up the beach, showing pictures of how this end of the beach looked in the mid-1990s when Coast Care first started. Datum posts striped blue and white measure sand levels. If you ask the Coast Carers, this area gives an impression of how the beach would look everywhere at Waihi Beach if the dunes had enough space.

After passing by the surf club and a small coastal reserve area, the area of the protection scheme starts. From here on, houses sit right on top of the dune, only about 2-3 metres above the level of the beach. There is no sand or typical dune vegetation visible – but gardens, yards and lawns. The houses are built in varying distances from the dune edge, some as close as 5 metres to the beach. This is Shaw Road, the ultimate beachfront. Most of the beachfront properties along this stretch of coast are estimated around at least 1 million NZD, though it might come as a surprise how modest most of these one or two storey houses and bungalows look. The first part of the protection scheme might be called an attempt to 'work with nature', only that nature has so far refused enrolment into the project: an artificial dune was constructed and planted with native vegetation in May 2011, but was almost completely eroded within a matter of days, revealing underlying rocks from earlier protection works. The steep erosion scarp is plastered with warning signs and large geotextiles bags, piled up to ad hoc access stairs. About 600 metres down the length of the coastal road, the rock revetment starts. A massive strip of large boulders is built up in front of the properties, to roughly the same height as the dune. Here, permanent wooden stairs serve as bridges to the beach. A walk on the beach has to finish here at high tide: there is no space left between the rocks and the surf to continue with dry feet. This inability to walk along the beach at all tides has

been one major argument brought forward against the seawall, which is not only a sentiment of local critics, but also a major provision of the New Zealand Resource Management Act (RMA).

The relics of several decades of hard protection measures still regularly resurface at Waihi Beach. Timber planks and rusty steel are washed out during storms or unearthed by construction works. Geotextile containers in different life stages can be seen, looking like enormous sand-coloured cushions (a local woman despising them calls them "tampons"), some almost invisible under layers of windblown sand, others covered by unsightly layers of green algae. These layers of different protection measures can appear like historical transects of coastal protection archaeology, and walking down the beach with an informed local turns into a guided tour through a life-sized open air museum of roughly a century of New Zealand coastal protection policy. Here, the whole range of options and the scale of the conflict are very visible.

This is in stark contrast to the stereotypical kiwi beach imaginary that the artwork on a community planning document features. "Defining Our Future" it is called (Waihi Beach Community Board 2007), and no seawall is visible in the drawing. However, a disclaimer stating "artist's impression only" is hidden on the left side of the picture. Whether the Council anticipates the seawall opponents to protest against this unfaithful representation, or whether it is cautious vis-à-vis the beachfronters who might suspect that they are not part of this common future (because no seawall most likely will mean managed retreat of at least some of the houses) remains speculation. The picture, however, seems exemplary in two ways. Firstly, it illustrates how every representation of this beach is caught up in the conflict about how the common future *should* look. This points to the entanglement of epistemological and normative dimensions of representing the world. Secondly, the artistic representation shows the central role that visibility and aesthetic pleasure play in the conflict around the Waihi Beach protection scheme. What can be seen, what people want and do not want to see on their beach is as important here as the trope that the Waihi Beach seawall visualizes the technopolitical failure, the inability to yet move beyond hard protection (Chapter 5.4 will elaborate on this point and discuss how the seawall – now that it has been rebuilt – is getting enrolled into coastal politics for the future).

In the seawall area, one house particularly sticks out – this (and possibly others as well) might have needed to be relocated if the Environment Court appellants, their expert witnesses and allies had been able to convince the Court, the Council and the prop-

erty owners of their alternative proposal to build a backstop wall. Located as far landwards as possible and serving as a last defence, the appellants, local activists and their supporters argued that such a backstop structure would allow more room for natural processes of erosion and accretion and provide sufficient space for the natural protection of a vegetated dune in front of it.

"New Zealand is a small country with a big coastal 'attitude'; nowhere is far from the sea" writes political scientist Bronwyn Hayward, quoting New Zealand poet Basil Dowling (Hayward 2008a). Hayward refers to the Waihi Beach example when she discusses how climate change adaptation and especially managed retreat as a political instrument challenges existing democratic processes. Conflict between private interests and public resources, beach access and amenity, she argues, is complicated by the complexity of temporal and spatial scales: the benefits of current and future generations, the effects of earlier decisions to develop the coast and/or build hard defences, and the impact of such defences on neighbouring areas (Hayward 2008a: 55f.). Political scales matter as well: the incongruency of election cycles with slow-onset climate change, and the effects of devolving such decisions to local level authorities, which do not have the national guidance and resources in terms of research and technical expertise they would require to confront local private interests:

> Deep battle lines between those campaigning for 'dobs' (defend our baches) or 'sobs' (save our beaches) are common and extremely difficult for local Councils to manage. (Hayward 2008a: 55)

Referring to political philosopher Iris Marion Young, Hayward argues that public deliberation and a strengthened participation of local communities in decision-making about coastal protection does not necessarily solve the problem, but risks to be limited to the immediate interests as well, also not addressing the larger scale (Hayward 2008a: 56; Hayward 2008b). Critical about the outcomes of one-off deliberative forums, Hayward observes links between interested citizens and scientists opposing hard structures as the most promising counterpoint to the local lobbyism of beachfront property owners. The following will provide a closer look at these linkages and examine how this little coastal town became so deeply wound up in a conflict about a narrow strip of sand between land and sea, a conflict dividing the community, seemingly intractable within the current political and legal situation.

Fig. 2: Waihi Beach, Shaw Road, before construction of the new scheme (low tide). Picture by author, February 2010.

Fig. 3: Waihi Beach, Shaw Road before construction of the new scheme (high tide). Picture by author, February 2010.

Fig. 4: Waihi Beach Surf Club area, with signs of Coast Care work.
Picture by author, December 2010.

Fig. 5: Waihi Beach, Three Mile Creek training with geotextile bags.
Picture by author, December 2010.

Fig. 6: Construction of the seawall. Picture by author, September 2011.

Fig. 7: The new seawall at low tide. Picture by author, March 2015.

4.2 Coastal Protection History on a Changing Coastline

The Waihi Beach area was first settled by Nga Marama settlers, descendants of Toi and the first Polynesian inhabitants of the Bay of Plenty (probably around 1150-1250 AD). It was later taken over by Ngai Te Rangi Iwi, arriving on one of a series of voyaging canoes making landfall in the area[19]. The first European land titles at Waihi Beach were issued in the early 1870s, shortly after gold was discovered (Moore 1999), and the land was subsequently settled by European farmers. In the early 20th century, the Waihi Borough Council, governing the gold mining town Waihi about 10 km inland, built a road to the beach (Ohinemuri Regional History Journal 1976) and acquired land at Waihi Beach through the Public Works Act in order to form a "public recreation and pleasure ground", an early public health measure (Bay Of Plenty Times 1919; New Zealand Legislation 1947).

In 1922, land was divided into small sections and leased out to mining workers suffering from lung disease, to allow them to build the typical New Zealand beach huts, or baches, of the time[20]. After additional land acquisitions in 1944, "coastal development in Waihi Beach started in earnest in 1948" (Environment Court of New Zealand 2007: Appendix B: 2), with the extension of the settlement further to the South. Over the next decade, the land was subdivided in several stages, roads extended and more baches built into the dune fields along the seafront. New roads were put parallel to the shore on the landward side of the properties, with the houses overlooking the sandy beach in front of them. Foredunes in front of some of the houses were lowered with bulldozers to provide for unimpeded sea view, a common practice during the time (Colloins 2002; Jacobson 2004: 57). By 1959, most of today's absolute beachfront properties had been created in Shaw Road, the Loop and Glen Isla Place (see map below). With that, the "Waihi Beach saga" (Healy and Soomere 2008: 459) had begun.

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19 Today, Ngai Te Rangi is the largest of the three Māori iwi of Tauranga Moana, the Tauranga Harbour area (Interview Tūhua Brown, see also Waitangi Tribunal 2000). Otawhiwhi marae in neighbouring Bowentown, built in 1870, is its northernmost marae or meeting house.
20 In 1938, the former 10-year leases were extended to 21-year terms with perpetual right of renewal, see also New Zealand Legislation 1994. For examples of typical New Zealand beach baches see Grigor (2008).

Waihi means rising waters in Te Reo Māori[21]. Ironically, the name would become programmatic for the later chapters of Waihi Beach's coastal history: waters were indeed to rise for the beachfronters. The authorities at the time seem to have acted as if they could rely on the terrain to be developed as a fixed and permanent matter. However, this turned out to be wrong, as the natural beach system was actually fluctuating between stages of long-term erosion and accretion. Worse still, most of the development seems to have taken place at a time when the beach was unusually wide. Historical maps and aerial photography analysed by Jim Dahm in a report for the Bay of Plenty Regional Council suggest that in 1953, the shoreline had been in accretion for at least half a century (Eco Nomos Ltd. 2003). Since the turn of the 20th century, the dunes in front of one of the beachfront roads (Shaw Road) had advanced at least 20 metres – leaving about 50 metres of coastal reserve between property boundaries and the high tide line, or mean high water springs (MHWS).

Around the same time that beachfront development was accelerating, however, the natural dynamics of the beach changed as well. Soon a series of severe storms hit the Bay of Plenty and resulted in erosion of beach and foredunes, amounting to the loss of about 10 metres of land in each of several storms (Eco Nomos Ltd. 2003: 47) throughout the mid-1950s to late 1960s, including the notorious Wahine storm in 1968[22]. In addition to these extreme storm events, first effects of human modifications of the beach environment also became noticeable: two creeks had been channelled onto the beach to discharge drainage and stormwater into the ocean; now they caused chronic erosion around the development, especially where the stream mouths were migrating on the beach[23]. As a result, several houses were relocated further back on their sections from

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21 The name is attributed to an early Māori explorer using a hollowed-out branch or a hollow reed stuck into the ground to drink from a creek on the beach that had dried out, but still had water running underneath the sand (Anderson 1968).

22 Cyclone Giselle hit New Zealand in April 1968 and received its popular name from the Interislander ferry Wahine that sank in Wellington harbour, resulting in 53 deaths (Hutching 2009: 193).

23 Land-use changes increase stormwater runoff and potentially increase erosion caused by the streams. There are conflicting versions as to when these creeks were built or their course changed, or if they were "man made" or "man changed" (Interview with Tūhua Brown, Otawhiwhi Marae representative). In regard to Two Mile Creek, Dullnig et al. (2010) state that Two Mile Creek was constructed in 1951 "to drain backshore". A local informant reports this had already been done in 1938: "The water that goes down Two Mile Creek used to come out round the RSA Hall, behind where the school is, and came out, apparently here at Brighton Park, that it's original course. And that was 1938, when the local woman that owned the farm employed, I think it was Hungarians […] to actually manually dig Two Mile Creek and put it out there. So it is a man made structure. I think it was to sort of drain the

the 1950s onwards (Eco Nomos Ltd. 2003: 47; Environment Court of New Zealand 2007: Appendix B: 1). To protect the houses at the beachfront, the authorities of the time[24] started to construct what over the years would become a potpourri of coastal protection structures.

Orchestrated protection works first began in 1962, about ten years after Shaw Road had first been extended (Bear 2009: 5ff.; Lumsden 2011: 1). A timber seawall was constructed parallel to the beach to protect nine properties along Shaw Road, and Two Mile Creek[25] was confined between timber walls to stop its meandering. In 1969, another seawall followed, this time using not only timber, but also steel posts as well as rocks which were put directly behind the structure to "backfill" it. Additionally, 12 metre-long groynes[26] were constructed from gabions. Until the mid-1980s, similar structures were built in several sections along most of the beachfront development, and more rocks were put seaward of the walls and along the timber part in attempts to further stabilize the works.

In 1989, a local government reform meant that a new local authority took over responsibility in Waihi Beach. The town became a part of the newly formed Western Bay of Plenty District Council[27] (WBOPDC) within the Bay of Plenty (BOP) region. The new municipality inherited a coastal protection structure that had literally begun to fall apart. Two years later (in 1991), the Resource Management Act (RMA) was introduced,

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farmland because where the hall is, and where the school is, that was virtually swamp land, that's where we live, or just behind it, and it is fairly low lying. And [when] we get a lot of rain, especially on this end here, the water decides that it wants to come back through the old water course if it gets a chance." (Interview with Ron Whitherspoon, Waihi Beach Coast Care) In any case, it seems that at least one of the major creeks had been manipulated in the mid-20th century, arguably contributing to the erosion of the beach.

24 The local authority changed after local government reforms in 1989, see following section.

25 The creeks are called – in pragmatic settler logic – according to their distance from the northeastern tip of the beach: Two Mile Creek and Three Mile Creek. The latter is also known as Waiorooro creek in Te Reo Māori.

26 Groynes are hard structures built perpendicular to the coast to act as wave breakers and sand traps. The gabions used in this case to construct the groynes are wire baskets filled with heavy stones.

27 In 1989, the Local Government Amendment Bill was passed by the New Zealand Parliament, implementing far-reaching local government reforms and reorganizing a complicated, historically grown structure with hundreds of local boards and county Councils. The country was divided into 16 regions, roughly following the large watersheds, each governed by a Regional Council. The regions were further divided into 74 smaller units, each represented by a District Council (in rural areas) or a City Council as local government bodies. Waihi Beach became part of the Bay of Plenty Regional Council (BOP-RC; also known as Environment BOP) and the Western Bay of Plenty Regional Council (WBOPDC), whereas Waihi became part of the Hauraki District Council and the Waikato Regional Council (also known as Environment Waikato) (The Department of Internal Affairs 2015).

profoundly altering Aotearoa New Zealand's regulative environment and requiring Councils to develop new, comprehensive planning documents. The RMA introduced the resource consent as an instrument to regulate all uses of the environment, including private land. As the Council later argued, since the structure did not have a valid consent, WBOPDC as the new owner of the structure was "required to legalize its existence by applying for consent to maintain it or to remove it under the Regional Coastal Environment Plan" (attachments to Keall 2006), another requirement under the RMA[28]. Throughout the 1990s, however, beachfront residents continued to reinforce the protection structures, without seeking permission by the Council, and often with detrimental effects on the structure as a whole, as a local resident remembers:

> The owners got together and came along with trucks, organized to dump rocks in behind. Before that it was just little rocks in behind. And the trucks just tipped the rocks and smashed the walls – we talk about the wall wasn't maintained [laughs], but it was, a lot of it was self-inflected damage, you know, authorized by the property owners. And it [was] just sort of basic lack of care. (Interview with Henry Tamm, Waihi Beach)

While this practice was illegal under the RMA, the new Council reportedly did not prevent the actions. Expert reports commissioned by the Council in 1996 concluded that "the works were having no positive effects on the beach but were continuing to provide some protection to beachfront property" (Environment Court 2007: Appendix B: 3f.).

Put differently, it could also be argued that the protection works were near the end of their useful lives, and were having negative impacts on the beach. The report confirmed what local residents had been observing for a long time: the structures on the beach were increasing coastal erosion, access to the beach around the structures was difficult at high tide, and pieces of rusty iron and concrete could be considered a hazard in themselves. There was general agreement in the community that it looked bad and that something had to be done. The beachfront property owners, though still feeling protected by the dilapidated wall, were thinking no different from the rest of the community. Robert

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28 See also Environment Court (2007: 13), quoting evidence in regard to a 1983 consent to place further rocks: "Although this consent was due to expire 6 months after the Regional Coastal Environment Plan became operative, an extension of the existing consent was sought, providing an additional 2 years for the existing structure thus maintaining the legal status of the seawall while consents for the present application were lodged". After the introduction of the Resource Management Act (RMA) in 1991, all Regional Councils were required to prepare a Regional Coastal Environment Plan (see Department of Conservation n.d.). The BOP Regional Council introduced the first Transitional Regional Plan and Transitional Regional Coastal Plan in 1991 (Environment Bay of Plenty 1991).

Cook, a beach-front resident and member of an interest group promoting the Waihi Beach protection scheme describes the situation at the time:

> The rock wall actually worked; there's no doubt about it. […] It actually worked 'cause it held the line. It was just that it was such a dilapidated... it had never been repaired for probably 30 years. Oh, it looked horrible […]. The timber stuff with the sort of, the horrible looking rocks and a jumbled mess. (Interview with Robert Cook, Waihi Beach)

At this point, Waihi Beach had become subject to considerable economic change as well: coastal change (Freeman and Cheyne 2008) was well underway. While the District Council had implemented building controls into its Regional Plan in the mid-1990s, these proved insufficient to prevent further development of the beachfront because existing buildings could still easily be replaced (Environment Court of New Zealand 2007: Appendix B: 1ff.)[29]. Many sections had been turned into freeholds (private property) after the original legislation was repealed in 1976, allowing the former Waihi Borough Council to sell the original lease-hold sections to lessees (New Zealand Legislation 2007). This meant that people could now buy beach baches, including title for the section of land, and later replace the bach with a much larger house suitable for permanent living, as long as it was theoretically relocatable (Environment Court of New Zealand 2007: Appendix B: 2f.).

This upgrading became common practice in the 1990s in a climate of economic boom, as more and more people were investing in coastal property, second homes at the coast became very popular, and many people began planning for retirement at the sea. Public investment in road infrastructure led to considerable decreases in travel times, and coastal areas within a radius of about three hours driving time became accessible for second home buyers from the urban centres, especially Auckland – causing the acronym jafA – "just another fucking Aucklander" – to become a common derogatory term used by those resenting the influx of affluent city people into rural areas. Before

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29 These building controls relying on so-called hazard lines developed by University of Waikato Coastal Science Professor Terry Healy also led to an Environment Court case. Beachfront property owners represented by the Waihi Beach Protection Society and the Regional Council were both challenging the District Council over high and low risk zones in its proposed District Plan and different rules applied to those. The Protection Society wanted the tighter rules for building in the high risk zone loosened, whereas the RC wanted both areas to be governed under the high risk rules (applying discretionary activity status to all building/construction) (Jacobson 2004a).

that, most baches had been owned by people from the vicinity, like this couple in their 70s who owned a farm 30 km inland of Waihi Beach discusses:

> It was handy […], half an hour you'd be out here, so why do you want to go somewhere else for, you know. It's different with kids these days, they've got faster cars and everything else. We used to say it took us 35 minutes... I would be out here a lot [on] weekends, in the early times when John was still milking, and he might be backwards and forwards. But from the time we bought [the bach] John had staff, so he was able to come in and enjoy it. Yeah, weekends off and that sort of thing you know. (Interview with Mr and Mrs Watkinson, Waihi Beach)

When agricultural businesses and land were becoming increasingly valuable, this couple – like many other farmers – eventually sold their dairy farm and replaced their bach with a family home, fulfilling their dream to retire at the beachfront. Property prices in Aotearoa New Zealand generally were steeply rising during the 1990s[30]. Just before the global financial crisis started to be felt in a domestic property market crash in 2006/07, Waihi Beach and some other more rural and quiet communities (as opposed to the Tauranga suburbs and communities closer to Auckland) had started to pick up enormously on the boom, with prices for seafront sections doubling or even tripling within only a few years. In April 2005, a local real estate agent told the BOP Times that

> some people had called into his office saying the Mount [Mount Maunganui, a suburb of Tauranga] was too big and noisy. They liked Waihi Beach because it was quieter – just like the Mount was 25 years ago. (Woodrad and Skellern 2005)

This situation would become a significant factor in any decision about how to deal with the rotting seawall and the ongoing erosion endangering those houses located too close to the sea. As has been shown above, there was considerable agreement about the situation at that time and even its causes; however, the question of how to address this situation was about to become a very divisive issue, eventually pitting the Council and the beach-front property owners supporting the new seawall against the majority of the community objecting to it. "Unfortunately, as the time went on there was them against us... And still is", says Robert Cook from the beachfronter's lobbying group, and one of his fiercest opponent regrets as well that "it certainly divided the community".

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30 Values continued to rise until they reached an all-time high in 2006/07, when the effects of the global financial crisis led to a sudden decrease in prices. In 2010/11, values were back to 2003 numbers for most coastal property (Morris 2010).

From this short history of Waihi Beach's coastal development history, three points in time can be identified as crucial moments with long-lasting repercussions for the future. Firstly, many would point to the initial development of land this close to a changing shoreline as a historical mistake. However, this was only turned into a legacy for coming generations when, secondly, the first protection works were put in place, setting a precedent for coastal property owners who now expected ongoing protection against the sea, creating a false sense of security (Cooper and McKenna 2008a) that contributed to further accumulation of value in the coastal zone – or even a legal liability, as the Council argues:

> Had the Ohinemuri County Council decided in the 1960s to let nature take its course with dune replenishment, rather than putting protection schemes in place, there would be no onus on the Western Bay of Plenty District Council today to build a rock revetment or take any other erosion protection action. However once protection measures are put in place, the local authority is legally liable to continue to protect the foreshore properties that have historically been protected. (Western Bay of Plenty District Council n.d.)

This concern of the Council over the possibility of litigious action by affected property owners has been a controversial issue because the Council denied any actual legal threats by beachfront property owners, something many residents and experts involved strongly suspected had been a driving factor for the Council's decision to build a new seawall. In any case, the question concerns solely financial liability or compensatory claims for properties on which the Council as the responsible agency for building regulations had once allowed development. It does not translate into a general political responsibility to provide coastal protection, which in itself is not a duty of the state in Aotearoa New Zealand, and neither local, nor regional or national authorities are mandated to provide those structures. In a decision relating to Wainui Beach in the Hawkes Bay Region, the Environment Court held in 1995:

> There is no duty on the Council to protect land from erosion, and it is no longer taken for granted that the natural process of erosion is necessarily an evil or mischief to be stopped wherever possible. (Environment Court of New Zealand 1994 see Jacobson 2004a: 52)

Lastly, as a third contributing factor, the coastal change phenomenon (Peart 2009) drastically sharpened the problem, whereas at the time of the original development, buildings had only been of minor value. The economic effects of coastal change and increasing prices, insufficient political regulation of coastal development, and ensuing coastal

gentrification would add up to a mixture that eventually turned this sleepy little town into "The Waihi Beach Case".

Fig. 8: Aerial view of Waihi Beach, Bay of Plenty, showing Shaw Road and Dillon Street and erosion around Two Mile Creek (to the left). Picture by Whites Aviation Ltd. Photographs, 2 December 1955, Ref: WA-40388-F. Alexander Turnbull Library, Wellington, New Zealand.

4.3 Who Owns the Beach? Defending the Local Coast

In 1996, WBOPDC started to assess possible options for addressing coastal erosion at Waihi Beach. Workshops were held with Council staff, politicians and coastal experts, some also including interested members of the community. A wide range of options

were selected for assessment by a coastal engineering company, encompassing the whole spectrum of measures from hard to soft, including a new seawall, dune restoration, managed retreat, closing or re-diverting the creeks on the beach, as well as combinations of several options (Western Bay of Plenty District Council 1997, see Jacobson 2004b: 57). In a review of the coastal hazards policies of the (then active) New Zealand Coastal Policy Statement (NZCPS) 1994 for the Ministry of Conservation, Mike Jacobson quotes from this initial report to show that at this stage, a seawall was not deemed a satisfactory option by the consultants:

> Seawalls do provide local protection to the backshore property, but at a cost to the beach and adjacent shoreline areas. […] All of the hard engineering options are inconsistent with Resource Management Act Principles and national, regional, and local policy, and generally have the highest costs and adverse effects. (Gibb and Tonkin & Tailer Ltd. 1997, see Jacobson 2004b: 58)

Repeatedly, so-called upper catchment stream diversion turned out to be the option preferred by both coastal experts and locals alike, something that beachfront owners and other factions in the community could agree on (Keall 2006: Appendix 3). The idea envisaged was to re-divert the creeks into Tauranga Harbour, so that drainage and stormwater from the inland would be directed into an embayed natural harbour, instead of discharging it onto the sandy open coast beach where it was causing chronic erosion around the beachfront development nearby.

The Council, however, took the option off the agenda in 2002, after receiving advice that costs of around 11.5 million NZD were expected – deemed unaffordable in a situation where the Council had to rely on charging the ratepayers for the costs of coastal protection (Environment Court of New Zealand 2007: Appendix B: 10). Mike Jacobson, in his assessment, therefore comes to the conclusion that in the Waihi Beach case,

> [a]ffordability is the clear barrier to implementing the alternative option which represents both the desired long-term option and the option that is the most sustainable and most in accord with the NZCPS. This would involve stream diversions and limited retreat of development (Jacobson 2004a: 29.)

Because of the focus on immediate costs, stream diversion did not hold up against other options which have lower investment costs, but require ongoing maintenance[31]. Stream diversion was considered to work long-term because it was meant to address a major

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31 The scheme eventually implemented cost 5.9 million NZD and has consent for a period of 25 years.

cause of coastal erosion at Waihi Beach, instead of addressing the symptoms. Many people involved still think of this as a future solution – including the Council and the Environment Court, as will be discussed below.

Managed retreat, on the other hand, would have been long-term in that it would have removed existing development out of the immediately impacted areas of coastal erosion. Such an approach would have required the relocation of at least some of the about 80 threatened beach-front properties – not necessarily removing them completely, but possibly relocating them further back on existing sections, at the owners' direct expenses or via Council paying relocation and recuperating costs through rating (Keall 2006: Appendix 3; Environment Court of New Zealand 2007: Appendix B). [32] Considerations of this kind of long-term solution called the beachfronters into action, who formed the Waihi Beach Protection Society to represent their interest in structural measures providing immediate protection to their properties.

The Protection Society not only lobbied against managed retreat for existing properties; at the same time they also challenged the Council's coastal planning policy for future development which was effectively aiming to at least keep coastal development at the current scale. As mentioned above, hazard lines had been in place since the mid-1990s, however with limited success. When the Council aimed to further restrict development in the Primary Risk Zone, the Waihi Beach Protection Society lodged an appeal at the Environment Court in 2002 (Environment Court of New Zealand 2002, see Jacobson 2004b: 29). In the decision, the judge elaborates on the possibility of (future) managed retreat as the background against which these planning decision were to be made. By referring to a lack of "effective protection by way of properly designed engineering works", he also comments on what he sees as adequate "public work[s]" for coastal protection at Waihi Beach and shows sympathy for the beachfronters concerns, while acknowledging that this was less of a legal and more of a *political* decision to be made by the Council:

> We share the concern expressed [by the judge in the Falkner v Gisborne District Council (Environment Court of New Zealand 2002, see Jacobson 2004b: 29)] over the policy of 'managed retreat'. There is a grim connotation for beachfront property owners who perceive themselves as not only lacking local government support,

32 This can also be considered a form of managed retreat. An informant working as a coastal expert for a Regional Council argues that hazard lines that require relocation after erosion has reached a predefined trigger point are a form of case-by-case managed retreat.

but exposed on that account to the greater likelihood of damage to their properties from coastal hazards. We are not, of course, dealing in these proceedings with any specific consent application to establish or restore particular works on either beach. As matters stand, properties in the immediate vicinity of both beaches are without effective protection by way of properly designed engineering works. It has been said often enough that this Court is not vested with authority to commit a Council to the financial obligation and responsibility of undertaking a public work, nor to determine how a Council's funds should be allocated in the face of other priorities beyond the Court's knowledge or concern. We therefore apprehend that, however attracted we are to the [Waihi Beach Protection] Society's plea for the timber wall to be reinstated and maintained, a decision to pursue that course must rest with the [Western Bay of Plenty] District Council. It may well be that the Council will conclude after further investigation and consideration that at least some form of formal beach protection work is the best practicable option at either beach. (Environment Court of New Zealand 2007: 11f.)[33]

In response to the Waihi Beach Protection Society's lobbying efforts, managed retreat options were not followed up further, and after stream diversion had been taken off the agenda, the Council decided to proceed with a rock revetment (seawall) around the creek areas and along Shaw Road. This was presented as a short-term solution only, however, without addressing how a long-term strategy could be envisaged, apart from hinting at a general willingness to potentially reconsider creek diversion at some point in the future[34]. Mike Jacobson notes the decision to build the seawall has been justified in ways incompatible with the NZCPS 1994. In its resolution to proceed with the protection works, the WBOPDC District Directions Committee states that the

> diversion of Two-Mile Creek and Three-Mile Creek to Tauranga Harbour is considered to be the best long-term sustainable option to address coastal erosion in its locality at Waihi Beach [...] [The Council] agrees to the construction of protection works in the short term at both Two-Mile Creek and Three-Mile Creek. Reason: That [rock revetment] protection works […] are considered at present to be the best practicable option to address coastal erosion. (WBOPDC District Directions Committee 2002, see Jacobson 2004b: 61)

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33 Here the judge refers to the NZCPS 1994, Policy 3.4.6: "Where existing subdivision, use or development is threatened by a coastal hazard, coastal protection works should be permitted only where they are the best practicable option for the future. The abandonment or relocation of existing structures should be considered among the options. Where coastal protection works are the best practicable option, they should be located and designed so as to avoid adverse environmental effects to the extent practicable." (Department of Conservation 1994: 10)

34 In May 2002, WBOPDC sought submissions on two options: "to divert Three Mile Creek only, construct protection works in the area affected by Two Mile Creek, and undertake enhanced dune care at the northern end of Shaw Road; or to undertake enhanced dune care at the northern end of Shaw Road and build protection works only in the vicinity of both creeks." (Environment Court 2007: 15f.)

Jacobson comes to the conclusion that "the reference to 'best practicable option *at present*' is in contrast to the NZCPS Policy 3.4.6 reference to 'best practicable option *for the future*'" (Jacobson 2004b: 61, emphasis added FG). In order to back up their solution to pursue the construction of a new seawall, the WBOPDC District Directions Committee decided to adopt a motion defining the objectives of the project as a whole. While an earlier version had stated that "the objective of the protection works is to provide protection whilst enhancing the amenity value of the beach", the Committee reworded the objective when it found a rock revetment contradicted the original statement. The amended motion read:

> The objective of the protection works is to provide protection whilst being designed to enhance the existing appearance and safety of the beach including the protection works. (Keall 2006: 3)

By adding public safety to the goals of the project, the bureaucrats found that from their point of view, they had prepared the ground for a seawall. However, the decision for a seawall, as well as the rewording meant to support it, sparked resistance in the community.

From this point on, the Council had to deal with organized resistance from seawall opponents as well. So far it had only been the beachfronters who were vocal as an interest group lobbying for a new protection scheme; however, now the seawall opponents formed the Friends of the Beach (FOTB). Notably, the name of the group referred to "the Beach" in general, not specifying their allegiance like the Waihi Beach Protection Society, suggesting that they were standing up to speak for nature itself. A former member reminisces the starting of the group:

> In Council, the word amenity was struck out of the motion. […] I mean this was a unilateral decision in Council to take the amenity [formulation out of the resolution], 'cause nobody now was speaking for the beach. And just that shortly after that Jim Dahm[35], from Thames, came over. My neighbour decided to do something about it. We organized a public hearing, there were 500 people in the community hall, and Jim Dahm gave us a coastal lecture on dune care, and it was brilliant. And that was when most of us really decided, we gotta do something. (Interview with Henry Tamm, Waihi Beach)

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35 Jim Dahm later became an expert witness for Waihi Beach locals lodging an appeal against the protection scheme at the Environment Court. See Chapter 5.

The FOTB's counterpart, The Waihi Beach Protection Society (sometimes abbreviated as the Protection Society), had already chosen a name that allowed the group to present itself as representing a greater good. While the term protection can have different meanings, it has overtly positive connotations, as Cooper and McKenna describe: "Who could argue against protecting the coast when the opposite must imply damage or degradation?" (Cooper and McKenna 2008b: 315; see my discussion in Chapter 1)

The engagement of citizens critical of a new protection scheme was to a large part fuelled by the feeling that the decision if and how the beach should be protected should not be left to the beachfront property owners alone, a thought expressed by local activist and Coast Care volunteer Edgar White when he remembers his motivation to fight the wall:

> I've tried to tell people that the beach belongs to all the people from hundreds of miles away, doesn't it? Not just a few people living on the front foreshore. But we fought this Council to stop this rock wall going up and we didn't win […] Evil prevails when good people do nothing. So at least, at least we fought them. It's better, it's like in life, it's better to have loved and lost than never to have loved at all. (Interview with Edward White, Waihi Beach)

A similar point is made by J.A.G. Cooper and J. McKenna in their paper on "Social Justice in Coastal Erosion Management", who argue that

> [i]f the arguments relating to social justice in coastal erosion management are considered at broader spatial and temporal scales it is evident that the arguments must also be based on the implications for coastal users who may live some distance from the coast, for other property owners on adjacent coasts, and also for future generations of users and residents. (Cooper and McKenna 2008b: 300)

The FOTB group had the character of an ad hoc network rather than that of a predefined interest group. Willie Walker, who was a member of the group, remembers that it was "very loose" in the sense that there was no clearly defined structure or procedure to become a member; "you didn't have to sign anything or join anything, it was just like [we were] friends of Waihi Beach". What held the group together was joint action. Willie describes how that looked:

> People like me and others went around and circulated petitions saying that they didn't like the Council's proposal to do a revetment structure at Waihi Beach. And once the Council announced that it was going to seek a resource consent; then people had to prepare submissions, so people prepared submissions. And at the same time there were more petitions were circulated; there were street – not exactly protests, but people out in public informing anybody that wasn't aware of what was going on. (Interview with Willie Walker, Waihi Beach)

While Willie likes to think of it as a protest movement, the group's strategies were actually more leaning towards responsible citizenship than civil disobedience: raising awareness, circulating petitions, writing submissions, lobbying Council, "and then of course we came to the hearing phase finally; so we went to the hearings". One could say that FOTB was *forming* a public by *informing* the public – invoking Waihi Beach as a community by sharing information they felt mattered to this community. They were remarkably effective; the initial petition received more than 2,000 signatures (Stevenson 2004).

The effects of this civic engagement were still noticeable when I spoke to some of the former protestors. Sitting with Willie in the old and cosy bach he inherited from his grandfather and drinking tea, he started rummaging around in his assorted files and got out old info sheets distributed by the Council, or sketches for submissions in answer to their suggestions. During the interview, Willie often fell into the language of these submissions that took up the legal categories of the Resource Management Act. FOTB and a later group called the Waihi Beach Environment Society overlapped with the Coast Care constituency (see below), and as mentioned by Waihi Beach local Henry Tamm above, a dune restoration specialist appeared on the scene and sparked the idea of sustainable coastal management, probably also first introducing the opponents to a new idea: the backstop wall option.

Roger Kearns and Damien Collins describe a similar example of citizens' resistance in a case against the development of the Ngunguru sand spit in the Northland region, where they also observed the use of technical language in spite of people's very emotional entanglement with the coastal environment (Kearns and Collins 2012: 950). Kearns and Collins observe that this emotional attachment had direct effects on the direction of the political campaign, because people wanted to keep the sand spit completely free of built structures. They quote one of their local interview partners who distances herself strongly from any kind of compromise in terms of development plans: "No, forget it. There's no compromise there for me. It's just not appropriate" (Kearns and Collins 2012). The protesting Waihi Beach residents were also unwilling to compromise in that they did not want the seawall (and many continue to do so). However, there was openness towards discussing other options: first and foremost soft approaches.

Under the impression of widespread resistance against the proposal by Waihi Beach residents, the Council again invited interested groups to a meeting in September 2003, where alternative options could be discussed (Environment Court of New Zealand 2007:

16f.). FOTB presented an alternative proposal: a so-called back-stop wall, a wall that was to be located further back in people's properties instead of on public ground. It would be much lower than the seawall and partly buried, ideally with more sand building up on top of it over time, eventually covering the wall. The existing protection works were to be removed to allow the natural processes more room for that to happen, while the backstop wall was meant to function as a final barrier that would only be exposed in cases of extreme erosion events when it would protect the beachfront houses.

Additionally, FOTB proposed beach nourishment and creek training with so-called geotubes, large sand-filled fabric containers. At the meeting, a number of other alternative proposals were raised by different "interested and affected parties" (Keall 2006: Appendix 3), supported by the Community Board or individual members of the board. On the one hand, it was suggested to revisit options abandoned earlier, especially managed retreat. On the other hand, new options were raised that could be put under the joint heading of "soft engineering". ASR Ltd. (see Chapter 10) suggested the installation of its new generation of geotextile artificial reefs, combined with beach nourishment[36]. Another approach sponsored by a Community Board member was to use so-called Undercurrent Stabilizers™ from Holmberg Technologies Inc. of Florida (Holmberg Technologies 2010), one of many new techniques promoted by small companies (Western Carolina University 2013).

Most clearly, the FOTB suggestion was not only addressing appropriate technology, but simultaneously also speaking to the question of responsibility, as the group asked for the beachfront property owners to foremost shoulder the financial burden of the scheme, with Council only taking on creek training (Keall 2006: Appendix 3). FOTB was not only trying to speak for nature, the group also claimed to represent the interests of the majority of the community not living directly at the beachfront. In their perspective, many of the beachfronters were not actually part of the community at all: they were "out of towners", a description with clear normative underpinning, as Ron Whitherspoon, a long-term resident explains:

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36 A group of hydraulic engineering students from Delft University (NL), visiting the University of Waikato's Coastal Marine Group and working on a project for Waihi Beach came up with the same idea, although their calculations estimated costs about twice as high as in the ASR proposal (NZD 4.8 million compared to NZD 2 million) (Stevenson 2003).

The local people, are beautiful people here, they got a great little community. […] The out of towners come in and that's when we get the graffiti, that's when we get the torn-down letter boxes, the broken glass on the foot path, the dog faeces on the foot path [laughs], they're a different type of people unfortunately. And, or they appear to be, and I suppose there is a little bit of resentment, there is a bit of that in us. You know, I think the locals sort of appreciate what we've got here, a lot more than a lot of the out of towners. There are some lovely people that come in here on holiday, who got holiday places, but there is an element that is fairly self-centered I think. (Interview with Ron Whitherspoon, Waihi Beach)

By specifying what does not count as locally appropriate behaviour, the local itself is getting defined as well – and more so in moral terms than in terms of clearly defined periods of absence or presence in town. The ongoing resentment against the out of towners – or absentees[37], as others call them – is at least partly fuelled by the knowledge that property prices have risen to over a million NZD on average for the beach front, unthinkable of for most of the other inhabitants, especially those who bought their houses a long time ago or inherited them[38]. The prime value of the ultimate beachfront has so far not been impacted by the high erosion risk that these properties have. A coastal scientist involved in defining hazard lines for Council policies and plans claims, not without sarcasm, that the primary hazard line is pretty much interchangeable with a "One Million Dollar line". Not only is this number backed up by the local newspaper's reporting on the real estate market, the same article from 2005 also repeats the unease of the locals with what they perceive as a buy-out:

The Kiwi dream of owning a bach on the beach now costs $1 million – even in some of the smaller Bay communities. Coastal prices have almost doubled in just two years and a Bay of Plenty Times survey of the seaside strip from Waihi to Ohope has found that seven-figure sums are now the norm. The baches and homes are being snapped up by people from Auckland, Hamilton, Rotorua and Tauranga,

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37 This is a term also used in New Zealand official statistics; however, there it applies to people who are absent (on census night) from the dwelling they usually live in, contrary to the colloquial usage for people who are absent for most of the year from their second homes (Statistics New Zealand 2013b).

38 The beachfront values are exponentially higher than houses located further back, with values for the second row considerably lower, often only about half of the seafront prices. Rising nominal values also cause a problem for retirees and other people who bought their houses at lower market levels. Because rates are calculated according to an estimation of the property value *at present,* rising values mean rising rates, a problem for those with limited income and no intention to sell. Ron Whitherspoon explains what happened after the sewage system was installed around 2000 which allowed more subdivision: "The rates have skyrocketed, and unfortunately, it's driving a lot of people out because there is quite a number of people [who] are elderly, pensioners on very, very limited fixed incomes. A lot of our friends are in that category and they struggle to meet the rates demand." (Interview with Ron Whitherspoon, Waihi Beach)

many of whom are using them only during the Christmas-New Year holidays and long weekends. (Woodrad and Skellern 2005)[39]

The activists at the time felt that Council was carrying out the will of these rich people, asking for protection for their risky investments to the expense of the wider public. Rumours about the local Council being threatened with litigation by beachfronters circulated widely. Ron Whitherspoon says that he had managed to buy a house "just in time" before it would have become unaffordable for him:

> We're talking well what to me is big money. Especially to have it lying sort of idle like this if you were paying a million dollar for your house […] One of the comments when I first came here and this argument was starting to simmer, one of the comments was that the Council had been told that the beach front property owners were going to win because they had more money to go through the Courts than what Council did. Whether that was a comment that was made or not, I got a suspicion that it could have had some truth. And because there is some very, very wealthy people involved and it's like a lot of things. (Interview with Ron Whitherspoon, Waihi Beach)

Ron goes on to underline his point by telling me about an interview he had listened to on the radio. It featured Sir Michael Fay, an investment banker and one of the richest New Zealanders, notorious for speculative transactions in the 1980s and 1990s involving former state-owned enterprises, including the purchase of New Zealand Tranz Rail, which saw Fay and his business partners accumulating large profits[40]. Fay had been financing Aotearoa New Zealand's first ever entry at the America's Cup in 1987, and after the Aotearoa New Zealand team lost the race to a team from San Diego, he used a combination of litigious actions, re-reading of the original 1852 rules, and fostering the development of a new generation of fibre glass boats in his attempt to eventually secure victory for the Kiwis[41]. Ron draws a connection of this reckless attitude – rewarded by

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39 The article also states that "the 800 sq m properties along the Waihi Beach waterfront in Shaw Rd and The Loop are valued at $1.1 million – just for the land." See also Peart 2009 on the coastal development boom.

40 The majority of small shareholders lost money. That gave the impression that private profits were trumping public interest in a rather fishy way; Sir Michael Fay and his business partner David Richwhite (Fay Richwhite) had actually been the main financial advisers to New Zealand Rail during government restructuring immediately before the selling (Gaynor 2004). Other companies involved in the deals were the Bank of New Zealand and Telecom New Zealand. The highly profitable transactions were connected to tax avoidance deals establishing a company named European Pacific Investments on the Cook Islands, centre of the so-called "Winebox" parliamentary inquiry in 1999 (Gaynor 1999).

41 When the NZ team arrived second to the San Diego Yacht Club (SDYC) in 1987, Fay used litigious action to challenge SDYC to another Cup race in the following year, arguing that the original Deed of Gift did not contain a provision that meant he had to wait for a general international challenge, held

the Queen by bestowing knighthood on Fay "for services to merchant banking and yachting" (The London Gazette 1990) in 1990 – to what he perceives to have happened in Waihi Beach:

> And Fay says, 'I go by the golden rule: I've got the gold, I make the rules'. And that's always stuck with me, and I think, most probably it's become more and more apparent I think, the people that have got the money make the rules. Unless there's people like us that, only little I suppose, sort of ever go occasionally to sort of stop it, it'll go on and on and on. (Interview with Ron Whitherspoon, Waihi Beach)

So there is, at the same time, a sense of the new rich challenging the old ways of doing things and the respective unwritten rules, ever more stretching the possibilities of private gains on public expense. But at the same time, these maneuvers are nonetheless recognized and acclaimed by the traditional powers, knighted in the most literal and traditionalist sense – a timeless coalition of money and state power that never really changes. There is a feeling of powerlessness conveyed through the deep disappointment that many of the former activists feel. Senior Waihi Beach resident Edward White still vividly remembers his involvement, his fight against the wall, and how it felt to be defeated:

> Unfortunately, I'm very disappointed with [it, we were] overridden by Courts, couldn't stop them from putting rock walls up, and yet we went there with the best intentions. And yet the powers that be couldn't – well, didn't have enough – well the question is, where do you start? (Interview with Edward White, Waihi Beach)

Edward has been an active member of Waihi Beach Coast Care for many years, and also draws a connection between their volunteer dune restoration work and his opposition to the seawall:

> All the planting I helped do and the seeds I picked and trying to do the things necessary to protect the beach and then, we get turned down by a judge that lets the big people build the rocks and protect their houses, but they say if they don't protect their houses, they're going to threaten county [the Council] with litigation. So it's sort of a no win situation sometimes isn't it? Mind you, that doesn't stop us from still trying […]. You participate, and not get the result you wanted, [but] you still get a certain amount of pride out of having a go, don't you? (Interview with Edward White, Waihi Beach)

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typically every 3-4 years (Foster 1989). The story developed into a legal battle over the rules between Fay and the SDYC's skipper Dennis Connor, when Fay had a new type of glass fibre monohull built – a controversial move that was answered by Connor by building a multihull (catamaran) that won the 1988 race. Fay challenged the San Diego Yacht Club's victory in Court, claiming the club had violated the Deed of Gifts but was defeated in 1990 (Miller 1990).

Edward makes a very calm, kind and amiable impression, but still there is a noticeable rebellious overtone that emerges towards the end of his statement. At another occasion, a young Council employee tells me an anecdote, trying to explain what he calls the "Western Bay of Plenty District Council – bad" attitude he so often encounters in his work life. He was having a meeting with some Coast Care representatives on the beach when Edward came along and was introduced to him. Edward commented succinctly about him: "ah, okay, one from the dark side".

From the perspective of the seawall opponents, the Council is much more representative of "the dark side" than the beachfronters themselves, notwithstanding the often quoted split in the community. In December 2003, the Waihi Beach residents made another, as it turned out, last attempt to negotiate directly with one another and subsequently presented the Council with shared desired outcomes, agreed upon at a Council-facilitated workshop held between FOTB, Waihi Beach Protection Society and the local Ratepayers' Association (Keall 2006: Appendix 2). This "joint co-operative approach" was later seen as the final point of concurrence, but this path wasn't followed any further. A participant argued that "they [WBOPDC] were already in the process and they just elected not to stop the process. They just kept on going down that road" – to the seawall.

In 2004, the District Council applied for resource consent to build a combination of a 1050 metre rock revetment replacing the existing structures, "enhanced dune reformation from beach scraping" (Healy 2005: 2) along another 600 metres, and training groynes for Three Mile creek mouth[42]. After lodging the application, the Council was obliged to invite submissions from the public. Coastal scientist Prof. Terry Healy from the University of Waikato, who had been conducting research on Waihi Beach since the 1970s (Healy and Harray 1976; Harray and Healy 1978), was commissioned to undertake a mandatory peer review of the application and some selected submissions. One of these had been written by the directors of the soft engineering company ASR Ltd. (see Chapter 10), also coastal scientists and formerly affiliated with the same university.

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42 The project was split up into several consents. BOP Regional Council was the responsible consent authority for the creek training and earthworks in relation to the dune enhancement. For the seawall itself, because it was partly located below the MHWS line, some works required a separate consent from the Minister of Conservation.

Black et al. (2005) argued strongly against seawalls on open coast beaches, stating that they were inconsistent with both the objective to 'work with nature', as well as the aim to the address the *causes* of coastal erosion with *long-term* options:

> Seawalls […] are applied because of coastal engineering history, i.e. they are a hang-over from times when these coastal protection structures were the only options available. […] Successful long-term coastal protection solutions seek to directly address and work with the natural physical processes responsible for the erosion, not just the effects of erosion. Coastal protection devices that only address the effects of erosion are often known as 'band-aid solutions' since they do not address the cause of erosion and in many cases on the open coast either accelerate the erosion processes or move the problem down the coast. Seawalls are not a form of coastal protection, they are designed to protect the land. Because they are a 'band-aid' solution, they are doomed to fail in the open coast, and will also accelerate the loss of sand[y] beach in front of and adjacent to the structure. (Black et al. 2005a: 11)

Healy agreed with these objections and raised a number of concerns with the scheme. He eventually withheld his approval. Healy had developed a theory of sediment moving south-eastwards from Waihi Beach down along the Bay of Plenty coastline, a so-called net littoral drift (or long-shore sediment drift). He believed that over time, sand was being transported away from Waihi Beach by the predominant ocean currents. On the basis of this theory, Healy criticized that neither the design of revetment, nor dune enhancement and creek training were addressing the underlying causes, "the fundamental problem of the long term sediment deficit that has caused the erosion in the first place" (Healy 2005: 9). Therefore, the seawall was expected to contribute further to the so-called coastal squeeze (Jacobson 2005: 8) which limits the high tide beach.

The dune enhancement area, Healy argued, would need to be assisted by ongoing beach scraping, and would not be able to maintain itself "naturally". In his report, the reviewer reformulated the idea of the longue durée that others had considered before him, and addressed it in coastal science terms, speaking of the long-term character of the natural processes involved. In doing this, he was arguing from a position of authority that could not be completely ignored. The District Council reacted by withholding publication of the peer review regardless of its legal obligation to do so, presumably to prevent it fuelling the opposition against the scheme. Effectively, the public had been excluded from this episode of truth-finding and evaluation of the merit of the project. That Professor Healy later joined the ranks of scientific experts supporting the Environment Court appeal against the scheme (see following Chapter 4.4) was then met with satisfaction by many involved.

Healy was raising another objection – which was going to be addressed in the upcoming Environment Court appeal – pointing beyond his specialist coastal science expertise: public access. This is an important issue which is not only covered by the RMA provisions quoted by Healy below, but also a vital part of the popular culture and national identity in a country where "easy and free access to the beach has been seen as a national birthright" (Phillips 2012). Healy insists on the necessity to allow public access *along* the beach (in contrast to access *to* the beach) in his reply to further information provided by the engineering consultant. He argues that "the extremely important RMA S6(d) issue of 'public access to and along the coastal marine area'" was not adequately addressed by the ten new "informal access points" mentioned in the consent application:

> These do not address the issue of public access along the coastal marine area at all stages of the tide. This can only be mitigated by a public walkway along the top of the sea wall to allow access along the beach at all stages of the tide – which would exist in nature if the sea wall was not there. Moreover, what is an informal public access point? What are the legal and public liability issues of such access points? (Healy 2005: 11)

Framing the issue in terms of the beach as a public versus private space has been a vital part of the seawall opponents' line of argument, especially for those experts involved who perceive themselves as speaking for the public. Another coastal scientist involved in the case explains in an interview:

> In Waihi Beach the argument was that the seawalls are built on public land but were preventing public access to the beach. […] If the seawalls were built in the private property, then it would have been a different issue. Because what tends to happen with seawalls […] is that the seawall is actually built on the public land. But the owners tend to extend their fences and gardens out to the edge of the seawall and create barriers to public access along the top of the seawall. […] So, effectively the private people get an extension to their property; they have their own personal access to the beach and the public lose out. That's the key issue that we're arguing from. (Interview with Peter Stone, Waikato Regional Council)[43]

However, the Bay of Plenty Regional Council (BOP-RC) granted resource consent to the local WBOPDC Council in 2006 for the parts above mean high waters springs (MHWS, the high tide line) that fell within its jurisdiction, and recommended to the Minister of Conversation to give approval to the remainder of the project located below

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43 This trope of beachfronters secretly creeping out onto public land will also be discussed in Chapter 7.3.

MHWS (Lumsden 2011: 3). However, in their internal report, the responsible Regional Council employees also once again echoed the theme of short versus long-term remedies:

> While staff are recommending granting the application to construct the Shaw Road revetment, it should be noted that continued reliance on the level of protection provided by the revetment beyond the duration of the consent is not considered sustainable. The […] consent term recommended should be viewed as a period of grace for the applicant to reconsider development levels and shoreline management for Waihi Beach. Staff consider the possible closure and/or effective management of the Two Mile Creek outlet and reconsideration of forward development lines would provide enough relief from localised erosion and greater beach width to eventually make a structural revetment unnecessary. (Andrew Bruere's staff report of 14 November 2005, see Waihi Beach Community Board n.d.)

At this point, two of the opposing residents lodged an appeal against the resource consent at the Environment Court. The following chapter will take a closer look at what followed when the case entered the sphere of the court, and questions of science, property rights and coastal policy became subject to a legal decision that was experienced as an unexpected defeat by the local appellants, as well as by the coastal experts supporting the case against the seawall.

4.4 Narrowing Down the Case: The Environment Court in Search of "The Scientific Viewpoint" on the Conflict

The Environment Court of Aotearoa New Zealand (Te Kooti Taiao o Aotearoa) is mandated with addressing all issues in relation to the Resource Management Act (RMA). An appeal to this court is the main avenue for citizens objecting to plans or projects that have already been granted resource consent[44]. Initially, the appellants were only demanding access to the unpublished peer review discussed in the previous chapter. But soon, the appeal expanded in scope: it turned into an attempt to revisit the decision-making process of the Western Bay of Plenty District Council (WBOPDC), and to probe the Friends of the Beach (FOTB) alternative – the backstop wall – in court. This happened, however, without the backing of the FOTB group itself, which understood itself as a "protest organization" and was not willing to negotiate a compromise in court.

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44 The Environment Court usually consists of a presiding and possibly a second Environmental Judge, as well as two commissioners with scientific education fulfilling a consulting function.

The two residents appealed as private individuals, although their supporters subsequently founded another group, the Waihi Beach Environment Society in order to support them morally and financially with a number of activities, including used book sales, self-designed t-shirts, and a "beach bums" calendar featuring nude pictures of local businessmen.

The appeal case relied on expert witness evidence provided by a number of well-known experts in the field of coastal management, who contributed their work free of charge in order to support the appeal and to prove the point that the Waihi Beach protection scheme was unsustainable. Notably, Professor Healy, who had been commissioned by WBOPDC to provide the peer review, also provided expert evidence in support of the appellants. The appellants demanded the resource consent for the seawall/revetment part to be declined and argued for the construction of a backstop wall instead, set back as far as possible (up to 20 metres in comparison to the seawall/revetment design) and located within private property boundaries. Such a construction, it was argued, would provide room for "a more natural shoreline" (Dahm 2007a: 21) to develop, while offering protection for the properties in case of more severe storms and erosion events. The main expert witness presenting the backstop alternative also proposed to initially train the second creek (Two Mile Creek) to prevent further erosion, something which had not been part of the WBOPDC consent application.

In his decision dismissing the appeal, the judge argues that he cannot possibly rule the replacement of the seawall with something else, because this would be a *political* decision. Such a proposal would need to include a public submission process that could not be bypassed by a court ruling (Environment Court of New Zealand 2007: 28) – a democratic argument well taken. This is, however, not the main line of his argument. The decision to reject the appeal is framed along his interpretation of "scientific evidence", especially engineering evidence the judge saw missing on the appellants' side.

The judge begins to lay out his decision by recounting the history of the Waihi Beach "problem" (Environment Court of New Zealand 2007: 9f.) from the evidence provided by the Council witnesses. These historical narratives are presented as mere facts, strictly descriptive and could therefore – from the judge's point of view – be taken as an objective representation of what has happened so far:

> Being mainly factual, that evidence was not materially affected in our view through cross-examination. It is helpful also to cite the following historical description given by Mr J L Lumsden, a qualified expert with considerable experience in coastal

engineering issues called on behalf of the respondent consent authorities. (Environment Court of New Zealand 2007: 18)

The judge goes on to claim that "matters have moved on" from the stage of assessing options "and devolved to the wall comparison issue currently at stake". Therefore, he can directly move on to the technical point of view, represented by "a coastal engineer of senior standing" giving evidence for the Council about the different options that have been considered previously. The closure of this matter is deemed so clear that the evidence about the options assessment does not need to be repeated, let alone be scrutinized by the Court. This declaration sets the scene for the judge's truth-finding, which he then claims to limit itself to what he calls "the scientific viewpoint":

> Consequent upon the narrowing of issues as explained, the preponderance of evidence on all sides predictably emanated from the coastal engineering and hazard management experts. Hence, it is the 'scientific viewpoint' to which we largely allude in explaining the parties' respective cases. (Environment Court of New Zealand 2007: 18)

Implicitly recognizing that the scientific viewpoint held by the majority of science experts does *not* support hard protection works on open coasts, the judge adds that idealism has to be replaced with realism:

> Ideally the aim would be to avoid a visible man-made structure along the (albeit reduced) length of the foreshore as proposed. Realistically though, a protective wall is considered necessary in the short to medium term, with the ideal having to be tempered by what is practicable. (Environment Court of New Zealand 2007: 18)[45]

While the judge joins the Council in arguing along the lines of objectivity and realism, the appellants insist on different categories: a more complicated version of history, a different idea of practicality (more leaning towards acceptability) and of the importance to protect the community (its amenity, and social structure, and not the coastal property). They repeatedly state their determination to achieve not only an affordable, but also an "acceptable" solution in the sense of working not only financially and technically,

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45 This echoes what the engineer witnessing on behalf of the Council states, "unshaken under cross examination", which presumedly allows the judge to turn a normative statement into bare facts: "The desire of the land owners at Waihi Beach and others to have a useable beach along the coast is perfectly understandable but it must be realised that, sadly, such an ideal is not compatible with maintaining properties that have been built too close to the shore on an eroding coast." (Environment Court 2007: 20f.)

but also in a social sense of working for the community – an answer not only to the epistemological, but also to the normative and social conflict (a redefinition of "best practicable option" according to the RMA):

> We are firmly of the view that a backstop wall option as proposed by Mr Jim Dahm is the best practicable option for Waihi Beach. […] [It] would be consistent with the previously agreed desired outcomes and would, we believe, go a long way towards resolving the current division that occurs at Waihi Beach. However, this needs to go hand-in-hand with a long term strategy to reduce the risk from coastal erosion and to provide a more acceptable outcome. We do not want to lose an opportunity to make improvements for Waihi Beach and its community. (Keall 2006: 13)

The appellants and their main expert witness ground their argument on a notion of processuality: the appeal is very much concerned with furthering the argument that the Council did not follow due process when moving forward in a way not supported by the majority of the citizens, including elaboration on the change in wording I have described in Chapter 4.3 (changing the objective of the project from the amenity of the beach to the appearance and safety of beach and protection works). This insistence on going back to where the way was first opened for the seawall construction, and the resistance towards the attempts of promoting closure from the side of the Council, were a phenomenon very present throughout my whole fieldwork experience in and about Waihi Beach, visible also in many submissions on other policies and plans (see Keall and Mason n.d.).

This is also what supposedly makes the seawall opponents so annoying to talk to for the Council employees and beachfronters – they are constantly trying to keep the problem space wide open, to go back to fundamental points like 'what are the options' or 'what *is* an option', while the judge and the engineers want to discuss how deep a trench needs to be to build a wall of a specific height and depth. The expert witness for the appellants also points towards his approach not being centred on a definite design, but instead argues the backstop wall is an idea that needs to be concretized in conversation with the homeowners affected by it:

> Which is better overall? In my and other experts' view the correct starting point is identifying the preferred backstop wall location and then work on designing a final location accepting some degree of compromise. (Dahm 2007b: 16)

In this vein, the conflict as it was brought before the judge is very much about different understandings of or approaches to what is a sustainable solution, leading to differing

versions of temporality. On the one side, the supporters of the seawall and the Court aim to address the issue here and now. Their goal is to optimize what is there, in order to achieve closure. On the other side, the opponents and to some degree their scientist supporters understand things as always in flux, subject to continuous change. They claim that everything should be taken as temporally open. For them the issue is never concluded, but should be revisited or re-opened at any point in time if necessary to achieve an adequate outcome. In this sense, their clock is ticking on an eternal time scale. The Court however starts the clock at the moment when the appeal is filed.

These two conflicting understandings are in line with the findings of Cooper and McKenna, who argue that hard protection measures are the more difficult to justify vis-à-vis criteria of social justice and sustainability, the larger the temporal and spatial scales taken into consideration become:

> As the temporal scale increases, the negative environmental impacts of intervention become larger and the costs to future generations are more evident. As the spatial scale increases, the negative implications of sea defences for larger sections of society (e.g. non-resident coastal users) become more evident, as do the implications for more distant sectors of the coastal sedimentary system. […] At larger spatial scales and long time scales, the intergenerational equity question and the losses suffered by non-coastal residents appear to reduce any social justice argument on the part of coastal property owners to the realm of 'ideological intimidation' (Novak, 2000) at worst and wishful thinking at best. (Cooper and McKenna 2008a: 302f.)

During the court proceedings, the appellants' witnesses continued to argue for a widening of the scope and scale. Spatiality remained central to the argument: "The first decision to be made now is to establish replacement protection works in the right place" (Healy 2007: 8). The crux of the problem is the location, not the design of the wall, those in favour of the backstop wall argue. Under the Council scheme, there is neither space for a vegetated dune, nor room for public access.

From a perspective that thinks of the coastal space as socio-natural, one could argue that the seawall project provides neither sufficient space for the natural (processes) nor the social (uses) in this socio-natural environment[46]. In relation to the recurring theme of temporality, the appeal witnesses introduce further arguments from environmental economics, arguing for the multifunctionality, or multiple benefits, of a backstop wall,

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46 Terry Healy goes on to argue for a combination of backstop-wall and beach nourishment, an approach that aims at enlarging the always limited coastal space.

especially in terms of intergenerational equity. Expert witness Peter Singleton from the neighbouring Waikato's Regional Council refers to what he says is the undesirability of a possible future expansion a seawalled coast under climate change conditions:

> To put this into context, approximately 1 km (or 3%), of the Region's developed eastern sandy beaches are currently protected by seawalls. This could increase to 18 km of seawall by 2100. The implications for beach use and loss of amenity in these locations are significant. For this reason I consider the outcome of this Waihi Beach hearing where the issue is whether most of an existing but now dilapidated seawall should be replaced in essentially the same location could have important implications for how beaches in the Waikato and other parts of New Zealand might be managed. (Singleton 2007b: 4)

These apprehensions of a future with widespread coastal armouring are probably fuelled by knowledge about the present-day situation of many developed coastlines. Cooper and McKenna, for example, observe that "[a]t present, large sections of the coastline of Europe are armoured or engineered to slow coastal erosion" and that

> [t]he inevitable result of continued and expanded intervention in coastal processes is a completely armoured shoreline that depends on human intervention for its maintenance. […] It will only be possible to reverse the trend of continued development in ill-advised locations if the practice of engineering of the shoreline is stopped other than at sites where intervention is imperative for society as a whole (e.g. for essential navigation or to protect vital infrastructure). (Cooper and McKenna 2008b: 330)

Willem De Lange, Oceanographer and Senior Lecturer in Earth and Ocean Sciences at the University of Waikato, raises another argument for the dunes in the context of sandbinding vegetation as nature's help against climate change:

> It is likely that if human impacts on beach processes are minimised, that natural processes can provide the necessary mitigation against sea level rise for sandy beaches around New Zealand. […] A combination of backstop wall and a natural beach system will provide a higher level of protection from all coastal hazards than a seawall alone can provide. (De Lange 2007: 13f.)

The appellation of the beach as a public asset is, however, explicitly denied by one of the Council witnesses, a consultancy engineer. Quoting his statement that,

> protection of the properties at risk may take precedence over the need to maintain a beach, most likely because it is not a significant public asset and the costs of maintaining the beach cannot be justified,

appeal witness Jim Dahm in reply points to the value of the beach:

> The beach is after all the primary reason that the town is there […] Intangible values are not things dreamed up, they are real values that the market is not yet able to

recognise or value appropriately – not because the item (e.g. a beach) lacks value (as appears to be assumed by Mr Lumsden) but because of deficiencies in the market's pricing mechanisms. (Dahm 2007b: 11)

The judge however does not subscribe to this argument. He sharply dismisses any attempt to reframe the "scientific question" into a question of public interest. He is not interested in defining public interest. And for him, the question is not if those demanding protection for their private property under the given circumstances – coastal squeeze, loss of high tide beach, investment of taxes, unresolved public access issues – may be counteracting public interest, however defined:

> In fact counsel for the first appellants went so far as to suggest at one point of argument that it is selfish for the beachfront property owners to expect their properties to be protected via the wall as proposed at the expense of the natural beach environment and the well-being of others who use and cherish the beach. We do not criticise the first appellants for mounting the challenge they have out of what we conceive to be a genuine public-spirited intent, but agree with Mr Cooney in response for the Council that, in determining these proceedings from an RMA perspective, the case is not about taking advantage of a public asset for private gain or about people receiving preferential treatment. Rather, it is about how the natural and physical resources of this coastal area should be sustainably managed, given the notable hazard risks (both in causative event and consequential effect terms) to which the area is unquestionably subject. (Environment Court of New Zealand 2007: 33)

In doing so, the judge again redefines the question. This is not about politics, but about science. This is not about public versus private benefits and responsibilities, but about resource management understood as a different sort of cost-benefit calculation, not including intangibles. What the Environment Court did not scrutinize was the beachfronters' interest to have their capital gains reinsured by public works – a kind of insurance by engineering technology in a situation where regular insurance is becoming more difficult to get on the market (see Cooper and McKenna 2008a). In some cases the houses had been bought long time ago for only a tiny fraction of the current value, which means society would carry part of the investment risk[47]. Eventually, engineering arguments turn up trumps: the Court settles the matter by accusing the appellant witnesses of lacking engineering know-how:

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47 The following quote from Robert Cook of the Waihi Beach Protection society exemplifies the point: "I mean we've always had, sort of rocks there, and the sea's amazing. I can remember when we first bought that was only a little wee tiny bach in the sand hills – it cost $17,000; that was all."

The first appellants' case rests upon the evidence of several coastal scientists, including lengthy evidence given by Mr J Dahm, a coastal processes and coastal hazards management consultant with 17 years work experience. As with other witnesses called for the first appellants, Mr Dahm readily acknowledged that his expertise is not that of an engineer. He nevertheless pointed to having worked in collaboration with such professionals. While we acknowledge Mr Dahm's apparent sincerity of purpose in emphasising the advantages of the backstop wall concept with particular reference to the first appellants' proposed alternative, his responses under questioning assumed at some points a rather effusive character. (Environment Court of New Zealand 2007: 21)

According to the judge, the appellants' primary expert witness testimony is rendered unconvincing by his performance; he is seemingly too enthusiastic, too much convinced of his idea of the paradigm change in coastal management to count as a reliable, trustworthy expert. The latter goes great lengths to underline his familiarity with the issue, including his practical experience from different positions (as a former Council officer at Waikato Regional Council and as a consultant for owners and for Councils, see Dahm 2007b: 3) and the ubiquity of approaches beyond hard protection if seen from a global perspective:

If the term 'buried seawall' or similar is typed into Google, you will find innumerable other examples all around the world – this is not an 'unproven' method, it is a standard and simple technique. However, after 17 years [of] experience (at probably over 200 sites in various roles) I am well aware of the fierce opposition to any form of retreat from the coast and can understand why traditional engineering practices (and associated adverse effects) have generally been maintained. Promoting sustainable management on the coastal interface between high public and private values is not easy. (Dahm 2007b: 17)[48]

All this, including the statement that there are no easy solutions here, points to an understanding of coastal science and coastal engineering as being irreconcilable approaches when it comes to coastal protection issues. This motif is also elaborated upon by others involved, as this witness to the case summarizes:

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48 In the following passage, he elaborates: "I have quite literally been involved in 100s of meetings and discussions with front beach property owners over the last 18 years, both as a Council officer and as a consultant – in roles acting for owners and for Councils. I am very familiar with views of the kind he encountered. Such views are in fact well known to practitioners experienced with coastal erosion – not just in Aotearoa New Zealand but overseas. I am presently encountering exactly the same views and opposition to a backstop wall at another site and have had to work through similar views at several sites […] I find it interesting that these wider community views and opposition are not discussed, even though I am sure the applicant must be aware of the widespread community opposition." (Dahm 2007b: 3)

> So, it was all the coastal scientists are saying, 'there are better ways to do this than the seawall'. And the engineers were saying, that you couldn't build a backstop wall without going onto properties, which in retrospect, if there'd been an engineer to show that that wasn't the case, which seems to be true, that would have helped with the court case. But there were no engineers, on our side if you like. (Interview with Peter Stone, Waikato Regional Council)

When I asked the appellants themselves why they did not pursue engineering evidence, they stated that there were simply no engineers volunteering to support their case. The pioneers and promoters of a 'working with nature' approach, like the ones who assisted the Waihi Beach appellants, tend to be coastal scientists. They share what Knorr-Cetina (1999) has called an epistemic culture (see also Meyer and Molyneux-Hodgson 2010). Their understanding of coastal nature as a "dynamic equilibrium" (Schwartz 2005: 399f.) that is cyclic, always in flux and indefinite, matches that of the seawall opponents. Chapters 6 to 9 will take a closer look at dune restoration projects through which these coastal experts and interested locals engage in sharing a community of practice (Wenger 1998) for 'working with nature'. In the process of the Waihi Beach Environment Court appeal, the coastal scientists were pointing to what *could be done* at Waihi Beach. The engineering "thought style" (Fleck 1979: 39f.) on the contrary, zooms in on the restrictions of the situation as it is found, and can be characterized as following through path dependency, and asking what *can be done now*.

Ironically, the Court finally came to the conclusion that a backstop wall "may well qualify as a longer term future possibility" – just not for now, as "it is not a practicable option at present or within a clearly identifiable timeframe". The Council should therefore

> carry out purposeful investigation in the years ahead and consult with the local community, including the beachfront property owners in particular, as to the best practicable long term option or combination of options beyond the consent period. On the last point, timely investigation and planning will be essential to ensure that a more permanent solution is practicable for adoption, without repetition of the circumstances that presently allow for a short to medium term approach only. Doubtless the concept of a 'true' backstop wall, and a revisiting of the possibility of diverting Two and Three-Mile Creeks, will feature among the options that will need to undergo serious consideration. (Environment Court of New Zealand 2007: 35)

Dismissing the appeal with its decision dated 30 November 2007, the Environment Court upheld the existing resource consents for the activities above mean high water springs (MHWS): the beach scraping, the construction of training groynes and parts of the seawall (Environment Court of New Zealand 2007: 5; Chadwick 2008). The Court

repeated its recommendation to the Minister for the Environment to grant consent for the activities below MHWS. The Court also suggested that for the time being, training of Two Mile Creek should be considered as well. The Minister's approval on 26 April 2008 came as no surprise, but contained two conditions: the consent was only temporary, valid for 25 years, advising WBOPDC that since "the rock seawall is not a long term solution to coastal hazards at Waihi Beach", by 2020, it

> must undertake comprehensive investigations into the best ways to manage the long-term effects of erosion. In doing this, it will be important that the Council works with the community to come up with a long-term solution. (Chadwick 2008)

As a further requirement, WBOPDC was required to signpost public access. In the press release informing the public about the consent being granted, the Minister also picks up on the 'working with nature' theme: "In the long term, we must restore and work with the natural processes on the coast" (Chadwick 2008).

The Minister's comments point to an interrelationship between 'working with nature' and 'working with the community' that I think is symptomatic of the Waihi Beach Case and demands interpretation. If analysing 'working with nature' triggers the question of 'what nature?' – including the hypothesis that coastal natures are nothing pre-existing, but brought into being through practice – then the same might be said about the community: which community? How is it brought into being? In any case, the ubiquity of the 'working with nature' theme in this case where it was not put into practice is remarkable, and mirrored by the earlier declaration of Council employee Grant Bridgwater:

> Nobody wants to build a rock revetment – or re-build one to modern standards, as in this case. It's not really the most long-term, environmentally friendly option but you can only afford what you can. (Stevenson 2004)

The appellants had been well supported by scientists whose assessment of coastal engineering options was not a minority opinion, even though the court treated it as such. Moreover, when I speak with an employee of the engineering consultant that had designed the protection, he is at pains to stress that from the engineering standpoint a seawall at Waihi Beach is the wrong choice. And the revision of the New Zealand Coastal Policy Statement, especially of the parts relating to coastal hazard exactly during the time of the appeal (Jacobson 2004a; Jacobson 2004b; Department of Conservation 2008) shows that the political will was already there to move beyond such hard protection schemes.

The wall unites local opponents and coastal experts working across the country. Except for some of the beachfront property owners (not even all of them where in favour of the project) and the local Council which was arguably balking at the prospect of legal challenges and political costs, everyone in this case agreed in their disapproval of the seawall. This makes the seawall an even more powerful object, the seemingly unpreventable outcome of an unstoppable process. It symbolizes the paradoxical situation of a country which on the one side praises social equality, the nation-building function of iconic coastal landscapes and public access to the beach, but on the other side is built upon a strong notion of private property rights, has been subject to neoliberal reforms and privatization policies early on, and has recently experienced an unprecedented coastal development boom. The same paradox had a violent outburst in the 2004 foreshore and seabed debate (see Chapter 3.1).

As noted above, the decision pro seawall has been furthered by framing it only as a short-term solution. The costs for the protection scheme of about 6 million NZD will be funded through rates over the 25-year consent period and distributed amongst the district residents[49]. The substantive costs, the length of the political and judicial quarrel before the project went ahead, but also the sheer size of the rock revetment – about 3.5 meters in height and 3.4 metres in width – make it highly unlikely that the seawall will be removed again as long as it still works as a protection structure for the houses. The materiality of the seawall, the institutional framework and the processes of decision-making all lean far to the pragmatist understanding of the matter that emerged during the appeal.

The peer reviewer assigned to the construction process of the scheme in 2011 addresses the question of temporal scale via climate change adaptation *of* the seawall. He critiques missing allowances in the wall dimensions for climate change, but comes to the general conclusion that

> as far as sea level rise is concerned, rock revetments do have a distinct advantage over other marine structures such as wharves in that they can usually be upgraded

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49 The costs for the project amounting to 5.9 million NZD were divided into three rate divisions: immediate beneficiaries, residents of Waihi Beach Ward (including Bowentown and Athenree), and residents of WBOPDC, distributed over the complete time span of the consent, 25 years. The rates will be increased according to inflation rates. In the first fiscal year (2008/2009), the immediate beneficiaries on the beachfront paid 3,800 NZD, the residents of Waihi Beach ward 21.90 NZD, and the rest of the district 1.90 NZD (Owens 2008).

> to suit changing conditions. This may include adding rocks to the face and increasing the crest height, both of which may become necessary in the event of predicted climate change […]. The revetment can be upgraded in the future, if necessary. Since this might not be necessary for several decades, on-going maintenance of the revetment must be provided *in order to ensure its longevity.* (Lumsden 2011: 12, emphasis added FG)

When talking to people whose properties are protected by the "temporary" scheme, they also convey a sense of closure, the material presence of the revetment being an important point. Just as important for them is that they feel unlikely to be affected by what might happen in 25 years, given they themselves are already advanced in years. The loop effect of property protection works – described in the hazard policy literature as causing a false sense of security and leading to more value accumulated in sites at risk (Cooper and McKenna 2008a) – can already be observed. Sitting in their living room overlooking the Pacific Ocean, Mr and Mrs Watkinson draw the connection between their retirement options and the Council's protection plans. Mrs Watkinson explains:

> We actually had thought about coming out here in our retirement but had done nothing about it because we were worried about the erosion, and then when the Council put out one of their quarterly publications and said they were going to go ahead with the beach protection, my husband and I thought, right, the time's right for us. So that's when we decided to remove the bach that was here and build this place. (Interview with Mr and Mrs Watkinson, Waihi Beach)

This is not to say that these beachfront residents see alternative options to the revetment as fundamentally unthinkable, rather Mr Watkinson assumes that

> it just got left for so long, with nothing having happened, that I guess, this then became the only sort of alternative that people could come up with – the experts. But there probably will be, as time goes by, things that they will work out but they'll have to do it this time before they could just sort of […] put it in the 'too hard' basket. (Interview with Mr and Mrs Watkinson, Waihi Beach)

So temporalities remain an important category for understanding the "Waihi Beach saga" (Healy and Soomere 2008: 459). The conflict around the protection scheme revolves to a large part around different imaginations of temporality. What was perceived by different sides as the relevant timeframe – the immediacy of coastal hazard risk to private property versus the long-term cyclicity of the coastal environment – translated into different preferred reactions. The Council's aim to solve the problem here and now translated into a preference for hard measures. In contrast, those stressing fluidity and open-endedness were leaning towards soft measures like the backstop wall and dune restoration. Or, going further, arguing for managed retreat and nature's freedom to be

left alone. The spatial dimension of the scarcity of coastal space remains the reason for its desirability as much as its vulnerability. Will the issue forever stay in the "too hard basket"? Arguably, the Council has already started to engage in a transition to softer approaches. It is important to remember that besides the seawall, the protection scheme also features two other measures (which were not within the scope of the appeal): geotextile creek training and dune "enhancement". The next chapter will be opened with a closer look at these elements.

5. Possible Futures

5.1 Soft Options: "A Sob to the Greenies"

From early on, the design of the protection scheme had included an area designated to "dune enhancement". This technical term was meant to refer to the reconstruction and subsequent planting of a foredune area as the only coastal protection along a couple of hundred metres of the beach adjacent to the seawalled part. When beachfront property owners protested, this idea was temporarily abandoned. However, when another consultant report estimated significant cost increases for the revetment, alongside continuing resistance of the seawall opponents, WBOPDC returned to the original plan for a soft options part. Robert Cook of the Waihi Beach Protection Society put it quite succinctly: The Council's decision was partly based on cost, plus

> it was really a bit of a sob to the greenies, you know, look at all this, and then we'll put sand on the end of there or we'll just build a sand dune (Interview with Robert Cook, Waihi Beach).

This version of the story is backed up by the documents accepted by the Court and the seawall supporters and opponents alike. An employee of the engineering consultant that provided the design, however, told me his company did not promote the dune enhancement and assumed it was the will of the property owners. While this version seems unlikely, it highlights the perception that everything in Waihi Beach is more of a political than an engineering decision. Read alongside the judge's claim that the appeal Court's task could be reduced to a decision about the "scientific viewpoint", one might argue that the two main positions which represent the power of truth claims (the law and science/engineering) both refer to what is respectively out of their sphere of influence. Could this be an attempt to reject full responsibility for the outcome if the engineers complain that they have to build structures that work first and foremost in a political way, and the judge asserts that he is only weighing scientific evidence?

Discussing the case with a Council employee, he thinks of Waihi Beach as somewhere where everything is disquietingly political. The man, who has an engineering background himself, feels that scientific facts are disregarded by the local activists:

> The people living up there in Waihi Beach, including those who have bought the beachfront properties are quite special. When I talk to someone, and explain things to people, and it makes sense, that usually works. In Waihi Beach, it doesn't. I recently came up with a good best example to explain the Waihi Beach people. If

somebody asks you, can penguins fly, what is your answer? (Interviewer: Uhm, no I don't think so). Yes that's right, they can't fly. Penguins can't fly. And the problem is, the Waihi Beach resident then says, why not, they have wings! So, the thing is, if you give them a scientific explanation, or common sense, that doesn't work. For whatever reason, which I don't know. *It doesn't work.* (Interview with Mike Schwartz, Western Bay of Plenty District Council)

However, my interview partner also seems to think that this makes Waihi Beach an exemption – but one might argue that to question or reject scientific lines of argument is neither uncommon, nor should the interpretation jump to the conclusion that this is necessarily a sign of ignorance on the part of the public[50] – especially in the light of these citizens' experience in a court case where contested political questions were repeatedly (re)framed as questions of science and/or engineering.

Stating that the dune enhancement area has been used as a bargain throughout the process is one thing. But how was the soft options part of the project eventually put into sociomaterial practice, and how did it work – on a technical as well as social level? In order to address these questions, a side glance to Coast Care is useful. I will address the objectives, practices and structure of the volunteer dune restoration programme Coast Care Bay of Plenty in much more detail in the second empirical part. Important to note, for now, is the substantial overlap that can be seen in Waihi Beach between the constituency of Coast Care and seawall opposition. As mentioned before, the main expert witness for the appellants' case of a backstop wall is also a well-known dune restoration professional. The decision for the seawall also had wider repercussions for the Coast Care programme as a whole. The diversity of local groups is organized and coordinated by a Regional Council officer, a highly visible role in the volunteer dune restoration universe; all regional coordinators I met were extremely popular and highly respected public figures. The Coast Care BOP coordinator active during the Waihi Beach appeal and decision later received a Queen's Birthday Honour "for services to conservation" (in 2011). It therefore hit the (local) news(paper) when the "Coast Care man resign[ed] over [the] seawall decision":

> Environment Bay of Plenty's dune restoration co-ordinator has resigned, citing his opposition to Waihi Beach's $5 million rockwall as a reason for his decision. Greg

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50 I encountered similar irritation also on other occasions. Another professional with science training reports from a trip to another seawall conflict site: "There is no understanding of science at all. You could present everything in Court. You could say it's octopuses migrating that cause the erosion. People would say, 'Oh well, we better build a seawall then'." (Fieldnotes, 05.07.2011)

> Jenks claims the rockwall revetment is not coastal protection but is instead de-
> signed to protect private property and will eventually fail. Mr. Jenks says his strong
> opposition to the work – which went to the Environment Court and means all
> Western Bay ratepayers will contribute – was a contributing factor in his resigna-
> tion. 'This revetment is $5 million worth of hard surface engineering – read big
> rocks – which failed to gain support of any New Zealand coastal scientists,' he
> said. Mr. Jenks said the work would reduce pedestrian access to the beach and in-
> duce further beach erosion. He said he'd had a number of years experience rebuild-
> ing dunes similar to Waihi Beach and said there were alternatives. 'I feel very sad-
> dened by the decision,' he said […] It's my own opinion but there was no rush to
> build a seawall – there was time to restore a dune there' […] (King 2008)

A coastal management specialist who is familiar with the case underlines the wide-spread agreement of Coast Carers with this opinion:

> I think it's fair to say the people who are interested in dune restoration think that
> that seawall project is a stupid waste of money and that those properties that stick
> out too far [laughs] should have been first of all asked to put their dwellings at the
> back of the property. Or secondly, this is the first example of where some sort of
> managed retreat process should have perhaps been put into practice rather than go-
> ing, 'Oh crikey, they keep threatening us with legal action'. (Interview with Scott
> Myers)

The understanding that dune restoration could have been an alternative to installing an-other hard structure is mirrored by this local volunteer writing to the local paper:

> Sir, dunecare is the answer to much of the beachfront erosion at Waihi Beach, and
> people can do their bit to help with planting at the following times and places: […].
> Helen Meiklejohn, Waihi Beach (Meiklejohn n.d.)[51]

This call to do one's bit stresses the perceived connection between actual physical work and moral obligation in volunteering work. Many of the members of the Coast Care group have been actively involved in the protest and the appeal against the protection scheme. Engaging with them, I was trying to figure out if they understood Coast Care not only as a pool of seawall opponents (which they clearly did), but if maybe Coast Care was also in itself a form of seawall resistance, especially because it gained momentum in Waihi Beach around the time the District Council had begun assessing options for the seawall replacement. Was part of its success attributable to the shared dis-approval of the seawall project? However, this interpretation of mine was rejected by people I spoke to. What remained unquestionable though was that "all the Coast Care

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51 Newspaper clipping provided by informant without source.

volunteers in Waihi Beach hate the wall and they want nothing to do with it" (Interview with Scott Myers).

This uncompromising attitude also had consequences for the soft options part of the protection scheme. Suzanne, who occasionally worked for Coast Care as well, felt this when she took up a contract with WBOPDC to carry out some planting work on top of a section of the seawall (van Leeuwen 2010). While her goal was to "make the best of a bad situation" by trying to provide the best possible restoration work to these areas, some volunteers had difficulties accepting her position:

> I think I explained myself to the volunteers but I think some of them felt like, 'Well, you're doing Coast Care but then you're actually going and planting on the seawall that we are completely against and you're completely against', you know. So I think some of them found that hard, because I was kind of like in the opposition kind of thing. But I just would say to them, 'Well, it's going to happen, it's here, and if we're gonna have plants in it then you might as well get them planted really well and they might be able to like trap some sand in and you might lose some of the rocks and you'll start covering [them] in the sand', or you know, 'you have to see that the planting is a positive thing'. (Interview with Suzanne Fischer, former Coast Care BOP)

While rejecting this realpolitik, some of the local volunteers nonetheless engaged in some planting on areas outside the dedicated Coast Care areas as well. One of my Waihi Beach contacts told me how he and his friends would take home surplus dune plants provided free of charge by the Coast Care programme at volunteer events, to then sneak back secretly to the beach and plant them in the area that had been earmarked for the dune enhancement – trying to prove the point that the plants alone were enough to transform the area into a functioning dune system. Both the uncompromising attitude and the remnants of informal Coast Care efforts were then resurfacing in relation to the dune enhancement works.

The dune enhancement is a simple technique: sand is either directly scraped off the beach closer to the surf zone, or sand sourced somewhere else is trucked to the site. In Waihi Beach, this sand was piled up directly in front of property boundaries, thereby covering remnants of the prior protection works (rocks and gabions), and existing vegetation, some of it native dune vegetation resulting from volunteers' clandestine Coast Care exercises. The Coast Care coordinator at the Regional Council had been aware of this and, when consulted by the project managers, strongly advised that instead of dumping new sand on top of existing vegetation, it would be better to remove the top layer including plants, heighten the dune with additional sand, and then "transplant" the

existing vegetation back onto the dune. This advice was not followed. Therefore, the new dune had to be planted with new sand binding plants in order to stabilize it.

The Council decided that the work should be done by volunteers. The motives for that decision were interpreted differently by different actors. The responsible Council employee presented it as giving the public a welcome opportunity to participate and be engaged in the project, and plantings were advertised in analogy to the Coast Care volunteer events, in the hope of attracting the Coast Care constituency as well as the beachfronters. This came after the Coast Carers had declined to support the dune enhancement because it was a part of the overall protection scheme. Elise Vanderbek, a local Coast Carer, recounts why the Council initiative to enrol the usual Coast Care suspects as volunteers was met with great disapproval. On the one hand, she criticizes that the dune was "artificially built in a day or two; it wasn't allowed to, to build up naturally, like we work with the other dunes, we work with nature". On the other hand, she questions that this is in the public interest and deserves the efforts of volunteers' work:

> Also the public felt, our rates are paying for it; why are we expected to go and volunteer, to do voluntary work as well? I mean the Council have got a contract for someone to do that work and we're paying for it in our rates, so why do we have to also pay for it with our time and labour? And so that's what people felt, and also people feel that the people getting the benefit of that dune is the property owners who live next door but the property owners won't come and help so why should we go and help their properties when they don't – they never come and get involved in Coast Care work. (Interview with Elise Vanderbek, Waihi Beach)

Quite predictably, the Council strategy did not work out. The locals, who strongly suspected that the Council was mainly trying to count on "cheap volunteer labour", simply didn't show up for the first event scheduled. A group of school children took up the task of planting one half of the dune – with Coast Carers addressing this sardonically as "slave labour" or a "PR exercise". I took part in a second attempt to organize a public planting. Most of my Coast Care friends had already declared that they were "boycotting the Council thing". The composition of the group finally doing the work was indeed unusual: the only Coast Carer present was Elise Vanderbek. Always willing to "do her bit", she finally went regardless of all her convincing arguments *against* it. Apart from her and two beachfronters, the group consisted of the engineer who had designed the protection scheme, his wife and children, as well as a subcontractor and his sister. While we were working on the dune, the boycotters were walking up and down the beach past

the plantings, stopping to watch it together and discuss what was happening, pointing out their disapproval through non-participation[52].

Finally, the whole project turned into an utter sociotechnical failure when only two weeks later the new dune was washed away in a storm event with high tides. The event made the headlines in the local newspaper, which titled: "Dune efforts washed away", explaining that "the work to build up the dunes was not supported by the local group Dune Care group" (Tagg 2011). Once again, rocks and gabions reappeared, as well as the underlying layer of already existing Coast Care plants. Upon inspection of the damage, a Coast Care volunteer came to the conclusion that this storm had just come in time to uncover "their" plants before there were finally choked by the sand added. Trying to figure out what had gone wrong, the Council followed the usual procedure of commissioning a peer review from a coastal engineer. A close reading of this review provides some insights as to why the project failed from the engineering point of view, but also into the objectives of the project seen from this perspective. The reviewer begins by declaring that

> in the normal hierarchy of coastal management options, dune enhancement is a preferred choice and should always be considered ahead of so-called "hard" protection works such as a revetment (Lumsden 2011: 13).

According to the reviewer, the objective was to "build a dune capable of protecting property along the shore". In regard to the beach scraping (the physical process of piling up sand for the dune taken from the inter-tidal zone, and the prerequisite of the subsequent planting exercise) he argues that it

> can be considered to be enhancing or working with nature insofar as the sand, given favourable conditions, would eventually end up in the dune (Lumsden 2011: 12).

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52 In practical terms as well, the planting was different from the many Coast Care events I had participated in before. The dune formed by from the additional sand was much steeper than the about 20° angle that dunes with native vegetation cover usually form in the region, and I found it difficult to move along the slope of loose sand and plant without "messing it all up", as I was accused of by Elise Vanderbek. In contrast to the standard dune restoration practices (see Chapter 6), no fertilizer was added to the planting holes. Suzanne Fischer comments on how the planting was done and stresses that Coast Care would not plant anything steeper than 25-30 degree angle. Regarding fertilizer she says: "If they're not planting with fertilizer, I mean that's just, that's like the biggest... if I'm planting and run out of fertilizer I'll say, 'Look that's it, I don't care, we're not planting these plants anymore because we've got no fertilizer left'." (Interview with Suzanne Fischer, Coast Care BOP)

This is 'working with nature', because it is speeding up nature, or so the reviewer argues. The peer review further states that the "design intent" of the scheme was to

> provide a small dune system matching the existing dunes to the north, with the expectation that dune growth would occur over the longer term due to improved sand binding vegetation based on the experience of the dune growth that had occurred at the central and northern areas of Coronation Park without any additional sand nourishment (Lumsden 2011: 8).

What is not mentioned is that the dunes at the northern end which are taken as a reference point of a healthy dune system (functioning or "capable" in the sense of protecting property), are in fact a result of ongoing care work by the dune restoration volunteers from Coast Care. The "favourable conditions" necessary to apply the same 'working with nature' approach to the dune enhancement area of the protection scheme would mean recognizing the actual human work and ongoing maintenance necessary. As a result of this work, the dunes at the northern end feature already existing sand trapping vegetation that holds the sand which is moved up the beach by the means of wind and water – and there is sufficient space. In the case of the dune enhancement, no one seemed willing to invest into maintenance work (the Coast Carers refused to be involved, and the beachfronters seemed unaware of the ongoing work needed), the function of the clandestine Coast Care plants already there had been disregarded and compromised by covering them with the sand scraping, and the dune was squeezed into a tiny zone of transition between people's private lawns and the beach. Most probably it is located too close to the high tide line to work. The reviewer, however, narrows down the argument to the material used to build the dune, by concentrating on his assessment that

> the amount of sand provided in the enhanced dune was not sufficient to withstand a major storm and leave enough dune with planting to provide a reasonable prospect that the eroded dune would recover naturally in time (Lumsden 2011: 13).

After almost two years, the Council claimed that it was still "working on a mid to long-term solution acceptable for all affected parties" (Council employee, pers. comm. 25.03.2013). But is such a long-term solution possible? It might well be that ongoing maintenance of some sort is exactly what the project will require. During the Environment Court appeal, one of the appellants' expert witnesses had already voiced his opinion that the dune enhancement as planned would not only use far too little sand to be viable, but that it would also need to be repeated regularly. "In principle", he argued, "the

dune reconstruction by beach scraping along the less-eroded shoreline sectors is a rea-sonable temporary approach", but again it is not addressing the "long term sediment deficit that has caused the erosion in the first place" (Healy 2007: 5). This framing of 'working with nature' as a temporary approach is counterintuitive if one expects nature to maintain itself over time without ongoing human assistance. But in regard to dune restoration, this ongoing human maintenance work is a fundamental necessity, especial-ly vis-à-vis the introduced flora and fauna outcompeting "native nature" (see Chapter 9).

Ongoing maintenance is also a main point of critique in regard to beach nourishment in general, which has been discussed in Waihi Beach in combination with artificial reefs, but was considered unaffordable under the circumstances. It is however the "soft" technique of choice in many developed nations, where high values of dense infrastruc-ture, public and private assets are measured against the costs of re-nourishing the beach at regular intervals (for Germany see for example the island of Sylt, see Reise 2009). With this technique becoming more and more widely used, suitable sand becomes an increasingly scarce and expensive resource. Where sand is not readily available, for ex-ample in the form of off-shore sand deposits, sand has to be imported. Sand-mining is a burgeoning international business – for example in Asia – and is in effect capable of re-producing environmental injustice on the global scale: taking sediment out of natural systems inevitably results in an unbalanced sediment budget and can cause coastal ero-sion, locally or downstream[53]. In fact, Waihi Beach has been a historic site of sand min-ing, too. During World War II, sand from the beach was allegedly used for sandblasting military aircrafts (Fieldnotes February 2010; see also Peart 2009: 50 referring to other locations).

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53 Sand is not only used for beach nourishment, but also for coastal reclamation projects worldwide, as well as for the construction industry. In Singapore for example, increasing demand for sand has fuelled conflict over the resource with neighbouring (poorer) countries. After some South East Asian countries introduced sand export bans to stop illegal extraction from their beaches, they accused Sin-gaporeans of paying smugglers to import "stolen beaches" (Gray 2011). I thank Michael J. Fischer for calling my attention to this case. In the New Zealand context, sand is mined mostly to produce con-crete, abrasives and glass. Recently, mining of the seabed has become a vital interest of the industry, especially on the west coast of the country where substantial black ironsand reserves are located that can be smelted to iron. Protest groups like KASM (Kiwis against seabed mining) protest the extrac-tion of sand from the seabed (KASM n.d.).

To handle the Waihi Beach dune enhancement area while working on a "solution", and especially to address beachfronters demands for direct access to the beach, the Council installed makeshift stairs out of geotextile bags as what are called "temporary access structures" (Council employee, pers. comm. 25.03. 2013). Similar geotextile bags are used for creek training in Waihi Beach. Asking if they are a soft solution, too, brings us directly to the question of what a soft option is and ought to be – a central question that different actors answer differently. To be sure, the manufacturer promotes them on the company website as "a flexible alternative to 'hard rock' solutions for coastal works" (Maccaferri New Zealand 2013) and claims that for Waihi Beach's Three Mile Creek,

> ELCOROCK® was chosen as the best solution as it was seen as a 'soft engineering' option – environmentally and user friendly while being extremely robust to withstand the harsh abrasive conditions found in a coastal environment. (Geofabrics Australasia n.d.)

The name *Elcorock*, however, does not support the claim that the geotextile containers are fundamentally different from common hard protection structures. In fact, after a restructuring of the company, a revised website continues to praise the "flexibility, versatility and proven performance" of the containers, but argues primarily with the economic advantages of the technology:

> […] ELCOROCK® [is] a cost effective alternative to 'hard rock' solutions for sea walls and revetments as well as for the construction of groynes and breakwater structures. (Geofabrics, formerly Maccaferri NZ Ltd. 2015)

An employee of the engineering company involved in the Waihi Beach project also perceived of the bags as a hard measure, because the containers are used to form a barrier just as much as a seawall made of rocks. Most of the seawall opponents I spoke to were, however, in favour of geotextiles. If people disliked them, they stated aesthetic reasons: they argued that the bags were unsightly, especially after they have been out on the beach for some time. However, the visual effect of a wall built with geotextile bags still seemed to be much less of a nuisance than a rock wall. The geotextiles gained remarkably little attention by local informants who rarely discussed them at all, so I can only speculate what made them this inconspicuous in an atmosphere where everyone seemed to have turned into a coastal engineering expert, constantly discussing options. Was it "because of the colour", as an employee of the engineering firm suspected? Their sandy beige colour allows the bags to blend into the beach environment, which he saw as the

main reason why the bags were perceived as "soft" at all. Another reason though might be that, theoretically, the bags could be emptied and taken away again. Even though the use of a new "vandal proof" generation of geotextiles means that they cannot just be slit open with a common knife, the idea of a sandbag – however big it might be – still entails its removability. Compared to the seawall, this makes for a different scale, depth and duration of intervention.

Fig. 9: Waihi Beach dune enhancement area: planting day. Picture by author, June 2011.

Fig. 10: Waihi Beach dune enhancement area after storm erosion. Picture by author, June 2011.

Fig. 11 and 12: Waihi Beach dune enhancement, four years later. The sandbags have been added in some parts as a "temporary access structure". Pictures by author, March 2015

5.2 Civil Disobedience Continued: The Council Change Petition

> "It is disappointing that despite all of our efforts, we have Councillors who have closed their minds to intelligent debate. There are good reasons for Council to seriously rethink both the matter of costs and its decision to pursue the seawall. Instead, our Council is taking a big stick to this community and forcing us all to pay for the destruction of a part of our beloved beach under a pile of rubble." (Keall and Mason n.d.b)

Some of the supporters of the unsuccessful Environment Court appeal also tried to explicitly address the social end of the sociotechnical problem they faced: In 2010, a number of Waihi Beach citizens initiated a petition to leave Western Bay of Plenty District Council (Gibbs 2010; The Weekend Sun 2011). With this remarkable step, the initiators attempted to vote out of being governed by WBOPDC any longer, instead promoting the joining of the neighbouring Hauraki District Council.

Discontent with Western Bay of Plenty District Council was further fuelled on the side of the seawall opponents when WBOPDC decided to pursue 14,000 NZD in costs for the appeal from the appellants. The main argument of the Environment Court to allow this was again missing engineering evidence. The cost awarding procedure is based on the prerequisite that an appeal is "vexatious or without merit", a disciplinary instrument meant to prevent the courts from being overloaded with cases; however, in practice Environment Court appeals are often the only option for the public to engage in resource planning decisions and carry a substantial risk of high court costs being awarded if unsuccessful (Hayward 2008a: 57f.; Ministry for the Environment 2009). Six hundred members of the community signed yet another petition asking the Council to refrain from pursuing costs. The argument revolved once more around public and private responsibilities, the appellants having to make the case that the appeal was not unreasonable, but driven by public interests. In correspondence with the Council's lawyer, the appellants' legal counsel insists on his clients' good intentions:

> I have known [my clients] for approximately 15 years. Kathy and Peter are hard-working, decent people who have enormous integrity. Their opposition to the Council's proposal to construct a seawall along part of the foreshore of Waihi Beach, was not driven by some philosophical, anti-development mindset, but rather by a committed view that there was a better option which would be visually less obtrusive, and would maintain public access along the beach at all tides. (R Fisher, 29.08.2008, see Keall and Mason n.d.a: 22)

He also argued that the subsequent change to the NZCPS underlined the soundness of the appeal; even though at this point only the proposed statement had been issued, it nonetheless, he argued,

> demonstrate[s] that at the national level the position advocated by Kathy Mason and Peter Keall is supported. […] Ms Mason and Mr Keall had a sound base for advancing the case they had, and this is born out of the change of approach in the New Zealand Coastal Policy Statement, a factor which was not available to be placed before the Court. (R Fisher, 29.08.2008, see Keall and Mason n.d.a: 22)

In a letter to the editor, one of the appellants expressed her frustration about learning (from newspaper coverage) that the Council had in fact already decided to pursue costs before they were heard on the issue:

> This is outrageous. […] To find subsequently that the decision has already been made leaves us stunned as to the complete disregard of fairness or democratic process. […] Unfortunately this seems to be how the Western Bay of Plenty District Council operates: make a decision before it has the information, then defend it no matter what. One can only rue the day that Waihi Beach was arbitrarily split from Waihi [in Hauraki District] and cast in with a Council where we have no effective representation and are merely treated as a cash cow. (Mason and Keall, n.d.b)

Being "treated as a cash cow" for WBOPDC means, from the point of view of the Council critics, that Waihi Beach residents do not get the benefits they expect in relation to the relative high rates they pay (which are coupled to the rising property values). This is not only a "no taxation without representation" argument, but also contains a basic critique of the decision-making process, especially the role of litigious action and the costs caused by this. As another Waihi Beach resident comments, "there is something wrong with the system when ratepayer's have to go to the Court to solve problems with their own Council", something he argues could have been prevented had the Council been open to other ways of considering alternatives, including mediation. Pointing to the limited resource consent for the scheme, this commentator concludes:

> But in 12 years time, the Council has to look at alternatives, thus the wall may well be then removed! There is anarchy down at Waihi Beach! (Watt n.d.)

This statement points to a general questioning of the relationship between Council and citizens, or of the state of representation as such: is the Council us/ours? How does rightful governance look? And how is it connected to public reasoning (Jasanoff 2012)? The 2010 Council transfer initiative took up some of these considerations, arguing that

under Hauraki Council governance, Waihi Beach would have almost 15% of that district's electors, twice as large a proportion as within WBOPDC (Fairfax NZ News 2010; Gibbs 2010). In the local newspaper, the deputy mayor of Hauraki District commented that the decision-making process as a whole would be more democratic than in the WBOPDC structure:

> A Hauraki District Council submission introduced by Deputy Mayor Mary Carmine welcomed a boundary change if it was wanted by the Waihi Beach community. Mrs Carmine said the beach's current 'five representatives on a Community Board' were very different from the direct decision-making process of Hauraki's ward system: 'I fail to see how a Community Board has the same influence'. (Gibbs 2010)

A total of 954 signatures were collected for the petition supporting the transfer, including two of the five Waihi Beach Community Board members. In the following submission process, 134 written statements were submitted; however, 90% rejected the Council change plans. The WBOPDC mayor commented:

> I appreciate the time the Waihi Beach community has put into expressing their democratic right. […] We're very positive about working with the community (Gibbs 2010). (The Weekend Sun 2011)

WBOPDC Community Board members are representatives only in the sense of representing the community to the District Council, but without a political mandate. Nevertheless, the Waihi Beach Community Board is representative of the community's resistance to the wall, as supporters of the protection scheme were voted out of the board, and the board is now completely made up of seawall opponents. But the Community Board does not have the political power to stop the District Council's project. Is the Council change petition another move against the seawall? The local paper quotes the initiator saying he

> denied that disgruntlement over the controversial Waihi Beach seawall, under construction, was the motivating factor for the boundary change proposal. Rather, as acknowledged even by opponents of the move, Waihi Beach shared a community of interest with its Hauraki neighbour Waihi. (Gibbs 2010)

But other informants mentioned the initiative in the context of the seawall case. In one of the interviews (Henry Tamm and Samuel George, Interview 11), two Waihi Beach Coast Carers discuss the connection of the seawall opposition and the Council transfer petition by drawing a comparison to a decade of protest against plans to raise the water level of Lake Manapouri for hydroelectric power generation on the South Island. The

ultimately successful "Save Manapouri" campaign is now considered New Zealand's first major environmental protest, referred to as "the birth of the modern conservation movement" or simply "A Green Awakening" (Bird 2008). Almost 10% of the country's population signed a petition against the project in 1970, and the issue became a deciding factor in Labour winning the general election in 1972 (mkiwi n.d.).

> We never came to blows here or anything like that, but, you know, there were examples of people being definitely divided on the issue. But it went a step further when we decided, well, if our Council isn't gonna listen to us, we gonna take our business elsewhere. So we tried to join Hauraki [District Council], across the hill. And, the result of that Council [is] still denying that there were people in favour of that. They will, to their dying day believe that the majority here wanted to stay with them, however, the elections showed somewhat differently [laughing], when four out of five swept into power [in the following Community Board elections], [laughing] wanted to go to Hauraki. – And the fact that people were virtually grabbing the [petition] form out of my hand as I went from house to house [laughing], wanting to sign it, you know.

It may well be worth noticing that the boundary change episode – though unsuccessful – is something that makes these seasoned seawall opponents laugh, as it points out that, while not being able to change things, they have at least managed to voice their ultimate disagreement with the Council. The whole "Waihi Beach saga" (Healy and Soomere 2008: 459), or the "Waihi Beach problem" as the Environment Court Judge Bollard called it (Environment Court of New Zealand 2007: 10), is very much a matter of scales of (local) governance. Blackett et al. (2010) argue that from a sustainable coastal management perspective, it is detrimental that local authorities (District and City Councils) have to make decisions about coastal protection issues with little national guidance, without backup from the regional level, and at their own (rates) expense – decisions with far-reaching consequences for the future.

In the Waihi Beach case, there is agreement beyond factions upon at least two points: that seawalls are at best a questionable solution, and that problematic decisions of the past (development too close to a dynamic coastline, earlier instalment of hard protection measures that kept the line but further aggravated erosion) make it very difficult to transition to a different regime of coastal management. However, the community, represented in this not-very-democratic sense by the Community Board, represents a local (community) within the local (District Council area) that does not feel represented at all. So while the decisions are arguably made at a level "too local" looking at the possibly large-scale temporal and spatial effects of coastal management, they are "not local enough" from the viewpoint of participation, local decision-making, and the sense of

being represented for those who live in these communities. In terms of representation, another important group has to be included into any future discussions of the Waihi Beach case: tangata whenua or local Māori.

5.3 "Things are Changing": Tangata Whenua and the Cultural Pillar of Sustainability

During the hot stages of the Waihi Beach seawall conflict, tangata whenua (local Māori) remained remarkably absent from the political stage. Some of my Pākeha (European New Zealander) informants told me that diverting the creeks into Tauranga harbour would have been incommensurable with Māori values and thought of this as yet another reason why this option had not been investigated further. But these concerns are not documented in relation to the Council decision or Court proceedings, apart from a 2002 WBOPDC document noting that "the cultural significance of Three-Mile-Creek will require further consideration prior to any decision to divert the creek" (Environment Court of New Zealand 2007: 15); "cultural" being a code for Māori, universally understood in Aotearoa New Zealand[54]. Aotearoa New Zealand anthropologist Michael Goldsmith argues that this framing of "the cultural" is inappropriate since

> everyone takes part in culture, has culture, and is cultural to the same extent. […] I also recognize that the underlying cultural symmetry may coexist with political inequality, as in the oppression and marginalization of indigenous peoples. Nevertheless, I do not see how a truly anthropological analysis can subscribe au fond to the view that some actors are more cultural than others. (Goldsmith 2009: 326f.)

However, as will be shown below, Māori representatives readily use this understanding of the cultural for their political causes. The potential of creek diversions being met with disapproval by Māori lies in the possibility that polluted water – runoff/stormwater and/or treated sewerage – would enter the harbour. Water pollution is a serious concern for indigenous groups in Aotearoa New Zealand for at least two reasons. Firstly, water is considered a spiritual matter and different sorts of water have to be prevented from mixing – especially water that has travelled through human bodies. Polluted water must not be disposed into a different body of water (McCan and McCan 1990; Ruru 2009).

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54 My Coast Care contacts also remembered that Māori representatives came to one of the consent hearings and voiced their opposition.

Also, the natural harbour continues to be an important fishing spot and harvesting site for seafood or kai moana, and preventing pollution of these food resources is a vital political cause that is often raised by tangata whenua. These subsistence practices are carried out in accordance with kaitiakitanga principles or Māori guardianship of the environment and therefore also encompass a spiritual dimension. In the decision-making process in Waihi Beach, however, Māori concerns have been almost invisible. Why?

As mentioned before, the next marae or meeting house, named Otawhiwhi is located in Bowentown, a neighbouring settlement in the Waihi Beach ward[55]. The marae chairperson Tūhua Brown also works for the Runanga o Ngai Te Rangi Iwi Trust, a tribal organisation based in Mount Maunganui. Tūhua explains the cultural significance of the site: Three Mile Creek or Waiorooro has been identified as the location of a historic Māori village or pā site, and significant archaeological findings were made in the area in the 1960s, when storm erosion uncovered some unusual artefacts. A pa kahawai (fish hook) with a mother of pearl oyster shell lure (not common in Aotearoa New Zealand, therefore probably brought there from Polynesia), and other implements like tooth picks and sewing needles carved from human and albatross bones were found there[56].

During the earthworks for the Waihi Beach seawall construction, an iwi representative acted as cultural monitor on-site to watch for any artefacts or taonga tuku iho (treasures), and for especially koiwi (human bones) that must not be uncovered. Tūhua explains that while Māori clearly voiced that they were "in total opposition" to the hard engineering parts of the project, they did not follow through the consent process in the same way as the other opponents at Waihi Beach:

> It's unfortunate that we weren't fully involved with the process. We probably weren't educated or aware enough at that stage, also, to be involved. So it was a bit from their side, they weren't too forthcoming, but we weren't too savvy on dealing with the issues too; it was in the too hard basket for our marae at that stage. So I'll have to say that we probably weren't as involved as deeply as we would have liked to have been with the whole consent process, but throughout that whole process we made it clear that we were in opposition to this rock wall. (Interview with Tūhua Brown, Otawhiwhi)

This statement addresses several intersecting aspects. It refers to the formal organization, the Trust and its resource management unit, the recent setup of which is related to

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55 The members affiliate to Ngai Te Rangi Iwi and Tauwhao Hapū (Naumaiplace Ltd. 2007).
56 Other findings from this site are tethering for kaka birds and tuatara jaws.

a changing political landscape in general. Many iwi (tribal groups) and hapū (sub-tribal groups) are still in the process of settling Treaty of Waitangi Tribunal claims with the Crown to gain back land or compensation for unlawful seizures. In the case of Ngai Te Rangi, the allocation of a fishing quota brought much needed financial resources for the Runanga, education programmes, scholarships and lawyers[57]. This marks a difference from the time when the Waihi Beach seawall was decided upon:

> Our marae wasn't set up to do so, so we didn't go down the road of putting in sub-missions; we didn't go down the path of doing a cultural backed assessment. So pretty much we missed the time frames and the project went ahead anyway. But we were supportive of the care groups that were in opposition of it also and we had a number of meetings on the marae actually, in regards to have discussion and re-gards to the kaupapa [cause, or political strategy]. (Interview with Tūhua Brown, Otawhiwhi)

So is the situation different now that the iwi or tribal institutions are getting set up more? "That's right, things *are* changing. Things are changing." And rapidly so: "We've got a lot more say now than we did, say, 10 years ago".

Tūhua embodies a new generation of leadership: much better educated in the formal ways of the majority society, but also deeply aware of Māori principles, culture and cosmologies, and able to strategically relate indigenous values to mainstream political categories. Their cause is also about anchoring normative understandings of Māori in the law – and working on testing the teeth of the legal provisions already existing. All matters decided under the scope of the RMA also have to take the principles of the Treaty of Waitangi legislation into account (Quality Planning n.d.), which is extremely relevant to environmental politics in Aotearoa New Zealand, because tangata whenua are often the only organized protestors in an economic and political climate where environmental concerns are often mainly framed as unduly impeding essential economic development. So *if* tangata whenua had been involved in the Waihi Beach Environment Court appeal, they would have insisted on a cultural impact assessment. Tūhua draws the connection to another (current) Court case – three local iwi appealing against the

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57 For more information on the Treaty of Waitangi Settlement process, see The Office of Treaty Settlements (2015).

Port of Tauranga's plans for dredging deeper shipping channels in Tauranga harbour (Bay of Plenty Times 2011; Helliwell 2012)[58]:

> Like, you would have noticed this year [2011] we went to the Appeal Court [Environment Court], to fight the dredging. […] They now know that we're not gonna sit down here and do nothing, we're actually gonna fight them to the bitter end and not fold no more. Yeah, we're sick of it, we've had enough; these are tipping points now on the scales, we believe that any more development, any more applications or proposals like this rock wall; we're no longer gonna sit down and just let it happen, we're gonna fight it and now we have the backing of law to enable us to do that […] So what it's come down to is a battle between the Treaty legislation and the Resource Management Act legislation, and if he [the presiding E.C. judge] makes a call, a decision; it'll be case law forever and it will set a precedence. (Interview with Tūhua Brown, Otawhiwhi)

I raise the point that not only the Resource Management Act and the Treaty of Waitangi legislation are contributing to these developments, but also that coastal policy generally seems to be changing to incorporate more environmental concerns, especially the New Zealand Coastal Policy Statement 2010, which might be interpreted as further strengthening "soft" coastal protection. Tūhua attributes this change in mainstream coastal policy to tangata whenua input as well. He explains that in Aotearoa New Zealand, Councils have already adopted a model of sustainability that incorporates "the cultural" as another aspect of sustainability beyond the three usual areas (social, environmental and economic). This recognition of the cultural as the "forth pillar of sustainability"[59] also provides opportunities for participation and engagement of Māori because in its very definition, Tūhua argues, "cultural" represents Māori values and philosophy:

> We know that model inside out; we were brought up with it. The only thing that they can't do – they can do the environment, they can do the social, they can do the economic, but they cannot do the cultural – only we can provide the cultural pillar for all these consents that they're making their decision on. (Interview with Tūhua Brown, Otawhiwhi)

Tūhua sees this Māori cultural renaissance as part and parcel of a globally shared space of indigenous resistance. This point of view shows Aotearoa New Zealand Māori operating in political registers that practically connect the categories of the local and global, which are often so unwieldy when discussed in theory. Not only that, as Tūhua under-

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58 See also the successful protest of Te Whanau O Apanui and Greenpeace against Petrobras offshore oil prospecting off the East Cape (NZ Herald Business Desk 2012).

59 For this concept used in the Aotearoa New Zealand context, see for example 37 Degrees South – Aotearoa (2013).

stands it, Māori concepts are translated back into mainstream Aotearoa New Zealand political culture *via* the international stage:

> It's a worldwide thing, it starts off with the world indigenous rights and that's when we start to push all our issues through meetings that we have with the World Indigenous Rights of people or something[60], and then it filters down to the countries from there. Yeah, that's where we've been influential, as Māori, we've been influential when we're having those meetings with other indigenous peoples around the world. We're leading the way. […] So that's where it filters down and that's where these four pillars actually were introduced through. […] It's a Māori philosophical model and that's how it actually become, eventually, filtered down to Councils in New Zealand. (Interview with Tūhua Brown, Otawhiwhi)

Tūhua believes that indigenous peoples worldwide share similar norms and values, with only subtle differences – but the political position and influence of Māori is more fortunate because they can rely on the Treaty of Waitangi:

> [I]t's Māori that have led the way because we actually have, through the Treaty of Waitangi, a stronger say in this country than say, the Indians do in Canada; you know they don't have the same sort of treaty that we have and so that's how we are leading the way. Because of what our ancestors did before us. Thank God for our ancestors going into that treaty because if they didn't, we'd be in the same boat as the Aboriginees, we'd be in the same boat as those Indians in Canada. But because our ancestors were a little bit more clever, I believe, in that time, we were able to make sure that this treaty represented tangata whenua properly. (Interview with Tūhua Brown, Otawhiwhi)

While Tūhua sees a fundamental difference between indigenous and white people (who may share the same values, but base their decision-making on economic principles instead), he acknowledges that the majority of Pākeha Waihi Beach residents also object to the seawall, and discusses this as a matter of democracy, or politics of nature:

> Council needs to wake up because they don't listen to the people. It wasn't just Māori that opposed that rock wall, it was, I'd say 90% of this whole area here opposed it, and they didn't listen. They're meant to be there to listen to the people and they didn't in this case, it just shows that they're more about – I believe – more about money than they are about the environment. (Interview with Tūhua Brown, Otawhiwhi)

In terms of coalition forming, Tūhua makes clear that Māori support Coast Care. However, he sees "the cultural element" missing here as well, that what only tangata whenua can provide: the necessary knowledge about wahi tapu sites of cultural significance and how to protect them, and generally ensure that the cultural protocols are adhered to, for

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60 Tūhua here probably refers to the United Nations Permanent Forum on Indigenous Issues (UNPFII).

example not to start any work in the dunes without speaking karakia (prayer) first. Indeed, the Waihi Beach Coast Care group is almost completely Pākeha. In Tūhua's perspective, this is a common problem: people are "fully focussed on their issue but they're forgetting about other people affected". He comments:

> It's quite a funny thing because these care groups also only really come and approach us when they want something. It's like a kid wanting the keys to the car. So we're very careful about getting involved too, because we see that we're only tokenism sometimes, so we want things to be a bit more meaningful when they want us to take part in their groups. (Interview with Tūhua Brown, Otawhiwhi)

There are certainly possible points of contact. Tūhua frames his concerns with the seawall project also in visual terms. Such a sense of belonging to a certain landscape and the threat that unwanted visual change can pose to it are certainly shared by many New Zealanders, not only Māori, for example in widespread criticism of increasing coastal development (Peart 2009). Kearns and Collins argue that New Zealanders' "Feeling for the Coast" (Kearns and Collins 2012) expresses Pākeha's empathy with Māori worldviews as well as a general "distinct cultural relationship with the coast" (Kearns and Collins 2012: 942; see also Chapter 3.1). What Tūhua outlines as specifically Māori is the narration of this connection to the land and landscape enfolding through ancestral linkages:

> It's the damage that all that digging could possibly have upon that area, but also it's the visual, it's our visual relationship to that area. When we used to go there we'd be able to go there and see the dunes and we feel like we're still part and parcel of our tūpuna [ancestors] and carrying on the traditions of our ancestors, but when we go there now what do we see? We see this heavy infrastructure, this rock wall, these sand banks coming out of the Waiorooro stream and it just takes away our sort of, our visual relationship to that area with that we sort of connect to our ancestors, carrying on a customary practice that our ancestors did for over a thousand years in that one particular spot. (Interview with Tūhua Brown, Otawhiwhi)

Asked for his vision, Tūhua strongly speaks for a 'working with nature' approach, including dune restoration, enhancement and the use of geotextiles. He frames this from a Māori perspective:

> Us as Māori, tangata whenua here, we'd rather see other ways of protecting the foreshore, which is more of quite a simple thing really; it's more about planting the dunes, protecting the dunes, enhancing the dunes, if we have to, by putting more sand in there. And just monitoring it like that, because we know it works. The other option that we did look at was, you know how they have that big [sand-filled geotextile] sausage? That was another option that the dunes could carry on building on like that; we would have supported that, so any more natural sort of remedy for that erosion would have had the 100% support of tangata whenua, but because they

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were going to have diggers on the beach and they were going to be ripping up the beach and then they were going to put that rock wall back in place because we knew it didn't work before. What's to say it's not gonna work again you know. (Interview with Tūhua Brown, Otawhiwhi)

Like other seawall opponents, Tūhua openly speaks out for managed retreat. He tells me that erosion is a natural process, the story I heard so many times from dune restoration promoters (see Chapter 8) – just that nature is a different principle here, personified as the god of the seas:

> We feel sorry for those people in those houses, but we feel the Council should have paid them out, relocated those houses and let nature take its course, naturally, naturally. Our belief is, you know, tangaroa will eat away at, at, at... well – cause erosion, that's what tangaroa does. (Interview with Tūhua Brown, Otawhiwhi)

With these statements, it could be argued that the iwi representative advocates soft protection through the lens of a decidedly Māori worldview and politics. The current changes in the bicultural political landscape and the emerging coastal policy change towards soft management could then possibly reinforce each other in productive ways. Maybe when the Council has to embark again on its search for "long-term options", Tūhua and his people will be ready to intervene, and this indigenous understanding of nature might then become another building block for the community of soft protection practice. So far, the 'working with nature' imaginary is gaining most of its authority from science – but sometimes the scientists are frustrated about running up against (sea)walls.

5.4 Dystopia Waihi Beach: Enrolling the Seawall's Materiality into Future Coastal Policymaking

Those who were involved in the Waihi Beach case tend to see it as proof that coastal management and policy has so far been incapable of moving beyond hard protection. Edward White, the outspoken seawall opponent, fighter against the "dark side" (see Chapter 4.3) and former backbone of Waihi Beach Coast Care is a wise, old man. He still feels he has nothing much to say to me I don't know already. However, his clear concern is to make me understand that while he couldn't agree more with what I am writing in my consent form and information sheet for our interview about 'working with

nature' and people speaking of paradigms shifts in coastal management, his experience has taught him that

> we can go through and together we can think of all the things that should be done and everything else, but then we can't, you can't get through the blockage up top that it needs to be done, that they're incapable of doing it, don't ask me why […] People can think a lot of things but to implement them is a different story isn't it? We all know what should be done. (Interview with Edward White, Waihi Beach)

Asked about the supposed paradigm shift in coastal management, and the new (2010) New Zealand Coastal Policy Statement (NZCPS) – hasn't that changed things? – a coastal scientist from the marine consultancy ASR tells me a similar thing: "I'd like to think so, but let's look straight back at Waihi Beach, how can that happen?"[61]. The political signs at the time of the Environment Court appeal were actually pointing towards a change, or even a paradigm shift in coastal management, but maybe this made the defeat even more painful for those involved in Waihi Beach.

On the side of the seawall opponents, a network of people, or a community of practice, emerged which implicitly and explicitly claims to be fighting for the greater good: for democratic decision-making, for better representation of the public as well as the more-than-human nature of the beach. From this perspective, the minority of beachfront property owners is pictured in pursuit of their private interests alone – above all financial, backed up by a local Council fearful of litigation. On the side of the protestors, coastal scientists claim that they have knowledge that is superior, too, and more in tune with the present and future: holistic, open to understanding change, natural dynamics, processes and cycles, as opposed to engineering which is framed as narrow-minded, static, too narrowly focused on solving a particular problem defined by its client, the solutions it offers being mere hang-overs or band-aids (see Black et al. in Chapter 4.3). Why were the protestors not more successful? The New Zealand Herald, a national newspaper published in Auckland, commented on the Environment Court decision:

> 'Managed retreat' has itself retreated before the practical realities of what former Prime Minister Sir Keith Holyoake once called our "property-owning democracy". (Collins 2002)

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61 ASR Ltd. was an Aotearoa New Zealand-based company well-known for its artificial reef design. Chapter 10 provides a closer look at this approach, based on fieldwork at the ASR office in Raglan.

Therefore, my informant and collaborator Jim Dahm believes that understanding property as a fundamental cultural, political and legal category is the key to understanding the case:

> That's where we are, we're in that battle where we've got all the values enshrined in policies, we got all the right policies, but we're hard up against this engrained, cultural idea of property. (Interview with Jim Dahm)

The concept of private land ownership, first introduced in the course of British colonization, is not congruent to ideas like "let nature take its course", especially since property is thought to be eternal, and not to disappear, washed away by the sea during a storm. Importantly though, Jim stresses that in most cases where conflicts about hard protection emerge, the properties concerned are not under threat of being lost completely – a situation which he says would make the desire for engineering options easily understandable. It is more about the integrity of the property (in the sense of the section of land) which people want to have protected entirely and without any compromise:

> Usually, in the situations I work with, it is simply about the most seaward few metres of a property; dwellings are not at risk and a natural dune could be restored over the area impacted – which dune would of course come and go. But any incursion of the sea is resisted – the line must be held at or about front property boundaries – even if this severely damages the beach. (Jim Dahm, pers. comm. 11.03.2014)

The Waihi Beach seawall opponents have been recognizing that, in this regard, there is also a dimension of language politics to the Council's protection politics. Henry Tamm who was a member of the Beach Environment Society remembers that initially, the protection scheme

> went through the Court as property protection. And then, because that didn't sound nice, it got changed to Shoreline Protection. And we correct them every time they say it. It is a bit of a laugh. No, it is not a laugh, it's not funny, it's sad this has happened. (Interview with Henry Tamm, Waihi Beach)

So in this regard the renaming is a two-edged sword for the activists, because at least the initial project title made it very clear what they perceived this to be all about. This echoes Cooper and McKenna's earlier point about the different meanings of protection. They note that in case of conflicting understandings, the meaning with the greatest discursive power is usually protection in the sense of protecting private property or infrastructure against coastal hazard (Cooper and McKenna 2008b: 315, see also Chapter 1).

With reference to the situation in Europe, the authors argue that property issues are one of the major social obstacles for approaches of "working with natural processes":

> Most European countries are property-owning democracies. Properties including land and buildings have been passed down from earlier generations. Families, particularly farming families, have a strong sense of emotional and historical attachment to their properties. More practically, in many cases a house and associated land is the sole repository of family assets. [...] In modern times coastal property has became so sought after that those inheriting it have acquired enormously valuable assets. It is natural that owners will demand protection of these assets. The strong desire on the part of property owners and property developers to defend their assets is assisted by low societal appreciation of the consequences of intervention at the coast, and the ambiguity associated with 'coastal protection'. (Cooper and McKenna 2008b: 328)

For many of those who have been involved at Waihi Beach, the seawall remains a sensitive issue and the sight of the beach a constant reminder of their lost cause. Some fieldwork contacts reported avoiding going near the protection works; however, whenever I visited, someone offered to take me down to the beach for a look at the latest developments, closely monitored by the seawall opponents who would alert Council staff whenever they felt something was deviating from the course set by the resource consent. For outside visitors interested in coastal management, the place has a strange fascination, and I witnessed myself how irritated the locals can feel if those coming to see Waihi Beach are getting excited about all the things to be seen, while the local activists perceive the revetment as a monument of their helplessness in defending themselves against various perceived enemies: the Council, the out-of-towners, the local plutocracy that leaves wanting the shared imaginaries of good old New Zealand and its supposedly classless society.

My very first visit in Waihi Beach was a field trip as well, where one of the Waikato professors who had served as an expert witness for the Environment Court appellants introduced faculty and students from Bremen University to relevant coastal science research sites around Tauranga. This happened in February 2010, just before the work on the rock revetment started. Our guide showed us the house sticking out the most (67 Shaw Road), and explained in his usual moody way that the "bloodymindedness" of these people was the reason that the appeal case was lost, because this was where the backstop wall would have needed to go. He said that there were people who would think that burning down this house was the easiest solution to the problem and concluded his lecture by stating that "the science is done. […] [But] we need a better way of arguing science in Court" (Fieldnotes February 2010).

If the science is done, what isn't done yet that makes these things happen? The policy is done as well, as we heard from Jim Dahm above[62]. Many of those involved in the Waihi Beach case are wondering how a transition towards 'working with nature' could be brought into being. As Edward White puts it:

> And then they put some rocks up and of course you're gonna have rocks ever after once you put rocks up. But how to break the cycle, how can we undo what's done? (Interview with Edward White, Waihi Beach)

How can a sociotechnical imaginary become more prominent, how can ideas become reality? Certainly, they have to be put into *practice*. We have seen in Waihi Beach that soft options have also played a role, even though they were overshadowed by the rock seawall and the surrounding controversy. Policymaking is a practice as well, and one that can encompass the materiality of actual protection structures. What follows is a closer look at policymaking *after* the seawall.

The Waihi Beach Environment Society understood the decision to build the protection scheme not only as a defeat for their cause, but also as a step backwards in terms of coastal management and soft protection in general. They commented on the resource consent granted by the Minister of Conservation in 2008, stating that "[t]oday's announcement […] sets back coastal management many years and opens the floodgates for more favourable rock wall decisions" (Waihi Beach Environment Society Inc 2008: 1).

As noted before, current coastal planning documents for the Bay of Plenty Region take a very critical stance towards hard protection projects like the one in Waihi Beach, and have instead set out to "promot[e] the philosophy of adaptation planning including 'managed retreat' and protecting the natural vegetative defence mechanisms of the coast" (Bay of Plenty Regional Council 2010: 26)[63]. However, BOP-RC was also the agency that approved the consents that were later confirmed in the Environment Court. I

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62 Some pieces of the steel seawall from the 1970s (removed during the construction of the new protection scheme) have even been transformed into pieces of *art*: the sculptures "Memorial to Seawall #1-3" by artist Colin Dray who "was lucky to be able to purchase, and cart home, two tons of scrap steel from the contractors who are building the new rock wall at Waihi Beach" (Dray 2013).

63 This sentence was included in the proposed version, which is the next step in the policymaking process. However, Linda Pierce explains to me that this is how policymaking and planning works: the first version contains what the planners believe to be best practice, or leading the way, and then it will be modified according to submissions from interested parties and the anticipated political feasibility, which Linda calls the "reality check".

met with Linda Pierce, a BOP Regional Council coastal policy officer who has been instrumental in writing these policies to ask her how she accounts for the huge difference between political will, policy and practice. Linda explains that "[i]n reality it takes a long time to change people's minds about this sort of thing; and the policy, in my mind, is the front end of change" (Interview with Linda Pierce, Bay of Plenty Regional Council).

And the complemental back end of change – in Linda's words – can be found also in a case like Waihi Beach where for the time being, hard protection is being installed. To illustrate her point, she draws a connection to an application for another project in Wellington, where someone wants to rebuild an existing seawall protecting his property. In only ten years since the man first placed protection works, the understanding of the environmental managers and Council employees has changed, as have general public perception and media discourse. New questions are asked by the public vis-à-vis such demands for protection works, questions about the common future of the country that go beyond the immediate interests of some property owners:

> And I think people have become more aware that, if you step back and look at this issue, it's not just about protecting one house from the sea but it's all wrapped up in climate change and on an island such as New Zealand, are we gonna allow everybody that owns coastal land to build a $100,000 wall in front of their property? Because the cumulative effects of that are gonna be unpalatable. And it's not until you get to a place like Waihi [Beach], where the wall is required actually [along] quite a stretch of beach, that people start changing their minds on these issues. And I think the Waihi Beach scenario will be a good way of getting the public perception changed, because people would look at it and think, 'Actually, we don't want that here', and actually people start thinking more long term about these things. (Interview with Linda Pierce, Bay of Plenty Regional Council)

Linda seems to think of Waihi Beach as visualizing the perils of a future New Zealand that has been turned into a dystopia of misguided coastal protection strategies. So do people need to *see* the detrimental effects of hard protection measures?

> I think so, and I think that's the part that Waihi Beach is gonna play in this whole scenario and it might be that people think it's a complete disaster. And like you said, 'Do you hope that this is gonna be the last scenario', where we actually consent to build a big hard protection structure whilst at the same time we've got a policy document that says we shouldn't be doing this? Well yeah, I hope it is the last scenario, but I think it's gonna have an active part to play in that being the case, too, because I think that it's not until people start to see that and they start to think, 'actually when I was here as a kid we never used to have any of these big seawalls, and actually it does, it is detrimentally affecting my experience of the beach in this community. And what happens if it, we in 10 years time or 20 years time when it comes time to relook at this issue, we need to build a longer seawall or a deeper seawall, or a wider or higher seawall? Do we want that to happen? Actually I don't', yeah, and that's just all part and parcel of the process I think. (Interview with Linda Pierce, Bay of Plenty Regional Council)

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Linda's interpretation of the current situation she has to deal with in her role as a policymaker compares to the argument brought forward by anthropologists of policy like Janine Wedel and others (Wedel et al. 2005): Policy is a process, where the initial intentions of policymakers not always connect to outcomes in any linear sort of way. Linda's framing of the current situation and its possible long-term outcomes could be called an attempt at reverse engineering; her aspiration is that the apparent failure to realize the 'working with nature' approach may turn into a massive stepping stone towards her intended goals. Doing so, she explicitly takes into account the very substantial, and above all visual presence of the seawall at this beach, and incorporates it into the envisaged future of coastal policymaking in her region. A truly material turn, one might argue, with a policy practitioner following a kind of Actor Network Theory approach of coastal policy, avant la lettre: the seawall is getting enrolled (Callon 1986) into the transition beyond hard protection.

To this effect, climate change, or more precisely the public discourse about (anticipated effects of) future climate change provides crucial arguments against hard protection. Seen in this light, the seawall also makes climate change visible: it serves as the materialization of an elusive problem frame that is otherwise difficult to grasp, because its effects are mostly expected to happen some time in a future difficult to predict, or leading to gradual changes difficult to observe. Furthermore, Sheila Jasanoff observes that climate change as a scientifically defined entity is not compatible with common forms of experiencing human-nature relationships:

> That the climate changes is not news to communities with long histories of living with nature, but 'climate change' – the scientific phenomenon – employs techniques of aggregation and deletion, calculation and comparison that exhaust the capacities of even the most meticulously recorded communal memories. Indeed, climate change arguably displaces the very notion of community by displacing human beings, both as a species and as a source of norms, in favor of an impersonal, but naturalized, object of concern. (Jasanoff 2010: 237)

Jasanoff argues that climate change and the science of it complicate what she calls "ordinary human experience" on the levels of social and political organization, as well as spatially and temporally:

> Climate [...] is spatially unbounded. It is everywhere and nowhere, hence not easily accessible to imaginations rooted in specific places. And, unlike the weather, climate change occurs over spans of time that are not easily assimilated to circadian

or seasonal rhythms: it is not perceptible nor provable as a day or year of human life shades into the next. (Jasanoff 2010: 237)

Most importantly for this context is her point about the co-productive nature of knowledge about climate change and the environment more generally. With the coproduction idiom, Jasanoff points to the interrelations between epistemic and normative dimensions of knowing about the natural world. She calls this the "*is* and the *ought*" (Jasanoff 2010: 236) of things and argues that

> [d]urable representations of the environment [...] do not arise from scientific activity alone, through scientists' representations of the world as it is, but are sustained by shared normative and cultural understandings of the world as it ought to be. When it comes to nature, human societies seem to demand not only objectively claimed matters of fact but also subjectively appreciated facts that matter. Environmental knowledge achieves robustness through continual interaction – or conversation – between fact-finding and meaning-making. (Jasanoff 2010: 248)

Climate change, Jasanoff argues, is difficult to grasp exactly because the universalizing scientific way of understanding it separates itself from the normative dimension of human encounters with the world, with local values and understandings of how the world should look; "without regard for the layered investments that societies have made in worlds as they wish them to be" (Jasanoff 2010: 236).

Could the visual quality and materiality of the seawall, provoking local engagement and conflict over value judgments as it did, provide the necessary link to grasp the normative questions that climate change poses? Another Council employee who also provided expert evidence in the Waihi Beach appeal case argues that while right now, hard protection structures remain an exception, this will fundamentally change under conditions of climate change impacts. He takes the Coromandel peninsula as an example:

> See the trouble is, at the moment we have only three kilometres of hard structures on our coast, but with sea level rise, unless we do something differently we're gonna end up with 18 kilometres of hard structures. (Interview with Robert Miller, Waikato Regional Council)

And such a scenario would mean that "a lot of our very beautiful beaches on the Coromandel wouldn't be beautiful anymore" (ibid). Keeping the beauty of the landscape requires care. Translated into the language of planning documents, "amenity value" becomes an objective to move beyond hard protection. Maintaining this value is a matter of economic interests as well, the informant argues, because tourism relies on it. Again,

climate change is framed as a threat to the beauty of the coast. The visual aspect makes it possible to grasp coastal protection decisions as a normative, a value judgement:

> Climate change helps the discussion in a way because it creates an imperative to act. It creates a reason to do it because without climate change, people would say, 'I don't know what you're talking about, it looks good to me; now, go away'. Whereas with climate change they're gonna say, 'Yes it looks good today but tomorrow it's gonna look bad. We need to do something now so it still looks good'. So it is actually helping. (Interview with Robert Miller, Waikato Regional Council)

The seawall then works as a bridge to the future, making the predicted effects of climate change more tangible and concrete. Where hard protection is discussed under the signs of climate change, another politically charged topic also enters the discussion: managed retreat. A Ministry for the Environment guidance manual on coastal hazards and climate change for local Councils argues for managed retreat as an alternative to hard protection:

> Given the level of existing coastal development in coastal margins around New Zealand, the use of planned or managed retreat will need to become a fundamental and commonly applied risk-reduction measure within the next few decades. The alternative would be a considerable increase in the scale of hard coastal protection works that are installed. This may be an appropriate long-term strategy in certain (exceptional) circumstances, but such an approach does not fit comfortably with the values and principles of sustainably managing coastal margins: it would impact significantly on beaches, and on natural character, amenity and public access values. (Ministry for the Environment 2008: 70)

In the same vein, "Planning for Climate Change Effects on Coastal Margins" (Bell et al. 2001) argues that "[m]anaged retreat or adaptation are the only reasonable long-term (100-year) options for most communities or infrastructure at risk"; however, the argument is first and foremost economical here:

> For most coastal communities that have already experienced periods of erosion or inundation, managed retreat is eventually likely to be the only long-term option, as alternative protection or adaptation options will increasingly become too expensive. (Bell et al. 2001: 59)

As a coastal expert puts it, New Zealand as a country could simply not afford anything else than managed retreat in many locations, especially given the low population density in most places[64]. However, this remains a problem revolving around private property rights, and this is how Linda, the Council planner, addresses the Waihi Beach case.

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64 Bell et al. also refer to managed realignment projects in the United Kingdom (Bell et al. 2001: 60).

Echoing Jim Dahm, quoted in the previous section, for her the whole issue is very much framed around the rights associated with private property. As a Regional Council representative, she will need to develop and implement coastal policies that will probably, in the ubiquitous "long term perspective", affect people's property rights.

> Okay, so some houses might fall into the sea – [but] no one's gonna die, you know. Some houses might have to be removed, or they might fall into the sea, to enable the coast to retreat – we need to be adaptable to that. I think it's not until you start seeing walls like that go up, that people have the opportunity to change their mind, because before that the public perception is very much, 'We don't want these houses [fall into the sea] – you know we've gotta protect our assets; we've gotta protect our private property'. (Interview with Linda Pierce, Bay of Plenty Regional Council)

As a necessary prerequisite for a managed retreat strategy, Linda argues, Regional Councils would need to have the ability to transfer some of the responsibility towards the national level. At the time of the interview in September 2011, Linda had – like other commentators – mostly lost hope that the central government would further pursue its plans for a National Environment Standard (NES) on sea level rise. The Ministry for the Environment (MfE) had been investigating a national guideline to define minimum levels of projected sea level rise, with the aim of creating binding planning principles for Regional and local Councils. This would have protected these regional and local authorities from having to defend their individual sea level allowances against possible legal actions of their citizens. The work on the NES eventually was abandoned in March 2012, with the statement that the government would decide in reference to the upcoming IPCC 2013 report (The Science Media Centre 2012). However the question to be revisited, according to the Ministry, is not whether the 80 cm initially envisaged will need to be revised, but rather "whether to progress a National Environmental Standard" at all (Ministry for the Environment 2013).

Aotearoa New Zealand is sailing an unsteady course in relation to climate change adaptation. Climate change is already having its (second order) effects on coastal policy and planning, though the question of how to move from "promoting a philosophy" to creating political instruments to implement managed retreat remains as yet unanswered. Nevertheless, as has been shown, (anticipated) climate change is already utilized as a main argument against hard protection measures. It therefore seems to fit well that one of the Waihi Beach Environment Court appellants relates her perception of changes in

coastal policy to climate change, because "you have to believe in it" to make something happen:

> I also think that times are changing. […] I think at the stage we were at, we were almost ahead of our time, you know. Even the coastal policy statement has changed since we had that hearing. […] I almost think that it's a little bit like climate change. You go for a while and no one believes it, and then all of a sudden they start, and I think the same thing's happening with this whole coastal erosion issue. People are starting to get it. (Interview with Environment Court appellant)

The relation to climate change is also a reminder of the global scale of the issues touched upon in the Waihi Beach case: managed retreat, a proclaimed paradigm shift beyond hard protection, and the emergence of 'working with nature' approaches. In spite of the scope of questions about current and future coastal politics of nature, the Waihi Beach controversy did not get much attention beyond the local scale, neither from politics nor the media (but see Collins 2002; Stevenson 2003; Gaynor 2004; Stevenson 2004). This is one symptom of what Linda Pierce alluded to above as missing national guidance, and might also be one reason why advocates of soft approaches for coastal protection argue to look *beyond* the national scale. In their "Submission of Further Technical Information Prior to Waihi Beach Hearing", Black et al. explicitly use the example of coastal policies and politics of public protest against hard protection structures in New South Wales (Australia):

> New Zealand is in a very good position to learn from, rather than repeat, the mistakes of overseas countries. With respect to seawalls it is worth noting that there are now many locations world-wide where seawalls are no longer a permitted coastal protection option. The public outcry for these traditional structures that do not protect the coast but the land behind them is well demonstrated by the protest actions at Collaroy Beach in Sydney, Australia. On 17 November 2002, several thousand people made a human 'wall' in protest to the proposed 1.1 km seawall. This project did not go ahead. (Black et al. 2005b: 1)

The local activists themselves are actively drawing on examples such as this as well. One of my main informants from the Waihi Beach Coast Carers entrusted me with a whole collection of newspaper clippings and other materials, containing information on hard and soft protection measures implemented in Aotearoa New Zealand and overseas[65]. Through this engagement with the discourse of 'working with nature' as much as

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65 The collection included information on artificial reefs, geotextiles and an experimental technique named "Holmberg Beach Stabilizer", as well as an issue of an infrastructure management journal enti-

through the practical approach of Coast Care work, he becomes part of a larger community of practice of soft coastal protection (Wenger 1998).

This community is defined around a specific imagination of nature. Care for the future environment, or sustainable coastal management, also entails a certain understanding of the meaning of time, where coastal nature is characterized by a cyclical, open-ended movement of material. The hard protection advocates and their engineers, on the contrary, tend to focus on immediate threats and problems to be solved. As Cooper and McKenna have argued, the implications of coastal protection decisions are very different when assessed over different scales of space and time (see Chapter 1): the longer the timeframe applied, the more the negative implications of hard protection become clear. Future generations will have to bear the financial and ecological costs of present-day decisions. Without taking climate change into account, the latter approach of addressing the "here and now" masks in fact the externalisation of costs over time:

> With currently rising global sea levels and predictions of near future accelerations of sea level rise (Rahmstorf et al., 2007), the cost associated with the maintenance of coastal defences will certainly increase. If they are not abandoned, this cost will have to be borne by future generations of taxpayers while future generations of coastal property owners enjoy an increase in the value of their assets. (Cooper and McKenna 2008a: 300)

The hard protection faction has in fact embraced the idea of a nature constructed in the literal sense: the coast features an environment always in interaction with humans, tethered and made, productive according to human values. Both parties are concerned with their understandings of value: on the one side, house owners aim to protect their property values and financial investments into the future. The seawall opponents counter with attaching value to other imaginaries: of Good Old New Zealand and its rural coast. Their defeat is symbolized in the very visibility of the large pile of rocks on the beach. In contrast to property rights and scientific arguments though, these tangible aesthetic values are not easily translated into the political and legal spheres (Froude et al. 2010).

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tled "Drawing the Line on Coastal Erosion", featuring an article on the "Need to work with – not against – nature" (Trade Publications Ltd. 2003). Also included was a clipping from the real estate section of a newspaper, featuring a property close to Nelson on the South Island. The ad shows a piece of land completely bordered by a concrete seawall, with the remark that this is "one of the few remaining pieces of private, unspoiled coastal land", featuring "unobstructed views" and protected by a "professionally engineered, 210 metre long, permanent seawall graces the sea frontage, fitting well into the natural environment". This textual and visual example shows what the Waihi Beach activists *do not* understand to be an unspoiled natural environment.

Therefore, the local activists and their sympathizers are at ills to make their case around arguments about natural coastal processes and resource management law. But the disturbing presence of the wall revolves much more around its visual nuisance – so one has to *see* Waihi Beach to understand, they claim. This encompasses understanding that coastal erosion becoming a problem has only been the beginning of this vexatious situation.

Through these other, more latent imaginaries, the different positions vis-à-vis the protection scheme are entangled with different senses of the community and its historicity. As Kearns and Collins observe in relation to the Ngunguru spit case, people emotionally connect to the beach environment and form "everyday geographies of coastal experience" (Kearns and Collins 2012: 948). It is important to note, the authors stress with regard to their empirical findings, that such a sense of attachment is not limited to a "relatively natural setting", but can be felt strongly also toward modified and developed coastal landscapes (Kearns and Collins 2012: 952). Furthermore, this emotional connection also has a social dimension, which furthers community action if these shared everyday geographies come under threat by coastal development projects, or, as in the Waihi Beach case, by a new coastal protection scheme. Kearns and Collins argue for consideration of these emotional dimensions in social science research on coastal issues:

> [T]o achieve more 'fully human' accounts of the coast, we contend that there is a need to take people's feelings as well as their perceptions (e.g. how coastal landscapes are seen) and embodied experiences (e.g. how the coast is used) seriously. […] First, emotions are central to the people/place relationship at the coast, to the extent that ways of thinking not grounded in emotional attachment may have limited purchase with local people. Second, emotions are not only produced by engagement with coastal landscapes but also, in turn, can produce collective mobilisation in favour of place protection. [...] Because this experience is shared, it can form the basis for cooperation and a common sense of purpose at the community scale. (Kearns and Collins 2012: 951)

For those objecting to the seawall, the out-of-towners are *not* a part of this community, but invaders representing coastal change they do not want. Seen in this light, the conflict opens up the question which is the right way to live with nature: as a Waihi Beach resident, and as an New Zealander – questions that go far beyond the issues discussed in the technical terms of coastal science and engineering. Kearns and Collins argue similarly when they conclude that their Ngunguru case study "opens space to see the coast as generative of deeply human experience and more than simply property relations and geomorphic processes". In this vein, their work seeks to "reclaim the coast as a site, as

well as a set of sights, that is more geographically complete", because "the politics of emotion and the work of sharing feelings can make a world of difference" (Kearns and Collins 2012: 952f.).

The Waihi Beach conflict is a struggle about imaginaries of the future. It is a conflict about alternative visions that have severe consequences for how the people involved imagine the place of humans in the world, and in coastal naturecultures. But how can a better ecology, a more sustainable entanglement of nature and humans be achieved, "how can things be assembled in ways that are more sustainable", as Steve Hinchliffe wonders (Hinchliffe 2007: 186)? How are community and belonging tied to a right state of nature? The upcoming chapters of Part III will follow up on these questions, focusing on 'working with nature' put into practice.

Part III:
Material Practices of Working with Nature, or:
Making Coastal Naturecultures

This part of the book is designed around the discussion of different material practices of working with, or making coastal naturecultures. Spanning from the use of dune plants as a means of do-it-yourself coastal protection to the development of large-scale soft-engineering technologies, the following chapters engage with exemplary cases of soft coastal protection and related practices in Aotearoa New Zealand. What the examples have in common is that the sociotechnical imaginary to 'work with nature' (and not against it), as well as specific coastal naturecultures, are coproduced in the process. By zooming in on these practices of nature-making, other important concepts become distinguishable that all play a role for actors that strive to 'work with nature' in concrete projects: a specific Aotearoa New Zealand approach to biodiversity, native nature and culture, a unique do-it-yourself ethics, the role of surfing, as well as emerging ideas about mimicking or enhancing nature with the help of models and calculations.

Chapter 6 introduces the volunteer dune restoration programme Coast Care Bay of Plenty (BOP). I describe the practices employed by Coast Care members to address the impacts of widespread environmental change in coastal dune environments and show how much ongoing work is put into maintaining coastal nature. Chapter 7 provides a closer look at the economies of volunteer and other labour in Coast Care projects, focussing on a large-scale project that uses dune restoration as a means of reclaiming the dunes as public space. Chapter 8 focuses on dune restoration projects that are explicitly designed to serve as coastal protection, providing a "soft" alternative to hard protection structures. Chapter 9 focuses on another sociotechnical imaginary that is fundamental for dune restoration: the aim to replace invasive species with indigenous plants, or what I call 'reconstructing native nature'. Chapter 10 follows practices of caring for the coast beyond dune restoration. It explores a different world of coastal experts, or surfer-scientists, and scientist-activists, at a company that designs multifunctional artificial reefs which are claimed to be working "in concert with nature".

6. Restoring and Maintaining Nature: An Introduction to Coast Care

The community-based dune restoration programme Coast Care Bay of Plenty (BOP) is the main initiator of dune restoration projects in the Bay of Plenty[1]. Its stated goal is to restore "form and function of the dunes in the Bay of Plenty" (Bay of Plenty Regional Council 2013a) by preserving and reintroducing native coastal vegetation[2]. The programme operates within Regional Council borders in terms of administration and most of the funding, and relies to a large part on recruiting volunteers on a local basis, though by no means exclusively (as will be shown in Chapter 8). The Coast Care BOP programme started in the mid-1990s, when Regional Council employees brought back the Coast Care idea from an educational trip to Australia (Landcare Australia Limited n.d.).

The first project involved removing Sidney Golden Wattle trees at suburban Mount Maunganui beach which residents had complained ruined their sea views. Also, at the Mount and in neighbouring Papamoa Beach, concern rose about erosion which had progressed closely towards houses and a surf club. Furthermore, the removal of wind-blown sand from the beach promenade had been causing significant costs at Mount Maunganui, which is also a popular holiday resort. Both issues were successfully tackled by planting native dune plants: Pingao and Spinifex. A formal Coast Care coordinator position was created at the Regional Council office and filled with an enthusiastic proponent of dune restoration, who committed much work to promoting Coast Care, especially as a means of erosion control[3]. Today, Coast Care BOP provides equipment (including tools, free plants and fertilizer), education and logistical support for volunteer dune restoration work throughout the BOP coast, with 100,000 plants per year planted by 2300 volunteers (de Monchy 2010).

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1 Coast Care BOP, as well as a similar Beachcare Programme in the Waikato Region (covering the upper West Coast of the North Island as well as the Coromandel region bordering the BOP to the North), have been the first of their kind in New Zealand. They have served as models for other regions (e.g. Northland), which are also establishing volunteer dune restoration initiatives (Northland Regional Council: 2013; Waikato Regional Council: n.d.).

2 For a thorough discussion of restoration and the native-alien species binary, please turn to Chapter 9.

3 The first Coast Care coordinator eventually resigned after disagreements with the Regional Council over the Waihi Beach seawall (see Chapter 5).

Projects are realized in about 20 different locations throughout the Bay of Plenty and have varying objectives: property owners are trying to combat coastal erosion that threatens their beachfront houses at Pukehina Beach, whereas a few kilometres up the coast in Maketu, nature lovers restore an uninhabited sand spit, the habitat of the native dotterel bird. Funding for the programme comes from the Regional Council, local Councils (the four coastal District/City Councils of the region) and the federal Department of Conservation (DOC). Logistically, Coast Care BOP remains closely linked to the Regional Council where the Coast Care coordinator is located[4].

The relatively large area of the BOP coast is divided into three parts assigned to so-called Coast Care contractors who do much of the work on the ground: they are present at all "working bees", the official volunteer work events which are often scheduled on weekends to be accessible for the working population. The contractors store and transport plants, fertilizer and tools, give instructions, hand out tea and muffins after the work is done, and chat with the volunteers, providing a welcoming environment where people feel their efforts are valued and they are encouraged to come back[5]. Apart from contract work which involves controlling unwanted plants with agrichemical substances, all other restoration tasks are carried out without the use of paid labour. Coast Care BOP was founded upon a principle of collaboration between the (local) authorities and the public:

> The Coast Care concept is about community groups and local government working together to protect and enhance the coastal environs of the Bay of Plenty coast. (Boffa Miskell 2008)

Following this rhetoric of working with local communities, Coast Care BOP is officially organized into localized groups. Some places in fact feature distinct, often close-knit local groups, whereas in others only one individual is occasionally joined by more volunteers from within or outside the local community, or no continuous group structure exists at all and volunteers are solely recruited through advertisements in the media and/or via the Coast Care database. The Coast Care coordinator is clear about the fact

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4   During the time of my fieldwork, one of the RC's Land Management officers had the duty of Coast Care coordinator in addition to his other tasks.

5   In line with the ruling objective to downsize, streamline, and privatize public services, this work is not delegated to other Council employees, but instead subcontracted on a competitive basis. At the time of my fieldwork, Coast Care BOP had three such positions: for the Eastern BOP, for the Western BOP excluding Waihi Beach, and a Waihi Beach local contracted only for this group.

that while the idea to work with the community is an important factor for Coast Care, it remains a continuum between groups anchored in the local community and settings where the Council, or Coast Care initiates the project following its own goals: "sometimes, we push the community idea too far", he says (Fieldnotes 26.05.2011).

The emphasis on the local, on working with the community, will be an important aspect for thinking through the discourses and practices of Coast Care. In fact, some of the work is advertised as public working bees in local newspapers, leaflets and via an email list for volunteers, whereas other events are organized specifically for pre-existing groups like school classes, international volunteers from organizations like Conservation Volunteers New Zealand, or company groups travelling to a coastal location for a day of joint volunteering. In more remote locations, the events are frequented mostly by locals and regular volunteers, whereas in the more popular holiday destinations Coast Care working bees are popular with families and younger kids, who are recruited through public advertising and usually do not regularly attend events. Waihi Beach Coast Care, on the contrary, whose members have been instrumental in the seawall conflict described in Chapters 4 to 5, is especially close-knit. Apart from being bound by the shared resistance to the protection scheme, the group is also defined by its relative distance from the Coast Care headquarters in Mount Maunganui. "Waihi Beach is its own fiefdom" (Fieldnotes 13.05.2011), the local contractor comments on the situation; the Coast Care coordinator, asked for his visions of future Coast Care groups, pointed to this group for its extraordinary social cohesion, hoping the group will be able to maintain itself with minimal input from the head office.

Besides the volunteers, there are also involuntary workers involved: citizens on a periodic detention (PD) community work scheme are another important source of labour for Coast Care (the economy of paid and unpaid work will be discussed in more detail in Chapter 8). In any case, the Coast Care mission is defined loosely enough to allow for a diversity of actors, objectives and technologies of caring for the coast; and just as the coastal environment is always in motion, Coast Care features a certain fluidity as well. Not every project is working to the same extent towards all of the Coast Care goals of "education, community involvement, biodiversity, infrastructure protection" (de Monchy 2010).

There are, however, shared *practices*, carried out against a larger backdrop of environmental change and native nature conservation, the logics and implications of which will be further explored in Chapter 9. At this point, I concentrate on shared practices I

encountered in my engagement with Coast Care groups. While the localized projects are quite different, the shared practices of planting, fertilizing, weeding and pest control define them as Coast Care projects; since all the working bees are supervised by Coast Care staff, people tend to stick to the practices they have been instructed to use.

Generally speaking, the most popular task is the planting of native dune plants, especially Spinifex and Pingao. The dune grass *Spinifex sericeus* is found on Aotearoa New Zealand's North Island and on the upper half of the South Island (down to the Christchurch area in New Canterbury), as well as in Australia and the Pacific Islands. The golden sand sedge *Desmoschoenus spiralis,* commonly known under its Māori name Pingao is endemic to Aotearoa New Zealand and can be found throughout the country (Wassilieff 2012). These species are saltwater-tolerant and develop deep roots and runners, which can trap wind-borne sand and thereby lead to a progression of the frontal dune. Other species planted further backwards include *Muehlenbeckia complexa, Euphorbia glauca* and *Coprosma acerosa*.

The plants are put relatively deep into the ground (together with some slow-release fertilizer), so that some extent of sand movement can occur without the roots being exposed. However, contrary to widespread public perception, Coast Care is doing more than just planting Spinifex and Pingao. Weed and pest control are also important components of the dune restoration work. In most cases, existing cover with introduced plants is removed before planting the native plants. But weeding is also a continuous task of maintaining coastal nature. According to Pim De Monchy, the Coast Care coordinator, the relation between planting and weed control work necessary is about 20:80 per cent. However, the volunteers are much more enthusiastic about planting:

> Planting is the first thing that comes to people's minds. Advertise a community planting day and there are lots of people interested in coming along. But advertise a community weeding day, that's different. (Fieldnotes 26.05.2011)

In many locations, weed control is outsourced to contractors who apply agrichemicals that kill unwanted vegetation like African iceplant (*Carpobrotus edulis*), Kikuyu grass (*Pennisetum clandestinum*) or Agapanthus (*Agapanthus praecox*). In terms of physical labour necessary for those who subsequently plant the dunes, this preparing procedure is a substantial difference. Digging out Kikuyu grass with a spade, for example, is an extremely tiring, seemingly endless task, further complicated by the fact that the roots are very similar to Spinifex roots, so that a dune restoration novice can easily mix them up and destroy "the good ones" instead of the "the bad ones", as people would sometimes

put it. The task becomes even more unsatisfying being aware of the fact that, most likely, the unwanted plants will quickly recover or recolonize the area.

A dune that has been prepared by spraying and removal of existing vegetation means planting is an easy task, comparable to digging sand on the beach just below. Only a few groups are following what they call a "spray-free" approach, even though, "a lot of people who are interested in Coast Care are also interested in organics and maybe a general decrease in the environmental impact from human activities", as Pim de Monchy puts it. However, he argues, weed control with chemical means is a necessary evil given the dimensions of the Coast Care task:

> With some of the weed problems that we have, combine that with the scale of the modification of dune environment in the Bay of Plenty region – and it just seems as though, if we're too precious about the methods that we use, i.e. if we restrict ourselves to mechanical removal of weeds we will only ever be able to restore such a tiny portion of the dune environment that it seems like – it's a compromise that we have to make. (Interview with Pim de Monchy, BOP Coast Care)

However, it remains surprising that this argument seems to work so well, especially since the Coast Care constituency often seems to be so uncompromising. In relation to the Waihi Beach seawall for example, Coast Care members rejected to contribute any restoration work in relation to the hard protection scheme (see Chapter 5.1)[6]. With the general public, weed control is not always popular, but mostly not because people are critical about the use of herbicides (though this can be an issue), but because what restoration enthusiasts call invasive weeds, others think of as pretty plants in the dunes. This conflict will be discussed in more detail below in regard to the removal of gardens which have been extended into the dune-bordering properties.

Besides weed control which targets introduced plants on the dunes, pest control targets animals. Rabbits were introduced after European colonization, and, without natural enemies in the Aotearoa New Zealand environment, they extensively feed on Pingao plants. Cats and stouts are a concern too, because they prey on native birds like the New Zealand dotterel. Common pest control practices are poisoning, trapping, and shooting, as well as pest-proof fences that keep these animals out of the replanted areas. Pest con-

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6 The issue of allegedly unavoidable compromises for the greater good will emerge in Chapter 7.3 in relation to forced (periodic detention) labour, an essential part of large-scale Coast Care projects.

trol is an essential part of the projects, even though volunteers often care most about the planting. Pim distinguishes between the emotional attachment to planting and the pragmatic aspects of his large-scale task:

> The replanting is almost more of a participation feel good aspect of it and the weed control and the rabbit control, and the fencing and the vehicle law changes are where the big gains are made. (Interview with Pim de Monchy, BOP Coast Care)

While the Coast Care coordinator here acknowledges that weed and pest control are not the "feel good" part of Coast Care work, these practices are widely accepted as necessary. Pim de Monchy sees the reason for this in the agricultural history of Aotearoa New Zealand, making pest control a familiar issue for most people:

> Some people are surprised. Some people are anti. Most people see it as a necessary evil, because the rabbits are such a well known agricultural pest and they have been for over a hundred years – people know that, generally speaking, rabbits are bad. So you're not having to convince people of the need for it, and then of the need for poison. It's a case of they know it's bad so they go, 'Oh well, if that's how you have to control them that's okay.' (Interview with Pim de Monchy, BOP Coast Care)

Increasing volunteer participation in weed control activities is a major goal for the future of Coast Care. A press release issued during the time of the fieldwork by the Regional Council about an internal evaluation of the programme states that

> [m]ost people associate Coast Care with planting, so the challenge for staff and contractors now is to try and harness volunteer energy for the control of weeds which threaten existing and newly established plants (Wassilieff 2012).

To accomplish this, volunteers are offered free enrolment in the weed control courses mandatory for people who handle chemical substances on public land:

> We've now put thirty something volunteers through that and then we supply them with the chemical and the equipment, and advice and so on; and hopefully they can nibble away at the problem. (Interview with Pim de Monchy, BOP Coast Care)

Apart from enrolling more volunteers, the coordinator also uses an increasing number of funds for contractors, because in difficult locations weed control work is not suitable for volunteers. The ubiquity of controlling unwanted flora and fauna is also reflected in the shared language of dune restoration people. Especially in regard to pest control, the tone of the discourse can be surprising when encountered for the first time.

I was first introduced to the common language of pest control by a talk given at a conference of the Dune Restoration Trust of New Zealand. A Department of Conserva-

tion (DOC) biodiversity manager presented the latest on poisonous carrots (containing the controversial 1080 or Sodium fluoroacetate) and kill traps. We learned that traps are distinguished in cage, leghold, and kill traps, and that all models need to pass a National Animal Welfare Advisory Committee (NAWAC) humaneness test. A faintly giggling audience was informed that "cages are good where sensitive non-targets are present", and that "feral cats require heavier duty hardware," which is why "Soft Jar Victor 1.5 is the most effective trap for cats". What the presenter called the "ultimate cat trap" was developed especially by the Kaki Recovery Programme he worked for. Though the device did pass the NAWAC test, the speaker warned before showing the picture that this "is not for the fainthearted" (Fieldnotes March 2010). During the course of the fieldwork, I got accustomed to the sight of such devices, but the ubiquity of killing unwanted animals and the common ways of talking about this in a technocratic way – as shown in the term pest control itself – remained irritating to me. The tasks associated with it are highly operationalized and converted into numbers. For rabbit control, for example, the so-called McLean scale is used as a means to determine the intensity of rabbit presence on a scale from 1-8, which then translates into action being taken to kill the animals:

> So, 8 being – you look out there and you see rabbits seething all over the place, and 1 being no rabbit sign having been found. What we do is every year in November, the contractors and I will assess the whole coastline […] Every two hundred metres we stop, walk up the dune and have a look around, and carry on. And if we get two or more pieces with a score of 3 or higher then we do a control operation. (Interview with Pim de Monchy, BOP Coast Care)

In remote areas, rabbits are also shot in organized operations by squads of hunters using night-sight devices. As explained above by the Coast Care coordinator, these practices are relatively uncontroversial, because they link up well with the experiences of farming in a country where introduced animals strive and agriculture relies on large-scale pest control. However, not all animals impacting the dunes are perceived as pests by the wider public. While people might agree with the necessity to kill rabbits and the practices used to do so, they may object to killing other species that they find cute and care for: hedgehogs, for example, which are popular characters in classical English children's literature (Potter 1905; Grahame 1908).

Furthermore, pest control practices that might work in agricultural settings or in a national park context may need to be adjusted to the public space of the beach. In the

Eastern Bay of Plenty, volunteers are now laying out toxic bait for rabbits, because paid pest control workers, used to work in remote bush areas, failed to account for humans and their dog companions also present in the beach environment. Not taking enough care to warn people in advance, and laying out baits along the walking paths as well, resulted in dogs that showed symptoms of poisoning. After people complained, the local Coast Care contractor appealed to the kiwi belief that the best way to ensure things are done properly is doing it yourself, and recruited locals for pest control work, including the dog owners themselves, who now take care to inform everyone about the baits, using several channels from the schools, to the marae, to the hospital.

Contrary to the comments made by Pim de Monchy above, some care groups *are* enthusiastic about pest control, and this may even lead the way to new affiliations beyond Coast Care. An article in the Dunes Trust newsletter reports on a Coast Care group that joined Weedbusters, a community weed control and education programme (Weedbusters n.d.), and encourages other Coast Care groups to similarly expand their scope (Dune Restoration Trust of New Zealand 2013). Weeding and pest control are similar in that they are both ongoing tasks: the bulk of the work often amounts to maintaining nature. For those not familiar with restoration, this can feel counterintuitive: Is not restoration about giving nature a hand in order to get it back into a state where it can sustain itself? Does it still "count" as nature if it is this high-maintenance? Experienced Coast Carers have encountered such questions and talked to people who argue that dune restoration work is useless because it has to be done again and again. Elise Vanderbek, the hands-on volunteer from Waihi Beach puts it like this:

> I think it's just like a lot of things; you've just got to keep nibbling away at it and doing what you can. Some people say to us when we're down there working that we're just wasting our time, that the sea will take it, that the public will trample on it or that the plants will die because of climate change and all that sort of thing. But I just say to them, well at home we mow our lawns every time they grow; we don't just say it's a waste of time cause they'll grow again, I mean you paint your house when the paint starts flaking off it or it needs painting, you don't just say, 'Well, it's going to need painting again in 10 years if I paint it now, so I won't bother.' It's like cutting your hair or washing your hair, it's gonna get dirty again, but you know, to me it's just stupid to say it's a waste of time because it will need doing again later, or more weeds will come, or more rubbish because that's life isn't it? (Interview with Elise Vanderbek, Waihi Beach Coast Care)

Because of the amount of work, and the need for ongoing maintenance, Coast Care works best in locations close to where people live: within the city boundaries, the dunes are therefore in better condition, regardless of the intensified human use pressures. As

the Coast Care coordinator explains, the reasons lie in better control of vehicles on the beach and in the much larger group of possible volunteers that could be recruited. Tauranga and surrounding suburban regions are currently undergoing massive growth – this might result in positive impacts on the dune environment:

> It *is* interesting. If you look at that area between Papamoa and the Kaituna River; the plan under SmartGrowth which is this fifty year joint agency plan, is for something like 41,000 people to be housed on the Te Tumu and the Wairakei development blocks. And that's gonna seriously change that environment. In some ways though the dunes from a biodiversity perspective might end up better off than they are now where they've got this low level grazing; it's just some draining of wetlands, and there's not a lot of protection going on[7]. On the other hand, once it's urbanized you will get all the heavy metals and the storm water run-off. So there's kind of like different pressures coming on. But in the places that are reserved inside an urban space, the protection is quite good and so you could replant threatened plants with confidence that they'll survive and they're not gonna get eaten by cows, rabbits or driven over by vehicles to the same extent as they might do if it was out in the country. (Interview with Pim de Monchy, BOP Coast Care)

However, one might argue that the negative effects of increasing coastal development are simply less visible. Whereas damages caused by grazing stock, rabbits or vehicles might be more effectively controllable once an area has reached a certain level of urbanity, the invisible environmental threats from pollution will nonetheless multiply.

In any case, Coast Care projects most often involve nature restoration within a suburban setting, where human presence is an important part of the natural-cultural environment. The Coast Care coordinator considers the relations to this larger public and the visibility of dune restoration when he is asked to speak about possible futures of Coast Care. Three different ideals of restoration work in its relations to the human community determine his visions. Firstly, the "gold standard beach" shows the potential for dune restoration in areas with high usage and public profile:

> What I'd love to see is some gold standard beaches, so at least one place in each district where we can show a fully restored dune sequence from front to back, with no weeds in, kind of like the end point: This is what dune restoration could achieve in this environment given a certain amount of resources. […] At those places where lots and lots of people visit, we wanna make sure that the dune is in as good a condition as possible, given the constraints of that site. (Interview with Pim de Monchy, BOP Coast Care)

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7 Since the interview there have been a number of partnership agreements between landowners and Councils in this area that have identified and protected dune and riparian areas of significance from grazing and development (Pim de Monchy, pers. comm., 05.03.2014).

The goal is to give people an idea of

> what does the beach look like in the Bay of Plenty? 'Ah, that's right, Spinifex, and Pingao, and some Pohutukawa trees, okay.' So they got the right mental picture of, what a sandy beach environment is. (Interview with Pim de Monchy, BOP Coast Care)

Secondly, beyond constructing this physical and mental picture of the possibilities in the here and now, Pim also aims to show the potential of restoration to return closer to "the way it would have been". This second approach is limited to areas with more space, which allows for a more self-sustaining community of native plants and animals:

> [W]here you've got a natural dune system that goes further back, that's kind of where you can demonstrate, at an ecological level, [how to] get a functioning community back again. And I guess looking forward maybe another five or ten years, that should be not just plants, but animals as well. (Interview with Pim de Monchy, BOP Coast Care)

This goal is now pursued under the new instrument of Biodiversity Plans. Pim gives an example of a dune area where a rabbit-proof fence has been constructed as a matter of "removing one of those animal threats to trying and rebuild the animal community as well as the plants" – in hope of gradually turning the area back to "the way it would have been" (Interview with Pim de Monchy, BOP Coast Care). How these measures will influence the development of the dune ecosystem is yet to be seen, also because of the unknown effects of interactions between native animals and plant communities. The loss of native fauna has most probably also accelerated the demise of native flora, because seed dispersal by native animals like geckos and skins was disrupted. Apart from these visions of a self-maintaining coastal community of native plants and animals on the dunes, Pim also points to the role of human communities in determining the possibilities of restoration:

> So that's my vision. I'd also love to see a few places where you have an autonomous care group that sets its own vision and comes to the agencies. 'So this is what we need to achieve the vision', and the agencies work together well enough that they can say, 'righteo, there you go, great, make it happen, what is the support you need?' So as well as actually seeing the outcomes on the dunes, I'd love to see that participation raised from – we advertise a planting day and people turn up – to people advertise amongst themselves the planting day, and they are also the ones [who say] which plants are required and when they want to do the work, and what they want to see at the end of it, and all that kind of thing. (Interview with Pim de Monchy, BOP Coast Care)

Coast Care remains a lot of work, productive and reproductive at the same time – and like all care work, it is potentially endless. The following chapter will unravel the 'working with nature' imaginary more explicitly from the work angle. I will focus on the motivation and aspirations of different actors to provide their labour force, mostly without getting paid. Community dune restoration in the Bay of Plenty (and elsewhere) is based upon local volunteers' work force. However, I will use my empirical material to show that this is only one part of what is happening on the dunes. International "voluntourists" (Callanan and Thomas 2005), offenders sentenced to do community work, as well as people who try to gain access to the formal labour market are all becoming part of a complex economy of volunteering that is coproduced in the process of restoring coastal dunes.

7. Working with Nature, Working with Communities

> "If the government had to pay them [the volunteers], they'd have been broke years ago. But yeah, we just do it because we believe in it and we can see, if we put our heart and soul into it we can see what we're doing; we can see the benefits." (Interview with Walther Smith, Papamoa Beach Coast Care)

This chapter looks at 'working with nature' by zooming in on the meaning of work and community. It will discuss the economies of Coast Care work (moral and otherwise), and the diversity of volunteers' motivations. As will be shown, volunteer work is not necessarily best understood by opposing it to paid work. Rather, paid and unpaid work are linked up in the scope of Coast Care projects, and some actors see volunteer work as one step towards paid work – or as a compensation for not being able to do paid work (anymore), a welcome opportunity to do something "useful". The chapter elaborates on this continuum of work emerging through practices of caring for coastal naturecultures.

In the opening quote, Coast Care volunteer Walther touches upon a central feature of this and other care group programmes: volunteering is a way for the authorities to organize work that assumedly could not be funded otherwise. While some work in pest and weed control is given to contractors, Pim, the Coast Care coordinator, is clear in that he "never pay[s] contractors to do planting". And people are more than willing to do this unpaid work. In order to learn more about the phenomenon, I became a volunteer myself, and took part in Coast Care events throughout the Bay of Plenty for a whole (southern hemisphere) winter season between April and October 2011. This part of my fieldwork consisted first and foremost of countless instances of planting, weeding, and helping the contractors with sometimes unexpected tasks: how does one organize a planting day with dozens of girl scouts and their families running excitedly through the dunes? The Western Bay of Plenty contractors, a friendly couple in their late 40s, had just started their contract and turned out to be happy to be followed around as long as I made myself useful. As a consequence, I entered into the exchange of volunteer labour as a physical, labouring body and received not only much of the fieldwork material which built this book, but also their recognition of my work as a volunteer. While greatly enjoying it, this almost felt like betraying the idea – was I not doing this all for myself after all, for my degree and academic career? Was it maybe selfish to vol-

unteer? As it turns out, of course, all the volunteers have their own personal motives to get engaged. This is how volunteering works.

7.1 Keeping Busy: Senior Volunteers Doing Their Part

Walther is a kind and modest man in his 70s who lives in Papamoa Beach, a suburb of Tauranga, together with his wife. He spends significant amounts of his time with Coast Care work, much of it outside of the officially announced working bee events (though he joins those, too). Being well-known by the coordinator and contractors, they provide him with plants and spraying equipment, so that he can go out to the dunes close to his house on his own time, and "check on things" (Interview with Walther Smith, Papamoa Beach Coast Care).

Working silently, dressed in blue work coveralls, Walther gives a resolute impression at first sight: he is not there to chat, but to work, this is clear. Though handicapped by a stiff knee, he goes about his work in a decisively straight manner, determined, and without unnecessary breaks. However, he has a great time out on the beach. Recounting another working bee some days earlier, he tells me:

> We mucked about quite a bit, but it was lovely out on the beach. That's another thing I like about it, it's beautiful out there, absolutely beautiful. And it sort of gives me a purpose to get out of bed in the morning too, you know, you sort of, otherwise you can sit around and you can mope about and think of all the doom and gloom and that; whereas, you know, life's good, life's good – if you're occupied. So many people don't consider that everything's running right but they don't get out and do anything about it, you know. They can't criticize me for not getting out and doing things. (Interview with Walther Smith, Papamoa Beach Coast Care)

Life is good – if you're occupied. This is how Walther lived his whole life, starting from his childhood on a dairy farm where he and his siblings had to feed calves and chooks before going to school. Again at night, upon returning from school, they had to help their father milk and do other chores on the farm. "Farming is a very intensive thing, you know, it's not a nine till five job, no way, no way." In hindsight, he thinks of this infinite work as a blessing *and* a curse, or rather the other way round:

> But you know, we hated it at the time. We thought our parents were being unfair on us, but when you look back it was awesome – kept us occupied. And I mean look where I am, I'm still playing round with the land and animals and loving it. (Interview with Walther Smith, Papamoa Beach Coast Care)

In fact, Walther mostly concentrates on the less popular work of weed control and spraying, which is also potentially endless. Well aware of his age and physical handicap, he is also already working towards his own future, thinking of the times ahead when he will not be able to do Coast Care work anymore. Then, he imagines, he will cherish fond memories of past projects. In a way Walther is producing not only coastal dunes rid of invasive plants, but also memories of practice, of working: "I make a picture of everything I do so when I am immobile one day I can sit on the couch, look at them and dream", he explains (Interview with Walther Smith, Papamoa Beach Coast Care). Sitting on the couch is to him only imaginable this way, when he will have something to dream about, something he has *done*.

Elise Vanderbek from Waihi Beach is another Coast Care volunteer well beyond retirement age, but nonetheless very actively engaged. She never misses a working bee, and also does not stop there in her caring for the beach:

> I still like to do my own thing, if I'm out walking, I pick up litter always and I pull out weeds when I see them, put the rubbish in bins and that; notify the Council if someone's smashed a sign or vandalism or erosion or something that they need to do something about. (Interview with Elise Vanderbek, Waihi Beach Coast Care)

At the same time, she often makes jokes about the cheap labour the Councils get through volunteers like herself. However, that is how things are, she believes:

> Our Councils seem to have no money which is really disappointing, for doing a lot of stuff; anyway that's the way it is. And they rely on volunteers hugely, to do all this type of work, to notify them when there's things happening that need to be attended to. So, I think we all need to do our part. You can't expect Councils and governments to pay for everything, and I think we've all gotta contribute and not just with taxes [but] with your time and that sort of thing – picking up litter, reporting damage, pulling out weeds, planting native plants and things. I mean we've got lots of friends who don't actually do anything; they don't belong to anything and they don't contribute anything; that saddens me. I think, because I think they miss out. I think they miss out, on social things and [on] just contributing to things. (Interview with Elise Vanderbek, Waihi Beach Coast Care)

Volunteering becomes a matter of "doing your part". And while Elise clearly enjoys her voluntary work and her active engagement with the Council, picking up the phone whenever anything "need[s] to be attended to" – a behaviour which Coast Care brochures acclaim as coastal residents "taking ownership" of their environment (Western Bay of Plenty District Council 2010) – some rationalization work still seems necessary for her not to feel exploited in a way. For the tight-knit Waihi Beach group, Coast Care is much about caring for and protecting the community understood as rooted in a specif-

ic place (Agnew 1993), and about making things look good and proper there. These sentiments are a domain of the long-term residents, and Elise is well aware that Coast Care groups generally tend to have difficulties recruiting younger members. This situation contributes to the fact that the older people have to carry all the work and responsibility on their shoulders.

> Our volunteer population is getting older and older; like we don't get so many young people wanting to join in […] Not very often, you know, we get new people who just come to do a little bit. Now and again, but sometimes when they come you find it's because it's part of a course they're doing, that they've got to do so many hours voluntary work or it's the periodic detention type people, or people like you where it's part of your course work; we're getting quite a few people from Waikato University or whatever and it's part of their course work to do something like this. So that's good for us but in the end it really boils down to the local community taking ownership of this sort of work. But there's not a lot of people, and we're all getting older. (Interview with Elise Vanderbek, Waihi Beach Coast Care)

The younger people who join the working bees – including myself – too often turn out to follow other objectives of their own in relation to university degrees or other qualifications for the job market, objectives that relate to a world outside of Waihi Beach. In the next section, I will follow up on some of these volunteers.

7.2 Volunteering as a Means of Working Towards Paid Work

I meet Jasemine Baker and her partner Justin at a Papamoa Coast Care event. In their early 40s, they are younger than the majority of Coast Carers, and they do not live on the coast, but in a nearby inland community. Jasemine and Justin juggle a couple of small agriculture jobs to feed their patchwork family. Jasemine has started a BA degree in Environmental Studies with the distance-learning programme at the Open Polytec college, but has not finished it yet as her financial means are limited and enrolment costly. However, Jasemine uses volunteer work for Coast Care as well as for Department of Conservation (DOC) projects as a real-world extension to continue her studies:

> I wanted to find a way that was free, with free training, to infiltrate the system that way. I didn't want to study so much any more, I was ready to get into – get my hands dirty, basically, and also not spending so much money. So I might return to it one day but right now, having a passion for the environment and wanting to sort of get my hands dirty and get the experience. (Interview with Jasemine Baker, Papamoa Beach Coast Care)

Not having to pay for the training is one thing; the other thing is learning in a practical way while establishing contacts that might one day lead to paid employment, thereby working a way up to paid work.

> I hear that people get employed because they're there; people know that they're there, 'Oh, she might want to do it', and then you start getting paid. […] So I'm getting to know my native trees by experiencing them, you know – not just in the books. But today there was the four sorts of natives which are different from the ones that we plant with Coast Care. I don't know what the fertilizers are that we use, but I know that we've gotta put a handful of fert[ilizer] down in the hole; you know like we plant Wiwi and Pohutukawa down on the beachfront. Whereas further back, like in the backdunes where we were at the saltmarsh, we're planting cabbage tree and Manuka. So learning the different zones in different places, you know. So it's still training and it's all free and it's sort of the same thing. It just means that if there's a manager's position going, […] I haven't got my degree, I probably couldn't work for big companies and things, come in at the top, it'd be somewhere down the bottom, but it doesn't matter. I will still get employment in an around about way. (Interview with Jasemine Baker, Papamoa Beach Coast Care)

Through her studies – where, as one of her study projects, she looked into the Waihi Beach protection scheme case – she got to know Pim, the Coast Care coordinator, as well as some Regional Council employees, who she asked questions about environmental issues and stayed in contact with via email.

> And then I wanted to get my Agrichemical licence and Pim says, 'We will shout you your licence, but you have to do volunteer work first'. I went and did volunteer work so then he got me my licence, you know [laughs]. Because DOC won't hire you if you don't have quad bike licence, chainsaw licence, agrichemical licence, workplace first aid, you know. So I set about getting all of those things, so ... talking to different people. (Interview with Jasemine Baker, Papamoa Beach Coast Care)

Through different agencies and programmes, including Coast Care, she managed to get government-sponsored places on the courses for all the licences she needs. She is happy that her plan seems to have worked:

> So it was basically what I was hoping would happen through not studying, other doors would open up so you know, some people think, 'Oh yeah, but you're giving your time away and you're being used'. But it's [rather] like: No, because I've got all this free training. I now know how to trap and monitor and report back to office and plant trees. (Interview with Jasemine Baker, Papamoa Beach Coast Care)

In Jasemine's case, it is evident why she does not think of her volunteering work as exploitive, but as a way forward in her career.

Also people who already have training, but are out of employment, use Coast Care in a similar fashion. Tom, a Mount Maunganui resident, had to give up his job after an accident. While still in recovery, he regularly joins Coast Care working bees and has retrained in Environmental Studies as well. Joining Coast Care was an important part of his initial recovery process:

> So, getting back on […] I just wanted to get, like do something because, you're housebound for three months; you just want to get active, so I just thought about this Coast Care thing. (Interview with Tom Butler, Coast Care Mount Maunganui)

Now, Tom is aiming to get paid for his work, too. But this has been a frustrating experience so far, as he did not manage to gain paid work as a contractor for neither Coast Care nor DOC, in spite of his formal training, the necessary licenses to handle chemicals, and also practical experience, including voluntary work for DOC, where he was involved in trapping bird predators. He convinced the responsible ranger that pest control work has to be intensified but:

> When I met them he said, 'Well, if you can put some more traps in', and I said, 'Well yeah, I'll do it, but I'll do it on a contract basis because I give up enough of my time voluntary', and he said, 'Well, we'll get someone else to do it.' I said, 'Well, and you'll pay them?' and he said, 'Yes.' I said, 'So, I've been doing this for a year…' […] He said, 'No, you're not on our list for contractors'. 'So, so you'll be happy for me to do it voluntary but not to pay me', and he said, 'Yes'. (Interview with Tom Butler, Coast Care Mount Maunganui)

So the passage from unpaid volunteering towards paid work can be difficult. And in a situation where public funding is scarce, the Aotearoa New Zealand public sector is subject to ongoing downsizing, privatization and outsourcing. Therefore, the situation of paid staff is often precarious as well. The Dunes Trust Newsletter reminds the volunteers that their work is actually supporting those working in the few paid positions:

> But – there are still challenges. The sands have, and are still moving, for Council and DOC staff with numerous restructures and programme changes. This is one area where Coast Care groups can really help by continuing your restoration work and being a stable (yet dynamic) part of the local landscape. In my experience, operational staff get huge satisfaction from working with community groups and they have invaluable knowledge and experience – so support them by keeping them involved. (Dune Restoration Trust of New Zealand 2013)

But, as Tom's example above shows, the collaboration between volunteers and paid staff – especially when working with volunteers only to save money – can lead to tensions. At Mount Maunganui Beach, I joined a planting day that was advertised by Coast

Care as a public working bee, but was initiated by a city ranger who was seeking help with a stormwater project. Here, large concrete pipes that carry surface water from the streets onto the beach had caused erosion. The ranger managed to have the pipes extended further towards the sea, in hope that the erosion effect would become less severe this way. Now the dune area needed to be planted. Most of the volunteers present that day were tourist families with small kids. I partnered with the ranger, who was working along the beach very effectively and told me to just dig the holes; she planted the plants, this way the progress was the quickest. When I did as asked, she commented: "You're a good girl" (Fieldnotes 22.05.2011). She explained that it is sometimes hard to work with volunteers because they are more difficult to keep under control than the paid staff; however, she did not have the funds for those at that moment.

At another instance, I was recruited by a new contractor together with some long-time local Coast Care volunteers to take care of a large group of international students and school children from a neighbouring town. When I did not follow through all her instructions – collecting litter first, then planting, then picnic – because I had trouble to manage such a crowd, she told me, "if you wanna volunteer, you have to do as you're told" (ibid). That day, the other experienced volunteers were also disappointed because the contractor had forgotten to bring muffins. There is something that every volunteer wants to get out of their work, be it feeling useful and keeping occupied, getting free training or a paid job in the future, or meeting friends and having a tea break and a free muffin that feels well-earned.

While recruitment of new local volunteers is difficult, there is no shortage of supply of labour from other economies of work. The next section will turn to people who work on the dunes because they have been ordered to by the justice system to pay something back through community labour, and to international volunteers who pay to work.

7.3 Reclaiming the Public Space of the Beach: The Anti-Encroachment Project

During the time of my fieldwork in 2011, the by far largest Coast Care BOP project in terms of spatial scale and the number of events and people involved takes place at sub-urban Papamoa Beach. The site stretches several kilometres along the beach: foredunes bordered by sea-front houses. These dunes are subject to numerous public working bees

held on weekends (frequented not only by Papamoa Beach residents, but also by people from nearby Tauranga city), and many non-public events with other groups that last anything from a couple of hours to a whole week. The aim of this large-scale project is to restore so-called "dune encroachments".

Until the 1980s, Papamoa used to be a small village on the Bay of Plenty coast east of Tauranga. It has been the nucleus for the construction of Papamoa Beach, today the city's largest suburb with about 20,000 inhabitants. The farmland connecting the city and Papamoa is being developed at a quick pace under what is called the SmartGrowth Plan by the local Councils (TCC and WBOPDC); thousands of new homes and new highway connections are under construction and in planning. Papamoa Beach is almost completely residential; shops, restaurants and public spaces are all adjacent to the big shopping centre. There is almost no public space other than the beach.

Directly along the beach, houses are mostly owned by relatively affluent people who enjoy their retirement close to the beach or visit their holiday home. The houses further back are more affordable, and some areas have the reputation of being bad neighbourhoods. Except for some areas with a wider strip of coastal dune reserve, the seafront is built-up with a chain of houses. These streets are off the main road and are only used by those heading for the seafront houses or to the beach. The street is on the front side of the houses; the beach can only be reached via public access ways between the properties, typically located at every 5th to 10th section. Otherwise, the beach is not visible from the street, but the houses have fantastic views over the Pacific Ocean and towards off-shore Motiti Island. As elsewhere, simpler beach houses or baches have mostly been replaced by more expensive, bigger houses in recent years[1].

Currently, Papamoa's expansion abruptly ends towards the east, where an area of Māori land begins, organized in several land trusts. There are conflicting stories about whether Māori do not want development here or whether they are excluded from the promise of developing the land. In any case, the SmartGrowth Plan, which is addressing future development of the area, already includes these lands east of Papamoa as potential development areas (SmartGrowth n.d.).

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1 Even though the planning regulations have been changed in the 1990s and the definition of hazard lines meant that new buildings would no longer be allowed, people have used loopholes (and a lack of enforcement) to build new houses which are declared as renovations and/or replacements. One resident showed me his neighbour's house where one pole was left of the old house and re-integrated into the new, much bigger one; this way it counted as permissible renovation.

Along the extensive strip of beach-front properties, the houses are located directly on top of the foredune, which has been flattened for building platforms and to allow for unimpeded sea views. Here occurs what Tauranga City Council (TCC) now calls "encroachments onto reserves" (Tauranga City Council 2006): people habitually use the flat space on the dunes regardless of the course of the actual property boundaries. Gardens and lawns therefore technically extend into the reserve area. There are benches and laundry spindles, and sometimes also structural features like decks, steps, or even spa pools. Tauranga City Council already addressed this phenomenon in a Coastal Reserves Management Plan in 1997 (Tauranga City Council 1997), but before the anti-encroachment policy was issued in 2006, most property owners had no idea that they were accused of encroaching onto public land. They were just using what they believed to be theirs, often unaware of the survey lines. Aotearoa New Zealand is a property ownership society, and houses often change owners. When buying a house in this area, the existing gardens were a fait accompli, and the new owners saw no reason to question their right to use this space that seemed so visibly marked as theirs.

After years of revisiting the issue, the City Council decided to enforce the anti-encroachment policy, aiming to reinstall what one representative calls "really clean geographical boundaries" (Interview with Elizabeth Marshall, TCC Ranger). It was not until the City Council joined forces with Coast Care in 2010 that this project really developed momentum. Starting from where the eastward boundary of the Tauranga City Council area runs along the outskirts of Papamoa Beach, the objective is now to reinstall the proper boundaries of the coastal reserve by removing the encroachments and replanting the dunes in native vegetation. Coast Care volunteer Walther explains the reasons why he believes the encroachments need to go:

> I have a section that I live on, a residential site that I live on at Papamoa and it's got boundary pegs in it, on every corner and every bend and that's my property. And the next door people they've got theirs. But these people out the front, because it's sand dune they think it's extra land for them, but I'm sorry it's not. It is a no man's land, it's crown land as we call it. And leave it at that. And there's 20 kilometres of it or thereabouts in Papamoa or from Mount Maunganui down to Papamoa, and that we are sort of trying to bring back into line. (Interview with Walther Smith, Papamoa Beach Coast Care)

This sentiment reminds one of the arguments used by Waihi Beach seawall opponents. Another volunteer I talked to, glancing at my research information sheet mentioning "soft approaches" (to coastal protection), exclaimed: "Don't be soft on them!" – refer-

ring to the encroaching beachfront property owners (Interview with Tom Butler, Mount Maunganui Coast Care). Unlike the beachfront residents at Waihi Beach who could not be stopped from claiming the public space of the beach for the seawall that protected their property, the Papamoa Beach encroachers are brought back into line by the local authorities. As in Waihi Beach, Coast Carers play a role here too:

> It started through Coast Care volunteers, but not necessarily the beachfront ones. People who think that dune ecosystems are valuable. And they saw this as an intrusion on that ecosystem. Often they'll be living two or three or four streets back from the beach, but they don't see it as fair that those people should be able to do what they're doing. And so they put pressure on both Councils. (Interview with Pim de Monchy, BOP Coast Care)

Again, this is about fairness and the kiwi imaginary of an equitable, or classless, society. In his 1969 classic "A history of New Zealand", Aotearoa New Zealand historian Keith Sinclair stated that "[i]t must be more nearly classless, however, than any other society in the world. Some people are richer than others, but wealth carries no great prestige and no prerogative of leadership" (Sinclair 1969: 276, quoted from Phillips 2012).

This idea still defines idealistic imaginations of Aotearoa New Zealand as a country and seems to be a driving motivation for the volunteers just as much as their concern for the coastal ecosystem. For the Coast Care coordinator, however, the involvement of Coast Care in the encroachment removals is a way to ensure that it has a restoration outcome at all:

> Because if they [the City Council] only enforce the encroachment policy in a strict way, then they would only be doing those properties which were encroaching, and nothing in-between. So you'd end up with this piece of lawn being returned to native dune vegetation, but the weed infested stuff in-between, which is not technically an encroachment, being left as it was. Which would mean that that restored piece would very quickly degrade back to a weed infested area as well. (Interview with Pim de Monchy, BOP Coast Care)

The public Coast Care events at Papamoa Beach are plantings on bare dunes, a task so easy that many school classes or other groups of children – girl scouts, for example – join in. This, however, is only the tip of the iceberg of the whole project, or the last of many steps. Behind this lie a lengthy administrative process and a multilayered economy of restoration work. First, the residents receive a letter from TCC informing them that an encroachment has been identified at their property. The project started at the eastern end of the city area, where several hundred metres were already replanted in the

year before my fieldwork. Most people along the strip tackled in 2011 have already heard about the project from their neighbours further eastwards, or have seen it happening there. The residents are demanded to remove everything outside their property boundaries, including plants. If the property owners dispute the Council's version of the property boundary, land surveyors will be sent to formally identify it. Once the legal boundaries have been defined and the time set by the Council to remove things has ceased, subcontractors arrive and take care of everything that is left, except for a strip of about two metres which will be turned into a walkway. What once was gardens and lawns is treated with herbicides to kill off the unwanted vegetation completely.

7.3.1 "I am Concerned About the Plants, not the Politics": Tensions Between Coast Care and Council Objectives

The two agencies involved in the encroachment removals try to draw clear boundaries as well: it seems important to separate between the different stages of the project, and, thereby, between the responsibilities of the City Council and Coast Care. The removal of existing vegetation is a task for which the Council has signed up, and not Coast Care. Tauranga City Council (TCC) employee Elizabeth Marshall explains the role of her employer:

> And so we try and keep that separation between the legal stuff [and Coast Care], i.e. the landowner, TCC, saying to the property owners, 'You've got three months to remove the structure; here are a couple of options for the restoration of the dune that you're currently encroaching on: (1) We will spray it out; we will arrange for it to be planted up and we will maintain it to a large extent. (2) If you don't agree with us you can take us to court. If you do that and the court finds that you do have to restore the encroachment, all the costs will be borne by you.' And everyone has said, 'Oh okay, oh well we'll go with this option [1]. (Interview with Elizabeth Marshall, TCC Ranger)

Through this division of labour, Coast Care tries to keep a distance to the political decision of the Council to remove the encroachments, which is, not surprisingly, seen as very controversial by the beachfront residents concerned. To a degree, this strategy seems to work: for most of the property owners, the Council ranger is the person they direct their frustration at, and not Coast Care. Tilda Finch, who owns a house at the Papamoa Beach beachfront, voices her frustration about the Council ranger's approach that she perceives as unreasonably hardline:

> I've never known 120 beachfront owners to be so irate about one person. They just absolutely ... we all just hate this one girl who was just – nothing would bend, 'It's gonna go, it's gonna go', you know and [she] wouldn't listen to anything. She wouldn't listen to anyone. [A] lot of the grasses further down [where the encroachments have been removed already] are growing, but there's weeds all growing up through everything. Their gardens were much nicer [before]. […] I work in an operating theatre, and I had a patient through the other day and I saw his name and saw his address and I said, 'Oh, where are we?' So we spent the whole operation, he was under local anaesthetic, the whole operation discussing how terrible it was, you know. (Interview with Tilda Finch, Papamoa Beach resident)

One of the things that irritate her is what happened to the "sand ladders", rope ladders built from timber planks connected by a chain. The sand ladders had been installed by property owners three years earlier to prevent erosion on informal beach access ways from the properties down over the dunes; this was done on advice from the Council, but paid for by the beachfronters. Now, as part of the anti-encroachment project, the sand ladders are removed again, and replaced by a two-metre walkway between the restored dunes and the newly installed property boundaries. The walk-way will connect several access ways to the beach, each shared by a couple of houses. The residents dislike the idea of walking along that way, as it feels like walking through their neighbours' private space, invading the privacy of their remaining gardens and decks. And the responsible Coast Care contractor who deals with the project on the ground agrees that this is a silly plan. This is not the only aspect of the project in which Coast Care and the Council follow different forms of logic. The boundary work between the Council part and the Coast Care part of the project is not always easy:

> There's been some problems between who's managing what. Well, there's quite a clear distinction in some ways; that if it's replanting then it's Coast Care and if it's legal issues then it's Tauranga City Council. But what about the stuff in-between? What about the spraying of the weeds and what about the removal of the dead vegetation? So we agreed […] that the removal of the dead vegetation was a Coast Care responsibility, but that the spraying of the weeds was a Tauranga City Council responsibility. We've split that in half. (Interview with Pim de Monchy, BOP Coast Care)

The distinction between Council and Coast Care work also includes the funding of the different tasks involved. Spending public money is tied to monitoring and evaluation controls, and here the objectives of Tauranga City Council and Coast Care are in tension. As mentioned above, the project works its way along the dune from the eastern limits of Papamoa towards the city centre. But in some areas, there are no targets for the

anti-encroachment project; though, nonetheless, there are dunes that Coast Care wants to restore.

> Next year we get a dilemma because from Taylor Reserve the next two kilometres of dune there's no seafront housing, […] so there's no encroachments. So what do we do here? Tauranga City Council policy says, deliver a minimum of 20 encroachment resolutions per year until they're all finished. So they have to go to the next place where there's seafront residents. From a Coast Care perspective that's a bit sad because it means we're leaving that big stretch of reserve and we're jumping straight to the next place where there's houses. On the other hand, that's where the worst problems are too, in front of the houses. (Interview with Pim de Monchy, BOP Coast Care)

Another important factor from the "Coast Care perspective", especially in such a tense situation vis-à-vis angry residents, is to show quick success. To accomplish this, the "PD boys" arrive on the scene once the spraying has been finished.

7.3.2 "Giving Something Back to the Community": More Unpaid Labour on the Beach

PD workers are on so-called "periodic detention", a non-residential sentence which includes supervised work hours. It can also be imposed on people who received a fine they are unable or unwilling to pay (Ministry of Justice 1999: 67f.). The periodic detension workers – almost exclusively men, the majority of them young Māori – are present not only at Papamoa Beach, but also at other Coast Care locations where they do work which is unpopular or unsuitable for "regular" volunteers. In Papamoa Beach, they remove the dead plants, unearth the remaining plant material, collect it, pile it up and transport it in a wheelbarrow to the truck parked in front of the houses. The PD workers are not involved in the spraying itself because of safety regulations which do not allow them to handle the equipment, arguing it could be used as a weapon against their supervisors or other people (as their supervisor remarks, the tools they use to dig up the remaining roots would make just as good weapons).

Even Coast Care staff call these workers "the PD boys" in a rather patronizing way. Sometimes they are referred to as the "naughty boys" (Fieldnotes 23.01.2011). These expressions might be a combination of trying to downplay their potential criminal aspirations (something which the property owners are vividly aware of, who tell stories about their houses being "checked out" by PD workers on the job, drawing connections to burglaries happening in the neighbourhood); but it also seems a way of rationalizing

the use of involuntary work within the scope of what is advertised as a community volunteering programme.

Pim de Monchy, the Coast Care coordinator argues that Coast Care has four different goals: education, participation, infrastructure protection and biodiversity. And sometimes, he says, if one wants to achieve infrastructure protection and biodiversity, "you have to accept that it's not all possible through the participatory community model" (Interview with Pim de Monchy). And he has some arguments explicitly in favour of the PD workers' involvement. Firstly, he says, his job is to educate the public, "and that's of any beach user irrespective of whether or not they care about it; this is just trying to build up their idea that there's something of value in the dunes, and that we shouldn't bust them" (Interview with Pim de Monchy). The PD work is thus justified by subsuming it under the education theme. More important for the project as a whole, however, is how PD work allows for a different level of preparation of the dunes, which then translates into more options for volunteer participation:

> Sometimes, to get the participation, you need to have a site which is ready for planting. To get a site which is ready for planting you either need to use contractors or PD workers to do the hard work first. So you call in the big guns and then they do the hard work, if you like. And then you can invite the volunteers in to join in the process for the part that they're prepared to do and that they do well. And then you probably have to have the contractors again every now and again to make sure that it's maintained and kept alive if the group is not particularly strong. [….] I don't feel bad about it at all. (Interview with Pim de Monchy, BOP Coast Care)

In the suburban areas, where most fluctuation happens in terms of working bee participants, and where many volunteers are recruited through schools, the possibility to plant on a well-prepared, weed-free dune makes Coast Care much more attractive to volunteers. Luke Linderman, a Pākeha New Zealander who works as a supervisor with the PD workers, confirms this connection between the PD work and the involvement of school children:

> We do the hard, the backbreaking work and then the volunteer groups go out [laughs] and do their little plantings, yeah, yeah. Well actually what they're doing now is they're using all the school kids and stuff which is good, yeah. So I don't mind, I think that's very reasonable; it's a good job for the guys [on PD] because they're out on the beach. […] It's a tough day being out all day on the beach because, you know, it's exhausting. (Interview with Luke Linderman, PD Supervisor)

Tilda, the beachfront resident quoted above, also suspects that sending out kids to do the planting may be an attempt by Coast Care to calm down the angry property owners. New Zealanders love kids, and who could take offence at a group of girl scouts enjoy-

ing themselves while planting native plants on the dunes? In any case, involving children is a major part of the education outreach. For the contractors, however, it means additional work: filling in as outdoor teachers, and often also replanting large areas again, because the kids did not do it properly, for example did not dig the planting holes deep enough. The "PDians" (as they call themselves, fieldnotes 01.07.2011), on the contrary, rarely do any planting, but when they do, they tend to be very effective, Luke says:

> I've seen it a few times. We don't do it very often, but we have been to other planting days and we generally form the backbone of any planting day we go to, and actually two pillars [laughs]. Our crews usually plant 70-80 per cent of the plants as you probably witnessed, you know. Some of them can motor along, can't they? They might not be as nice, gently and careful, as the community volunteers who wanted to kiss each plant and save this little bit of dune – they were psshh psshh, digging holes and dirt flying everywhere and going for it. And we got all those plants planted that day, didn't we. (Interview with Luke Linderman, PD Supervisor)

Luke is not really decided if the Coast Care job might count as a good job for the PDians. Yes, because being out on the beach is a plus – but, as he says, "they like to have jobs with meaning" (ibid). But how to define meaningfulness? While the Coast Care coordinator (and the contractors) tend to think of their education goals, Luke is not sure that this opinion is shared by the PDians – he himself may see the positive outcome, but what about his workers?

> You know some of them work on the dunes but you don't get a lot out of the job. They can't see the end picture. I think criminals are very short-term thinkers, from what I observe. Because I feel it's a great job for observing people in their situation. They're short-term thinkers […]. If you finish with a sand dune, you know you might only go from here to there, you know [with] 10 people – that's from here to there, through a bunch of weeds you know, like Agapanthus or something like that. We've been through it back, I've been through it three times in three different days; you've got a lot of people and they are working you know, yeah. It's incredible. (Interview with Luke Linderman, PD Supervisor)

In his view, the tediousness and indefinite character of the work makes it hard for the PD workers. Ironically, they are enrolled in the task to allow for the quick success of those who come after them – to the task of planting a well-prepared dune – and to the project as a whole, where a speedy succession of the plantings along the beach area is deemed essential to gain public acceptance for the controversial project.

While the official long-term objective of the project might be defined differently, depending on whether the perspectives of the City Council (reclaiming public space) or

Coast Care (restoring native nature) are taken into account, it in any case revolves around the removal of introduced plants. However, Luke reports that the Corrections department stopped him from arranging a meeting with an expert who wanted to explain to the PD crew which plants needed to be removed in the areas further down the foredune where native and introduced plants grow. The manager there thought this was a waste of time. I suggest that the job might be rather pointless without the background knowledge about which plants need to be pulled out. Luke replies:

> Yeah, but then it's our job, as far as I am concerned, is to look after, babysit these criminals without them getting into trouble. They don't really think much about the end product of actually producing something. […] They didn't use to be such angels, but they're angels now from what they used to be, you know, even the ones that used to be badly behaved are really well behaved now. (Interview with Luke Linderman, PD Supervisor)

After all, Luke's job is first and foremost PD supervision, not coastal restoration. He likes his job, and while he speaks of the PD workers in this rather sloppy way, he still seems to take them seriously. He does not have any educational training, nor does his immediate superior who had been working in truck logistics before.

> The guy they put in charge of it was really onto it; it was all by accident because the Corrections department don't seem to know how to run anything. And he was a truck logistics guy […], so [before] he had 40, 50 truckies to deal with every day, getting them to the right place, having to deal with them, deal with customers. All that sort of thing, and he ran it very well, in partnership with the administration, the office lady, 'cause she knew her business and she knows a lot of the local people. Because she grew up in Maketu which is a bit of a hard ... you know we get a lot of customers from Maketu, another Māori-dominated area. Yeah and we worked hard, we got rid of the supervisor who was giving them fish and chips, and possibly even smoke pot on the crew and things like that and letting them get away with it, so blurring the boundaries for them which made them more grumpier. (Interview with Luke Linderman, PD Supervisor)

They achieved what Luke refers to as "creat[ing] a cultural change" in the groups, because the supervisors started to "work like a team" (ibid) themselves. Under the lead of an experienced supervisor, they paid more attention to "stick to the rules" and clarify the boundaries between supervisors and work crew members. They started sharing their experiences with crew members that were difficult to handle or aggressive in a way that affected the crew as a whole. The supervisors figured out that there were enough PD workers who just wanted to get the work done, and if they were able to become a critical mass in the group they tended to take over "control of the crew" (ibid), in the sense

that they determined the atmosphere to a point that new members were blending in better. Luke gives an example:

> You know, 'cause like I'd have someone in my crew – he was a hard man you know, tattooed, muscular; you know there's a fair lot of aggression in the person, even though you didn't feel like he's gonna attack you, but you know there appeared a lot of aggression. And by working with my crew he just eased up and he was more relaxed because you know when you come into a new environment you're a bit tense, and he relaxed until he found he could fit in and could just do, you know he could just work. And he worked, he worked really hard and he was happier, happy; happier in the crew. (Interview with Luke Linderman, PD Supervisor)

Now, there is "so much trust now" between supervisors and crews that Luke feels much safer; he is convinced that if someone would want to attack him now, the other PDians would step in. "They'd react for me, even though we make them work. But you know, you've got to have boundaries, you've got to have boundaries, yeah." (ibid) The Papamoa Beach encroachments are just one of many projects the PD crews work on. However, it seems worth noticing that the enforcement of boundaries and rules – both physical and social – are central in the dealings with PDians *and* the beachfront property owners. After all, the beachfronters will now be kept from overstepping boundaries, taking what is not their property, the public space of the dunes.

Another day, I meet Luke and his crew on the beach (Fieldnotes 01.07.2011). The PDians wonder what I am doing there if I am not one of the volunteers who come to plant. I explain that I am doing research, finding out about how the project works, and who is doing the work. This is met with booming laughter: "It's the PDians! And it's all free! Research solved! Criminals!" They tell me they do this work "because nobody else wants to do it". Some have more fundamental doubts about the whole project. One of them explains it is only happening "because the Council is dumb". Then his comrade adds: "They wanna create back land." He elaborates:

> They're trying to put the sand dunes back to prehuman [state]. That's never gonna happen. Especially when like half the plants they're trying to get rid of, like Agapanthus, is growing in the walkway there. So just every time they flower they blow their seeds down there. (Fieldnotes 01.07.2011)

During lunch break, I am told that "they don't call it PD any more; it's now called community work, because you're giving something back to the community". We eat tua tua shellfish that some of the guys have collected on the beach, and Luke jokes:

> We didn't look for them! We found them coincidentally! I mean you can't have a Māori stumbling across tua tuas and not let them eating them! That would be totally culturally insensitive. We don't want to be culturally insensitive! (Fieldnotes 01.07.2011)

That such a joke by a Pākeha New Zealander is met with laughter by his mostly Māori crew suggests that he was right in what he has told me about the atmosphere of trust. Then he explains, pointing to a pack of cup noodle snacks stored in the van:

> It's a way to feed them without breaking too many rules. We're not allowed to go the shops, so I buy these [noodles]. That's possibly the worst thing you can have, not nutritious, not filling [….] We're not supposed to have fun. We're not supposed to take advantage of where we are. (Fieldnotes 01.07.2011)

When I tell the PDians that the other group of young people working a couple of hundred metres away are volunteers who have paid to come here and take advantage of the possibility to work on the dunes, they cannot believe their ears. "What, they are getting paid?" they ask. When I insist that the international volunteers are *paying*, this is met with dismissal. Clearly, I must have misunderstood something.

7.3.3 "I Hope Prince Harry is Gonna Shake my Hand": The Voluntourists

Tasks similar to those of the PDians are also done by another group working on the anti-encroachment project. They are volunteers, but they are not locals. While most of the PD workers come from socially deprived indigenous communities with high rates of unemployment, drug abuse and domestic violence, these volunteers are college students from Western Europe, the US or Singapore. They come to Aotearoa New Zealand with organizations like "Conservation Volunteers NZ" or "AustraLearn" to take part in nature restoration projects. They buy expensive plane tickets, and pay about NZD 250 a week for room and board. Coast Care pays for the work too: the Coast Care coordinator calls this "Rent-a-volunteer". The international volunteers not only get a lot of work done in the week they are booked by Coast Care. Pim also hopes that their presence on the dunes will help to recruit more local volunteers.

I talk to Eva, a young Englishwoman who chose her programme because it included a stay with a host family. She seems to know what she wants, and the trip to NZ is only one part of a larger project of hers: getting the prestigious Duke of Edinburgh Award. To achieve that, she will have to prove her efforts in several areas (called physical recreation, skill, volunteering and adventurous journey) over a sustained period of time.

For the volunteering part, Eva has already worked at a Red Cross shop every Saturday for half a year, but to progress to the gold level she now has to venture into a fifth area, the "Residential Project". For this she has to spend at least one week abroad on a volunteer work trip. The Duke of Edinburgh award shows your commitment, she explains, and looks great on your CV. This is confirmed by Elisabeth, also from the UK. Already in her late 20s, she claims that the award has been of more interest to possible employers than her university degree. Only a few people manage all three levels – bronze, silver and gold – and those who do get a badge handed to them by the Queen and the Prince Consort. And she is looking forward to it already: "I hope that Prince Harry is gonna shake my hand!" (Fieldnotes 02.08.2011)

Callanan and Thomas (2005) speak of such "voluntourism" as one of the major growth areas of contemporary tourism markets. Since the late 1990s, they have observed a "'volunteer tourism rush' influenced by an ever increasing 'guilt-conscious' society" which turns international volunteer trips into a "mass niche market" (Callanan and Thomas 2005: 183). Through this worldwide phenomenon, this local Coast Care project is linked to an economy of voluntourism. Sin (2010) subsumes volunteer tourism under the larger concept of "responsible tourism". From a geographies of care and responsibility perspective, she remarks that while there are many assumptions about volunteer tourism being beneficial for local communities in host destinations, much of the research so far has centred only on the perspectives of the volunteers. Sin concentrates on projects that follow social justice and "pro-poor" goals in developing countries. While there is also a company operating in the Bay of Plenty that includes a "cultural" experience into their volunteer schemes – a marae visit, for example – Coast Care or DOC projects which host international volunteers do not usually focus on interaction with local (or disadvantaged) communities. The volunteers are accommodated at central locations and driven out to their restoration site by minibus each day. Given that Aotearoa New Zealand tourism marketing concentrates on remoteness and empty landscapes – nature as wilderness, not inhabited by humans – the volunteers probably do not expect to work in a suburban environment. But still, like the PDians, they talk about "giving something back to the community". It sounds cliché – which community? Giving back what? The volunteers seem unaware of the objectives of the project, so they do not realize that those members of the community who live in these beachfront houses do not feel they are getting anything. On the contrary, they feel that something is taken from them: their garden, their privacy.

Another international volunteer I meet that day is Jennifer from the black forest in Germany. Her aspirations and whole attitude seem much less elitist compared to the English girls. She has just finished school, her business training will not start before (northern hemisphere) autumn, and she doesn't expect to ever again have such a long free time in her life. So why is she working? Working for free, paying to work? Well, Work & Travel would have been an alternative too, but then she would have needed to organize everything by herself. She does not seem to be the adventurous type, but she is good at figures, and now she wonders if it is even worth it. Room and board are included. Every week they go to the supermarket and can buy whatever they need; last week they spent NZD 380 for 6 people. "But then I think I could buy a lot more for the 250 dollars I pay here!" (Fieldnotes 02.08.2011, translation by author) The holiday camp she and her fellow volunteers stay at in Papamoa Beach has eight rooms ("theoretically everyone could have a room on their own!"), four bathrooms and a spa pool.

For this, she works about six hours a day, and often the work is much harder than the work here on the dunes. Yesterday, she was climbing along a mountain slope full of gorse with 20 trees to plant and a sack of fertilizer on her back. The week before, at Mount Taranaki, it was raining all day and there was no heating in their cabin. In four days, she is going to fly back to her native Germany, after 4 1/2 weeks of volunteer work: "Ach, das wär ja schon schön, die letzten 3 Tage noch mal frei zu haben" ("Well, it would be nice to have the last three days off"). It seems Jennifer is paying a high price for her volunteering experience. However, just like the "local volunteers" introduced in the opening of this chapter, she seems to come from a background with a very strong work ethic. Whether it is called "keeping busy" or "giving something back to the community", the volunteer work seems to be a structuring element that is a prerequisite for enjoying the beach, or going abroad to spend four weeks in a country far away. As a justification for the pleasure, it is not just for fun, it is *work*.

Fig. 13: Planting day with Girl Scouts, Papamoa Beach. Source: Picture by author, May 2011.

Source: Picture by author, May 2011.

Fig. 15: Papamoa Beach, 4 years later. Source: Picture by author, March 2015.

7.4 "It Makes You a Better Person": Suzanne, a "Great Kiwi Example"

Besides all the different kinds of volunteers encountered in the course of this chapter, a few people do have paid jobs or contracts with Coast Care. One of them is Suzanne Fischer, who worked as an assistant for one of the former Coast Care coordinators. Her job included many tasks: organizing and attending working bees, keeping in contact with the volunteers, distributing materials, tools and information. But for her, the job was more than anything else about working with volunteers in all their diversity along the spectrum of motivations this chapter has been trying to describe. This job requires dedication and commitment at the level of personal relations. Suzanne has given a lot of thought to this herself. In hindsight, she thinks that the Coast Care work has greatly contributed to her own personal development:

> I basically expanded myself so much, I learned so much about myself because I had to kind of grow up in some ways, to be able to deal with all these different people and it's made me much, much more able to deal with all types of people, you know. […] So it was good for me. I really, really loved the people side of

things. […] You learn lots about yourself as well as other people. It's really good. (Interview with Suzanne Fischer, former Coast Care Contractor)

But the "people side" of Coast Care was also sometimes the difficulty. Her personal growth depended on successfully dealing with the diversity of people involved.

> I can tell you what, some of the people I've met – it makes you a better person because if you're in your normal group of people, you don't have to deal with someone who's a grumpy old shit. Deal with someone who's so full of themselves; you don't have to deal with someone who's got a personality disorder or you don't have to deal with some little five year old kid that doesn't understand what you're saying. Cause one person needs to be told in a certain way and then another person doesn't get it that way; you have to tell them another way and then one person wants lots of attention and you have to give them all that attention, and another person doesn't want you to come over; they just want to go over there and do it themselves and you actually have to be able to read people quite quickly to work it out. If you want them to come back you actually have to give them their kind of space and let them do it the way they want to do it. (Interview with Suzanne Fischer, former Coast Care Contractor)

However, it took Suzanne some time to figure out that the approach to the Coast Care work needs to be adapted to the people who are doing it:

> There's lots of different ways of doing something and as long as the outcome is the same then you can't worry too much about the process. I mean obviously you tell them how to plant the plants properly and all that kind of stuff, but if they want to plant them all in a straight line then maybe you just let that go. I mean you might say to them, 'Oh, all straight lines, oh well in nature you know things like to be all over the place', and if they get it then they get it, but if they don't they don't and it doesn't really matter. (Interview with Suzanne Fischer, former Coast Care Contractor)

Different groups of volunteers pose different challenges. With young people, the educational message is especially important, although it needs to be adapted in relation to age and interest:

> The youngest kids I ever had were like kindy [kindergarten] kids, so they were like three or four and you'd have to explain to them on their level […] how to look after your dunes and why dunes are important, and get them to plant. And then you've got teenagers and they're all different again because you have to make it cool, because [they say] 'I don't wanna be there', so you have to make it fun. […] And then you have first year Marine [Science] students, and they want to know the Latin names of everything and […] so you have to give them all that kind of level of information. (Interview with Suzanne Fischer, former Coast Care Contractor)

With the many elderly people involved, she had to look after their physical wellbeing as well and make sure they would take a rest if the work was too hard. Suzanne was also working with people who have intellectual handicaps or Alzheimer's. Here as well, her

job was about much more than simply organizing a dune restoration project. What she describes is care work, not just caring for the dunes, but for people with special needs. And because of the involvement of the PD workers (see above), she also partly took over the role of a supervisor:

> You have to work with them as well, who are saying things to you like, 'Oh Miss, we only get like two minute noodles and bread for lunch. It's not fair, I want fish and chips', and having to get their respect because you're the white little girl and they're all the big bros. So at the end of the day, really, how you have to handle everybody is you have to treat them as they are, as you have to treat them like you would like to be treated. So with the PD guys, I would tell them why we're doing it and tell them all the background and nine out of ten of them would not even want to listen to you but one of them would come up to you afterwards and go, 'Oh Miss, oh yeah, that was really interesting eh man?' You know, and they had this really interesting conversation. Instead of thinking, 'Oh PD guys', I'm just not gonna talk to them about that because they're not gonna want to know about it. You have to treat everyone the same. Because you have to treat them like you want to be treated. (Interview with Suzanne Fischer, former Coast Care Contractor)

Suzanne was very successful in this kind of multiple care work. The measurement of success here goes beyond the outcomes of the dune restoration projects – it is about making people come back. And they also came back because of her work; it was tied to her as a person, as the "face of Coast Care":

> And […] people would say to me, 'We come back because we like you'. If I pissed people off all the time or if I was always telling people what to do or 'you've done that wrong' or whatever, people wouldn't come back; and some would say to me, 'You're the face of Coast Care on so many levels because you're the person that actually people work with'. And people are really really fickle and really finicky, and if they don't like you for whatever reason they won't come back. (Interview with Suzanne Fischer, former Coast Care Contractor)

Only a small number of people she encountered argued against Coast Care work itself, telling her that this was destroying the dunes. But she had to deal with that as well. All in all, the contractor position is very popular, and when a successor for Suzanne had to be found, many people put in tenders. But, she insists, this is a multi-faceted job that is not for everyone:

> I think you have to be […] really rounded, so it's not just about planting and having all that knowledge; you have to be able to stand up in front of people and educate people. You have to be able to write reports and do stuff on the computer you know. So you have to be like – it's a huge range of skills and not everyone ... like some people would have that particular skill but they might not necessarily be great being a face of Coast Care where people actually want to come back you know. (Interview with Suzanne Fischer, former Coast Care Contractor)

This awareness of the capabilities and skills she needed for the job is rather unusual in the Aotearoa New Zealand context, where self-assurance, as appropriate as it may seem to others, easily smells of self-adulation. The proverbial "tall poppy syndrome" of New Zealanders – the tendency to chop off the heads of the more ambitious poppies on the field daring to grow larger than the average – is still a vital part of a culture that values humility (Young 2009; Taylor 2013). However, just as the volunteers tend to be proud of their achievements, Suzanne is too. The specific combination of care work – for people, for the environment – allows her to make it clear that she has profited a lot herself in terms of personal growth, and that she has done good work. The regular Coast Care volunteers still remember her fondly. Walther Smith from Papamoa Beach praises her personal attitude:

> She was a sweetie. That lass had so much personality and, you know, she was so appreciative of what you did. And you're only doing it to help her, and she felt that she was imposing on you, but she wasn't. Yeah, anything she does I hope it all turns out good for her and her husband. She'd make an ideal mother too. She'd be a great Kiwi example. (Interview with Walther Smith, Papamoa Beach Coast Care)

Calling Suzanne "a great Kiwi example", Walther underlines how close the Coast Care work and the people representing it are connected to his imaginaries of New Zealand as it should be: working together in the dunes, with everyone's work counting as a contribution towards the future of the country.

8. "It's a Frontline of Defence" – Dune Restoration as Soft Protection

This chapter focuses more specifically on dune restoration as a means of soft coastal protection. It will show how the practices introduced in Chapter 6 as well as some more invasive dune-scraping techniques are employed by different actors with the goal of establishing dunes that provide natural coastal protection. Collaborators from the field of professional dune restoration are shown to pursue the sociotechnical imaginary of 'working with nature' from below and above, trying to open up the conversation about the full scale of soft options via people's engagement in Coast Care. The chapter concludes with discussing the connection between dune restoration and climate change adaptation.

The idea that vegetated dunes form natural costal protection is by no means new. Similar to the practices that have been established in Europe since 1100 AD (Clarke and Rendell 2011), early considerations were focusing on stabilizing migrating dunes and preventing sand drift. Leonard Cockayne (1855-1934) was the founding figure of New Zealand botany. In his 1911 "Report on the dune-areas of New Zealand", Cockayne writes:

> A well-shaped and plant-fixed foredune is a land-form of the greatest importance, since it […] forms a natural protection against the inroads of the sea, thus safeguarding the coast. (Cockayne 1911: 11)

This statement makes it clear that Cockayne's idea of coastal nature is not a space of wilderness beyond the sphere of human interference. Rather, he understands the dune as a useful object serving to protect the coast, a function of natural features *and* appropriate human workings with nature, where people take care of the dunes and "fix" them with planting – a socionatural object, so to speak.

His imaginary links up well with the Coast Care mission, and not surprisingly, the above quote has been used in this context (Jenks n.d.). In the original source, Cockayne goes on to address the issue of natural coastal protection as a matter of political decisions and as a scientific endeavour, calling for rigorous botanical experimentation in the dunes (in analogy to the then-popular experimental farms), as well as for rearranging state responsibilities in relation to private interests, including the dispossession of native lands for the greater good of the nation. In his chapter on "Dune Reclamation from the

National Standpoint", Cockayne describes a form of mixed land tenure characteristic of the post-colonial situation of his time, with dune areas split between private, native and Crown land. This structure, he argues, poses a problem for his idea of functioning dune areas, especially in regard to combating sand drift:

> Dune reclamation, the world over, has been considered the work of the State rather than of the individual. The labour involved is too vast, and the interests too diverse, for it to be undertaken by private individuals. The most such can attempt is to make their holding secure for the time being. [...] Native lands are in many instances a great source of danger. Usually nothing is being done upon them. In any national scheme of dune-reclamation the State would probably have to take over the Native dune areas, most of which are at present worth less than nothing. (Cockayne 1911: 65)

Contrary to Cockayne's vision, however, the increasing number of "plant-fixed fore-dunes" to be found in Aotearoa New Zealand today is not the centralized work of the (national) state, but instead evidence of the ongoing collaboration between civil society and an array of local, regional and national government bodies characteristic for Coast Care (or Beachcare) programmes.

However, the desire "to make their holding secure for the time being" is still one of the driving motivations for Coast Care. In regard to the role of the state, now faced with the challenges of climate change, scientific experts as well as local and regional decision-makers still lament missing national guidance that could back them up in their vast task of adjusting coastal policy and planning according to the realities of sea level rise and changing weather patterns. Local authorities are facing the challenge to protect ever-increasing values against coastal erosion, to reconcile public interests with private property rights, and to prepare the way for climate change adaptation, precautionary planning and sustainable coastal protection practices.

8.1 Erosion is a Natural Process

> "Dune restoration is part of the new paradigm of coastal management, which focuses on working with natural processes, not against them." (Jenks n.d.)

The last chapter has shown to what extent Coast Care projects rely on ongoing care of coastal nature and how volunteering is based on accepting the need for constant maintenance work. Another fundamental building block of the Coast Care philosophy is the

understanding that erosion is a natural process. This is of specific importance in relation to projects where dune restoration is used as a means of coastal protection, or more precisely erosion control. In personal communication, presentations, info sheets, at working bees and workshops sessions, Coast Care experts frame their educational messages about coastal management around the statement that erosion is a natural and common coastal process. This message is meant to separate the natural process of erosion (and accretion) from its social, cultural and political dimensions through which it becomes a problem. Similar statements can be found in the literature on sustainable coastal management in general and are not limited to the Aotearoa New Zealand situation. Writing from the European context, Cooper and McKenna for example state that

> [c]oastal erosion *problems* arise from the presence of human infrastructure in areas threatened by erosion; identifying erosion as a problem is therefore a human value judgement (Cooper and McKenna 2008a: 296, emphasis in the original).

Discussing case studies from Ireland in their paper "Working with natural processes: the challenge for coastal protection strategies" (Cooper and McKenna 2008b), Cooper and McKenna come to the conclusion that regardless of existing coastal management principles within the EU (European Parliament and Council 2002) there is still a dominant discourse within policy documents that depicts coastal erosion as a general threat and danger to coastal areas in itself. Cooper and McKenna conclude that the

> adoption of any system of working with natural processes will require a fundamental change in attitude from the prevailing view of coastal erosion as a problem. Coastal erosion is a natural process that creates, modifies and destroys coastal landforms through linked processes of erosion, transport and deposition. (Cooper and McKenna 2008b: 316f.)

Subscribing to such a perspective on coastal erosion can be understood as a kind of *rite de passage* into the Coast Care world. Only in rare cases, the Coast Care novice learns, is coastal erosion a long-term or chronic phenomenon that is caused by imbalances in the sediment budget, with more sand being washed away from the dry beach zone than that which is accreted[2]. In contrast to this rather rare situation, there is a regular process of storm cut and recovery happening at "every beach of the world" (Fieldnotes, New Zealand Dune Restoration Trust Annual Conference 2011). During storms events, large

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2   The reasons for this imbalance can be manifold and include natural and human-induced causes. For more detail, see National Institute of Coastal and Marine Management of the Netherlands (2004).

quantities of sand can be washed away from the beach in a very short time and deposited further off-shore on the seafloor in a so-called off-shore bar. From there, the waves will, over time, slowly push the sand back towards the dry area of the beach.

The Coast Care angle on this phenomenon lies in the role of dune plants for the dune recovery phase. The sand-binding species Spinifex and Pingao develop deep roots that stabilize the dunes, and their runners trap sand which is blown landwards by the wind. The dune rebuilds, and the steep cut develops back into a more shallow angle (Dune Restoration Trust of New Zealand 2011a). The restoration of native dune vegetation is therefore framed as making this natural recovery process possible, or speeding it up by replacing plants that have been washed out: working with nature. This understanding of coastal erosion and the role of sand-binding vegetation forms the basis of all attempts to use dune restoration as a means of coastal protection. Importantly, erosion cannot be prevented (this would mean working *against* nature):

> The plants do not stop erosion (no vegetation can do this) – their importance lies in natural repair of the dune after the storm. Storm cut erosion and recovery is a normal coastal process where the shoreline is simply fluctuating backwards and forwards over time. (Dune Restoration Trust of New Zealand 2011d)[3]

One dune restoration professional who is particularly active in spreading this message is Jim Dahm, who already played a role in part II as expert witness for the Waihi Beach appellants. He founded and worked for the Waikato Beachcare programme, as well as in other managing positions at Waikato Regional Council, and now works as an independent coastal management consultant. Instead of calling erosion a "problem" that needs to be managed, Jim argues that it is human uses of the coast that should be seen as the problem, and human expectations and fears that need to be addressed:

> The analogy that I use in talking to communities is, if I think I'm good with cats, you know, my cat looks a bit hungry and I give it a glass of milk and pat it on the head and it starts purring, I think ah, I'm pretty good with cats! So I go to the Zoo and I see the tiger and the tiger looks a bit sad, so I jump into the cage and 'puss, puss'... and I get mauled. Now that's not a tiger problem, that's some other kind of problem, you know. And the same thing, if we go jumping into the cage on the coast and we get mauled, that's not the tiger, that's not a coastal erosion problem, that's another kind of problem. We've called it a coastal erosion problem, and our

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3 The Dune Restoration Trust of New Zealand or short, the Dunes Trust is a network of people and groups interested in dune restoration. Its history will be addressed in more detail in the next chapter. For now, the information material provided by the Trust is one of the main sources of the message discussed in this section and reproduced in Coast Care brochures as well.

language is very revealing, because it reflects the way we want to think about, and the way we want to manage that problem. Naughty coastal erosion will be smacked with a rock wall, you know, which is – coastal erosion needs to be managed. (Interview with Jim Dahm)

Jim makes a clear line of argument here between the ontological state of the coastal zone (being dynamic, subject to phases of erosion and accretion, which are natural), and what ought to be done: no coastal armouring, instead dune restoration that works with nature and assists the natural processes. The message is based upon understanding the beach as a dynamic system that is never static, but continuously changing. At the same time, however, the beach features an underlying stability on a larger system scale, or dynamic equilibrium in coastal science terms (Dean 2005). The beach not only works in natural cycles, it is also much larger than commonly thought, because areas usually covered by water – like the off-shore bar – are also parts of the larger beach system.

All this is uncontroversial within coastal science; however, the dune restoration experts and professionals clearly perceive a lack of public understanding and knowledge about the natural dynamics of the beach. They see this lack of understanding as the reason why people react emotionally or frightened when they encounter the effects of coastal erosion. Within the STS literature, this move of attributing unwanted reactions of the public to their lack of understanding is widely criticized (Wynne 1995). These critiques are, for example, addressing public reactions towards emerging biotechnologies, and concentrate on what can be learned from resisting publics about how debates are framed by powerful institutions and what might be left out (e.g. a focus on lab security that leaves out possible risks of GMO contamination in the environment, discussed by Gottweis 1995). Experts arguing to educate the public in order to fight irrational or ignorant beliefs or behaviour are therefore potential red flags from the STS point of view. In the case of understanding coastal erosion as a natural process, the dune restoration professionals stress the fact that erosion is usually not dramatic if certain conditions are met: enough space, the right dune plants – and the right attitude:

> [W]ith storm cut erosion and recovery the shoreline is simply fluctuating backwards and forwards over time. Unless the beach is losing more sand than it gains (which is far rarer than we think), the erosion is not permanent. If you have all three factors in place at your beach – sufficient dune width, cover of native sand binders, [and] an understanding that storm cut and recovery is natural – you can sit back and enjoy the natural spectacle of storm cut and recovery! (Dune Restoration Trust of New Zealand 2011d: 4)

The call to enjoy coastal erosion might be overstating the message that it is not necessarily scary, and might sound cynical from the perspective of somebody owning a house at the beachfront. However, the point this pamphlet is trying to make is that there is no need for dramatic reactions – and this is where a connection is drawn between the message that erosion is natural and the paradigm shift beyond hard protection that is promoted by the same actors. The following quote is taken from a Dunes Trust article that claims to "explain the natural process of storm cut erosion and recovery and how best to live with this natural process and avoid the need to cover our beaches with rock walls and other structures" (Dune Restoration Trust of New Zealand 2011d: 1). The argumentation relies on addressing what is understood to be a common misunderstanding:

> Storm cut erosion is probably the most widespread and impressive natural process operating on the sandy beaches of the New Zealand coastline. In just a few hours, it can radically reshape beaches, lowering beach levels and seriously eroding dunes. The result is towering vertical cliffs of sand where a gently sloping vegetated dune previously existed and the equivalent of hundreds of truck loads of sand having disappeared from sight. This can evoke strong emotions and even fear. It commonly leads to demands to 'do something' and for the erosion to be 'controlled'. The concern is that if it is not 'stopped' the erosion will just keep coming. This misunderstanding commonly leads to the placement of rock and other seawalls. (Dune Restoration Trust of New Zealand 2011d: 1)

This altered understanding of coastal erosion as a natural process is slowly making its way into Aotearoa New Zealand's coastal planning legislation and legal praxis. In the 1995 Environment Court decision about appropriate coastal protections measures for Wainui Beach in Hawkes Bay (quoted in Chapter 4.2 in relation to the Waihi Beach seawall controversy), the judge argued against the appellants' right to install hard protection measures exactly with the argument "that it is no longer taken for granted that the natural process of erosion is necessarily an evil or mischief to be avoided wherever possible" (Environment Court of New Zealand 2002, see Jacobson 2004a: 52). As the Coast Care coordinator puts it, speaking of his own constituency:

> I think that's where I'd like Coast Care volunteers and coastal residents generally to be at with their thinking, is that; erosion and recovery is a great natural process and example of nature. And erosion is not necessarily a bad thing. (Interview with Pim de Monchy, BOP Coast Care)

This is not nature thought of as multiple, as a natural-cultural entanglement of human and non-human worlds. The natural in this understanding is clearly distinguishable from the human world and the political (or here, legal) decisions humans make as to how to live in this world. It seems like the sea as a force of nature is employed here to mark the

limits of human agency. This is a spatial understanding: there is a line in the sand between the liminal coastal space where humans live in and with nature, and the uncontrollable natural forces of the sea they have to reckon with. There seems to be a slip between the idea of natural forces and the conclusion that this makes it easier to accept erosion, or even perceive the whole phenomenon as a "natural spectacle" to be enjoyed. This is remarkable especially in an environment like Aotearoa New Zealand, where regularly occurring events like earthquakes, tsunamis, landslides or cyclones make the forces of nature a matter of much concern.

Nonetheless, many Coast Carers identify strongly with this line of the argument. However, these natural cycles of storm erosion and recovery take time, and the Dunes Trust leaflet quoted above remarks that shoreline fluctuations "often occur over periods of decades, rather than years" (Dune Restoration Trust of New Zealand 2011d: 3) – though this part of the message usually gets less attention. The remainder of this chapter will describe some of the attempts to speed up nature, to enhance the dunes, or to prograde them towards the sea, practices which can be seen as indirect answers to this problem. Employing dune restoration as a means of natural coastal protection has a lot to do with meddling with the time of nature. And, as will be shown, it sometimes takes time to convince people as well.

8.2 Do-It-Yourself Erosion Control: A "Kick Cowboy" Approach to Coast Care

Pukehina Beach is a small village at the Bay of Plenty coast, about 50 kilometres east of Tauranga. Here, I meet Kenny Cooper, who owns a dairy farm in the Waikato region, about a two-hour drive inland. Kenny owns a bach at the seafront, which he bought twelve years ago; he spends all his free time at the sea. Though not a permanent resident, he is an active part of the community and organizes the local Coast Care working bees. As captain of the Surf Rescue Club, he has managed to get the Coast Care events onto the schedule of the Surf Club as well.

Similar to Waihi Beach further up the coast, Pukehina Beach is just far enough from sprawling Tauranga City and its suburbs to have kept the "kiwi" feel, though it is smaller and mostly residential. There are no shops at Pukehina Beach, just a pub – the Hippy

Pipi, named after a popular local shellfish, and this remoteness is a matter of pride for the permanent and semi-permanent residents who praise the local touch and help each other out with shopping errands when they drive into town. There seems to be no split between absentee owners and "real" locals comparable to what I encountered at Waihi Beach. Many baches are regularly rented out to summer visitors, and there are visible markers of an active real estate market – an agent's office, and the usual offering signs at some properties – but the longer distance from Auckland might be one reason while Pukehina Beach is not (or maybe not yet) a hotspot of coastal development.

Its location on a narrow sand spit makes the settlement especially vulnerable to storm erosion (Eco Nomos Ltd. 2003; Gordon and Fraser 2005: 32). Only a single road stretches down the spit and eventually ends at the surf club close to the tip, with only dune fields beyond. On both sides of the street are one or two sections. Only in the widest areas have some of them been further subdivided to make room for additional houses. The houses on the landward side of the spit face the estuary, whereas the properties on the opposite side of the street face the open sea. The tip of the sand spit behaves like a barrier island, consisting of shifting sand that keeps continuously moving. At the same time, Pukehina Beach features (together with Waihi Beach) the BOP's "lowest minimum setback distance of 10 metres" (Environment Bay of Plenty 2007: iv; see Healy 1993), which means that in both locations, most seaward house(s) are located not more than 10 metres from high tide line, or mean high water springs (MHWS).

Kenny has sold the original bach on his property and is currently replacing it with a new building that is more suitable as a second home, which also means he is familiar with the Western Bay of Plenty District Council (WBOPDC) hazard line policies. Asked why he chose a house in this location, he says Pukehina has a community feeling that the other affordable option – suburban Papamoa Beach – lacks. And why at the beachfront? "Why I chose it, where I've got a bach in Pukehina? As my wife says, I'm not going to the beach to look at somebody's washing." (Interview with Kenny Cooper, Pukehina Beach Coast Care) So it had to be the front row – and on the ocean side, not towards the estuary, because "I'm not going to look at mud", as he puts it (ibid).

Similar to what many Waihi Beach residents told me about their situation, Kenny is vocal about his opinion that "Pukehina should never have been built on" (ibid). While he is upgrading his dwelling as well, he does not build as far seaward as he is technically allowed to do, and thinks it is "silly" that the current policies grant him the right to extend his building about seven metres closer to the shoreline. Kenny was well aware

before his involvement with Coast Care that the dunes are "a frontline of defence": "I knew when we bought the bach that it was if the dunes aren't there, the bach ain't there." (ibid)

Before buying, Kenny did some research and asked around, so he knows quite a bit about the history of erosion at Pukehina Beach. He tells me that after Cyclone Bola struck Pukehina in March 1988, big logs that had stranded on the beach were pulled up with bulldozers and diggers and placed in front of the eroded dunes, covering steep drops of up to 12 feet (3.65 m) in some areas. So far, only at the tip of the spit – close to the surf club – did some of these logs wash out again during a severe storm. His knowledge gives Kenny a sense of security in light of what others perceived as a dramatic event:

> Everyone else was going on, 'Oh Jesus, that's a pretty big storm; it's washed a lot of sand away'. And I says, 'Mate, we haven't even got back to cyclone Bola yet'. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

In front of his house, an estimated 100-150 ton log is thought to have been buried underneath the dune. Being a hands-on guy himself, Kenny recounts how these do-it-yourself approaches to coastal erosion events were still common in the recent past:

> A couple of years [ago] there was some big blow-outs where a lot of the dunes had got washed out. And different ones would just get a bully in and push the sand up from along the beach and do their own repairs, and say well, you know, Council's nowhere to be seen. We'll just get in, do it, and when Council would turn up saying you can't do that, they said, 'that's alright mate, I've already done it', you know. And it was too late. And that's a bit of a kick cowboy attitude. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Coast Care entered this situation promoting the idea to use dune plantings in order to stabilize the dunes. Kenny is certain that these plants have had a considerable effect on the dunes, which have accumulated more sand since the plantings started. He explains that this is less about adding to the height of the dunes, but more importantly about adding to the depth – resulting in a less steep dune that is less vulnerable to wash-out during a storm. This, he says, is a direct result of removing introduced South African ice-plants which "don't do anything" to stabilize the dunes, and replacing them with natives. Of the two main native fore dune species, Kenny has especially good experience with Pingao plants:

> Once they get going, that Pingao is the one. If you can get that going in large clumps, in a big sea it won't wash away. […] The Pingao, once it gets a root system, it's so big and huge that a big sea can come in, and if you've got an area of it

like the size of this room, it could undermine it and cut it right back, but it will still be there. And once the tide drops away and drops off, straight away it's just accumulating sand. […] And then all the wind will blow both ways and actually keep growing it out from that one point, so it's actually a really, really strong plant, whereas the Spinifex will run out and it'll wash off and the salt will do the damage, or the sea will do the damage on it, and then it'll start growing [again]. But that Pingao's unreal, especially out at Pukehina. It's done a fantastic job. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

The problem with Pingao, however, is that "the rabbits absolutely love it" (ibid). Pest control is therefore an important part of the project – as is educating people that kids playing in the dunes cause damage to this natural protection. While the points Kenny addressed so far fit well with the Coast Care objectives, he has other ideas for which he is not getting the support he would like to have. While he is convinced of the protective properties of the native-clad dunes, he acknowledges that even with that, the sea is "eating in" at times and takes the sand away. Kenny would prefer to speed up things a bit, and intervene by adding more sand to the system. Crucially though, he argues, this approach would need to be accompanied by planting dune vegetation:

If they can put the sand back, it'll mitigate it really, really quickly and you plant that, you know. If you can bring sand in or something in and cover it up and fill that hole [without planting it], it'll be gone in no time and it'll never do anything. It'll only be a very localized effect and that can be for whatever reason, [it] could have started from kids playing there and taking the dune plants out, or there may not be enough dune plants on the beach, or it could be just a big storm that had pushed in one area, you know. But if you can get that sand back there and get it planted again, […] that dune will keep growing back out and it will restore itself really, really, really fast. The biggest thing is Coast Care doesn't wanna put that back in quickly, alright, is that it's a natural thing, yes. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Instead of "sit[ting] back and enjoy[ing] the natural spectacle of storm cut and recovery" (as the Dunes Trust leaflet advises) this "great natural process" as the Coast Care coordinator calls it, Kenny criticizes that "the biggest thing […] is that it's a natural thing, yes" (ibid). Being more than a bit of a kick-ass cowboy himself, after all, this line of argument does not have him convinced. He is thinking practically, and feels restrained by an approach where human intervention is kept to a minimum. Kenny argues against this from his practical point of view. He explains that the Little Waihi estuary is silting up, a widespread problem in the Bay of Plenty that is related to land-use changes and soil erosion. He suggests that the sediment blocking the estuary could be dredged out and applied to the ocean beach, because either way "that sand should be out in the sea". That this doesn't happen is a symptom for Kenny to suspect that Coast Care puts

too much stress on things being "natural". In his understanding, such an intervention seems to be much more a question of degree than of kind. He then frames his plan as helping Nature help itself; "that dune will keep growing back out and it will restore itself really, really, really fast" (ibid).

Kenny's take on the situation points to the tension of too neatly grounding the rationales of dune restoration work – obviously a practice of human intervention – on a singular Nature, while downplaying the assemblage of practices that involve decisions, political and technical, of what to do in each case. There is no clear line that can be drawn between some practices (planting, fertilizing, pest control) and others (dredging and beach renourishment) in terms of what is sufficiently "natural". Why then not extend the practice to adding sand? Pointing to the nearby tourist location of Mount Maunganui Beach, which has already repeatedly been nourished with sand that the Port of Tauranga has dredged from shipping channels and dumped off-shore, Kenny remarks that

> they take a lot of sand out there, and that slowly works its way back in, you know, and it's made an artificial beach. But no one looks at it as an artificial beach do they? (Interview with Kenny Cooper, Pukehina Beach Coast Care)

As the section below will show, the construction of artificial dunes is in fact a technique that is already used in other dune restoration sites. However, the main problem with Kenny's dredging idea turns out to be framed as a "cultural" issue (ibid), a term he uses to signify what he perceives to be local Māori interests. The estuary is a traditional food source, which is why tangata whenua have in the past objected other projects here with possible impacts, including the laying of an underground water pipe that connects two settlements across the estuary. Again, Kenny clearly thinks that the whole problem should be seen from a more practical point of view. In response to the concern voiced by Māori over the effect on cockles and pipi (shellfish), he explains that these species grow under water anyway, claiming that the dredging would increase water levels and tidal flows in the estuary and "therefore there'd be more shellfish, right" (ibid). It doesn't seem to occur to him that tangata whenua might not only be interested in shellfish numbers, but would probably also argue for as few interventions as possible, for "the natural thing".

The Coast Care coordinator has made it clear to Kenny that he would support dredging and beach renourishment only if the local hapū (subtribal Māori) groups were to agree on it. Kenny's conclusion at this point: dredging the estuary to gain sand for the dunes would work technically, but *culturally* it doesn't, and this he regrets:

> There's certain things at Pukehina, if you could do it, it would be fantastic, you know. […] For coastal protection in Pukehina, the best thing you can do is have a deep estuary, alright. That's my opinion, because you'll define a channel, right, and you'll get sand or accumulation of stuff along that beach front. The stuff will move out. You know, that's just my opinion. […] But culturally you can't do it, and that's what it is. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Calling things "cultural" in the Aotearoa New Zealand context is also a strategy of indigenous politics. As we have seen in the Waihi Beach case, tribal organizations promote a "four pillar" model of sustainability which includes the cultural as an essential component and is meant to lead to greater Māori involvement in political decision-making (see Chapter 5.3). At the same time, the cultural marks the boundaries of what is non-negotiable for tangata whenua, that which is claimed as traditional knowledge or custom which needs to be maintained. This can be used for a no-compromise strategy which is often met with frustration by Pākeha who do not reflect on the non-negotiables of Pākeha institutions and norms, most of all the growth economy. It also provides an entry point into politics, because the New Zealand Resource Management Act (RMA) and other legislation make it mandatory to at least listen to cultural concerns (Bay of Plenty Times 2011). On the other hand, as Michael Goldsmith has argued, this cultural asymmetry effectively blinds out that the dominant Pākeha majority also gives meanings to the world according to shared, "cultural", principles (Goldsmith 2003a).

Kenny's critique is not limited to interpretations of the appropriate natural protection by Coast Care and local iwi, he is also concerned about how decisions are made in general. He is dissatisfied with the governance structures, which in this case do not line up well with his own do-it-yourself ambitions. He laments that while there may be sand made available to address acute erosion, he cannot access it directly, only via Coast Care (or the Ratepayer's Association):

> There's no short cut. My thing, there should be a short cut that's 'Hey man, my place is washing out. I want sand'. I only have to ring one person up – 'I want sand'. I'm gonna do it. That's it. Get in there and do it. So, I'd like to see it a damn sight bloody quicker but, you know... (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Otherwise, the "kick cowboy" attitude still remains an option. It happened in the past, and if need be, it could happen again:

> I know different ones out there [who] are contractors and as they said, if the sea was washing into their place they'd have no hesitation of putting a digger in there, doing what they have to do and then sitting back later and going, 'Oh well, fine me,

you know. Sorry, I've done what I've done'. (Interview with Kenny Cooper, Puke-
hina Beach Coast Care)

What Kenny calls the "kick cowboy attitude" is also known as "number 8 wire mentali-
ty" (Kiwianarama 2010) or "kiwi ingenuity" in Aotearoa New Zealand. This important
aspect of national identity relates to the presumed ability to fix everything with a stand-
ard piece of wire, or with limited means in general, fostered by New Zealand's isolated
location in the Southern Pacific, as well as by a settler society on often rough terrain,
where travelling especially over land remained difficult well into the mid-20th century.
This well-developed ability to help oneself goes hand in hand with a refusal of external-
ly defined rules, as Kenny explains:

> Kiwis are pretty like, 'You don't tell me what to do'. You know, 'Don't stick me
> behind a wire. I'll do what I wanna do'. You know, 'She's right mate', and that's a
> Kiwi attitude and that's why we've got where we've got for such a small nation.
> (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Since its introduction in 1991, the RMA has been met with resistance that can, at least
partly, be attributed to the fact that some people find it difficult to accept that they are
not allowed to do as they like, even on their private property, and that natural resources
are to a certain extent treated as part of the commons. Coast Care as soft coastal protec-
tion, however, usually operates well within the limits of the RMA, and is actively pro-
moted in the accompanying New Zealand Coastal Policy Statement (Department of
Conservation 2010: 24).

8.3 Beyond Coast Care: Dune-Reshaping as an Alternative to Hard Protection?

In the section above, Kenny laments that Coast Care is clinging to an idea of what is
natural that seems to limit the range of accepted practices. Coming from his interest in a
do-it-yourself approach to coastal protection, Kenny is already engaged in doing nature
(as a practice). When he runs up against resistance with his ideas about dredging and
reverting sand, which he thinks could be legitimate practices of 'working with nature'
wasn't it for the possible protest of local Māori, this could be interpreted as evidence of
the actual multiplicity of possible coastal natures. Any argument for working with natu-
ral processes is also an argument for a specific politics of nature, with different ambi-

tions and potential outcomes. Within Coast Care though, a tendency can be observed to discursively demobilize nature. By claiming to reconstruct nature in its original (read, pre-European) state, the practices of nature-making in the dunes can become seemingly self-evident, a matter of restoring the (scientifically-defined) past and less a matter of political deliberation. This tendency, one might argue, could be further reinforced by the increasing focus on biodiversity and the restoration of native nature (see Chapter 9).

Dune restoration pioneers within and beyond Coast Care rely on science when arguing for their understanding of coastal nature. The chapter above has outlined the tendency to attribute public concern about erosion to being misinformed about the scientifically proven truth of the beach as it is seen through the eyes of the coastal scientist. Science is used to argue against hard protection, as well as for restoring coastal ecosystems. It is, however, an open question how much interference into what is regarded as the natural coastal system is possible without compromising the building blocks of a dune restoration concept that relies on a stable concept of a singular nature. This becomes visible by looking at emerging practices that aim to expand the potentials of dune restoration as natural coastal protection, developing new techniques beyond those described in Chapter 6. The Coast Care coordinator himself, for example, thinks of beach nourishment as a possible way to provide Coast Care with more room to work in the suburban areas in the future. At a public workshop on "Empowering coastal communities to adapt to climate change" he underlines that if all the material recovered from maintenance dredging in the Port of Tauranga shipping channels were to be used for beach nourishment, this would add about 50 metres of width along the 30 km of beach between the Mount and Maketu (Fieldnotes 26.05. 2011).

Especially under the influence of rising sea levels, the limits of Coast Care are often the borders of private properties at the beach (on how Coast Care works on maxing out the public space of the dune, see Chapter 7.3). At the moment, however, the port company dumps some of the sand off-shore (to the advantage of Mount Maunganui main beach), but most of it is stored and sold to construction businesses; with this, the port is also digging into the profitable market of sand-mining (Delestrac 2013). While, without the cooperation of the port, large-scale beach nourishment is beyond the capabilities of Coast Care, dune reshaping is a possibility that seems worth exploring, and there are experiments and trials doing this. We already encountered a similar project in chapter 5: the construction and planting of an artificial dune was part of the larger Waihi Beach coastal protection scheme. In this case the work was carried out by Western Bay of City

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Council and its contractor (a landscaping company), because local Coast Care volunteers did not want to participate in anything related to (re)building the protection scheme, and perceived the dune reshaping project as an attempt of the Council to high-jack the successful Coast Care idea for their goals. Given this example where dune reshaping was met with a boycott by the locals, how can such an approach go along with the Coast Care philosophy?

The Coast Care coordinator is aware that the heavy machinery necessary to accomplish reshaping projects is seen as questionable by parts of his constituency who may perceive it as inappropriate. After all, most Coast Carers have been exposed to the educational message about the negative impact the history of coastal development and levelling of dunes has had on the coastal environment. "If we are on the dune with an excavator people think we're going back to the 1950s" (Fieldnotes 26.05.2011), the Coast Care coordinator remarks, which is probably why the BOP Coast Care newsletter carefully explains what is done and why at a test site in the Eastern BOP (Coast Care BOP Programme 2012: 5).

Dunes reshaping as a restoration technique is used by Coast Care BOP with two different goals in mind. On the one hand, it is employed as a means to get rid of unwanted vegetation. The top layer of the dune and its dense vegetation is removed completely: weed control by mechanical means. On the other hand, eroded dunes are reshaped and then quickly replanted as a means of erosion control, again speeding up the natural dune recovery. In the example mentioned above, Coast Care BOP used the technique in a field trial, aiming to collect scientific evidence on the question if native plant cover enhances the dunes' capacity to work as a natural barrier for coastal protection. So far, this seems to confirm that native plant cover cannot prevent natural erosion of the dunes:

> Since June 2009 Coast Care staff and contractors have been conducting a trial at Ohope and in the Opotiki District to see whether re-contouring steep dune scarps and re-planting with Spinifex has any effect on the rate of erosion in places where the coastline is retreating landward. The results to date show that Spinifex does not slow the rate at which sand dunes erode during storm events. If the sea wants to take the sand, it will. […] Longer term, the trial will also be used to compare relative rates of accretion between recently-planted Spinifex and areas of exotic vegetation when the current erosive phase ends. (Coast Care BOP Programme 2012: 5)

The Coast Care BOP coordinator is therefore trying "to put the message out" that the native plant cover alone is not able to stop the storm erosion more than minimally – but that during the critical months following a storm event, the native vegetation is vital to

make sure that "the wind and wave-borne sand that is delivered post storm cut is recruited back to the sand dune as quickly as possible, to rebuild that buffer" (Interview with Pim de Monchy, BOP Coast Care).

The dune reshaping technique has also been used to provide coastal protection specifically for beachfront housing on the Coromandel peninsula (part of the Waikato region and subject to the Beachcare programme, which is comparable to Coast Care BOP). Coastal consultant Jim Dahm has been engaged by local property owners to address severe acute erosion at Whangapoua Beach. A row of beachfront houses came under threat when parts of the front dune were washed away during storms in 2008. Jim implemented a dune reshaping and planting scheme that was paid for by the beneficiaries. While this was not part of Beachcare activities, it nonetheless linked up closely to the volunteer scheme, because:

> [t]he only reason we got a good change at Whangapoua was because that community had worked for ten years for the dune; they saw that it went backwards and forwards and they saw what you could achieve. That erosion scarp looked awful – three or four metres high and the top was five metres from some houses. Ten years ago or fifteen years ago that would have been a rock wall; there would have been nothing you could do. I would have been a voice from the wilderness saying, 'We don't need to protect, it's not that serious.' The response would have been: 'Rubbish!' and it would have been rock wall. (Interview with Jim Dahm)

Jim attributes the openness of people to a soft solution – instead of a seawall – to the time invested into spreading the Coast Care ethos.

> I mean, I've actually got a few sites now where we've got communities to live with natural processes, where I'd never be able to do that 20 years ago but I've picked up skills to do that. A relatively simple case I admit but nonetheless we're making progress we wouldn't have made 20 years ago simply by getting involved in taking this fight but hell – prevailing paradigms are enormously difficult to change. (Interview with Jim Dahm)

This take on the situation is confirmed by a representative from the Whangapoua Ratepayer's association, who sees Jim's long-term engagement in the village – as a former Council officer, then as Beachcare coordinator, and now as a private consultant – as the main prerequisite for the trust which the locals put into his deep knowledge of the beach, and following from that into his ideas of addressing the erosion scarp by reshaping the dune.

In December 2008, the Whangapoua beach was scraped and subsequently planted to great success. In 2010, the New Zealand Coastal Society Conference was held in the Coromandel region and as part of the conference field trip, the Whangapoua Beach site

was presented as a best practice example, with Regional Council officers and a local resident joining the meeting and reporting on what all sides saw as a positive outcome. But the reshaped dune itself, of course, also remains subject to the same dynamic cycles. Less than three years after the scraping, in August 2011, large parts of the dune were eroded once again in a storm event. I wonder, is it not frustrating that the scraping might need to repeated, now that the dune planting has just really taken off and the site looked "natural" (read: covered with native vegetation) once again? But when I call Peter Jackson from the Whangapoua Ratepayers Association, he tells me that they had anticipated this happening sooner or later, and that for this reason the resource consent contained a provision that the beach scraping can be repeated without going through the consent process again. Another factor enabling repeated beach scrapings are the relatively low costs associated with it – according to Jim Dahm about 3-4 % of the cost of a seawall (Dahm 2010).

When I revisit the place in March 2015, the Whangapoua project is once again presented as a best practice example, this time to the participants of the annual Dune Restoration Trust conference (held in Whitianga, Coromandel), by Jim Dahm and his local client, a retired environmental lawyer who owns a beachfront property there. On this occasion, however, Jim is careful to stress that the beach scraping is a transitory measure only, and that while the goal for now is to prevent the construction of a seawall on Whangapoua Beach (at least one of the beachfront residents would prefer a "hard solution"), in the long run some form of retreat from the coast will be needed in this location. As it turns out, the effects of the 2011 storm event had not been addressed with another scraping, but the dune had recovered over time with the help of new plantings alone. But now we stand in front of a dune that had been rebuilt from beach scrapings in order to ease out the effect of another large storm that happened some months earlier. Things remain in flux, and every new storm becomes a problem as long as the dune has not been covered by new vegetation yet, and the residents remain concerned about the outcome of the project. The same week Jim has to postpone a meeting because he had to drive up to Whangapoua again; to discuss the project and calm down those residents who still want a seawall.

In any case, these more invasive methods of dune restoration might stretch the limits of what people perceive as natural coastal protection. In the Whangapoua case, the residents welcomed (and payed for) the artificial dune as a progression of Coast Care practices in a difficult environment, while the "fake Coast Care" dune in Waihi Beach (5.1)

was widely criticized by local Coast Carers as *non-natural*. The places might not be comparable in terms of the environmental conditions; the consultant thought of Whangapoua as a promising location for beach scraping, whereas the Waihi Beach "dune enhancement" plan was criticized in the external project review because of its limited scale (Lumsden 2011). However, both instances of constructing a dune in front of seafront houses, whether to speed up nature (as in Whangapoua) or whether to use it as a protection where there might not be enough space left for a dune to build naturally (in Waihi Beach) proved difficult. In both cases, the dune was washed away again. Still, the Whangapoua clients remained willing to stay with their decision and try the method again, which they perceived as a soft alternative to hard protection measures.

With these two examples in mind, one could argue that for a project to function as soft protection, and to be understood as 'working with nature', not only the state of the physical environment needs to be taken into account. A constructed sand dune can be perceived in different ways. In Waihi Beach, it was seen by local seawall opponents as merely a cover up of the larger hard protection scheme, an opinion shared by their beachfront antagonists alike. It was "a sob to the greenies", and not taken seriously as a means of natural protection. In Whangapoua, the beachfront residents came together and decided to trial the method as an alternative to a seawall, in order to keep their beach as "natural" as possible. A socio-natural object that seems comparable on first sight in terms of how it was made – a dune built with the help of bulldozers, not currents and winds, over a very short time span – emerged as something very different in both places. The same object can be natural protection, or something totally different. 'Working with nature' is also a matter of *who* does this working, of what actors are involved and how, and of the political objectives which are followed. In the end, the socionatural object of the artificial dune is only the visible tip of the iceberg of a larger socionatural network that may or may not stabilize (Latour 1988) and form an example for a successful attempt to 'work with nature' – and not against it.

Fig. 16: Whangapoua about two years after the initial beach scraping. Picture by author, November 2010.

Fig. 17: The same area shortly after another storm event. Picture by Michael Flitner, September 2011.

8.4 Changing Paradigms: Coast Care as a "Soft Approach to Hard Issues"

> "Every site I've ever gone to where we managed to get acceptance of working with nature, it takes 10 times as much effort to get a solution [compared to getting acceptance of an engineering solution]." (Interview with Jim Dahm)

Are these techniques an alternative to hard protection? And if so, what is the role of Coast Care in this? And, thinking of the vital part Jim Dahm played in realizing the soft measure discussed in the previous section, what is the role of trusted experts in this? In the newspaper coverage of a Dunes Trust conference that took place in Nelson on the South Island in 2013, Jim Dahm is interviewed during a field trip to a recently restored beach. He is paraphrased as presenting the Spinifex plantings as "a good example of working with nature to manage erosion rather than imposing hard engineering solutions". In the verbatim quote that follows, he argues against hard protection on account of the successes of dune restoration:

> You could turn this beach into a nightmare overnight if you put in a rock wall. We're probably one of the worst places in the world in terms of overuse of sea walls. We're engineering our natural coasts into non-existence. It's great to see what's been done here. We're just gradually learning that nature has got most of the answers. The process of erosion is extremely dramatic. People overreact, and we end up rocking another beach. (Pearson 2013)

Jim's technical expertise and experience in coastal management links up with his experience in working with people through community groups and consulting, which makes him one of my most important fieldwork contacts, and one that is emerging in more than one place in my text. Jim wears many hats in these stories, from expert witness (promoting the backstop wall approach in the Waihi Beach environment appeal), to former Beachcare coordinator, to the author of many reports, as a Council employee or nowadays as an independent consultant.

As soon as people asked me if I had seen Waihi Beach (see Chapter 4), they suggested that I needed to talk to Jim. I met Jim at conferences, workshops and for two interviews at his house in the Coromandel, both several hours long. Listening to his anecdotes and explanations – about the shared "cultural soup" we all come from, how cultural understandings of private property contribute to the problem that shoreline changes are perceived as unacceptable, or what he calls "the prevailing engineering paradigm" – were the moments I felt closest to the idea of a para-ethnographic encounter described by Holmes and Marcus (Holmes and Marcus 2006; Holmes and Marcus 2008) and discussed in Chapter 3[4]. Jim insists that the fortunes of a Coast Care/Beachcare approach to dune restoration hinge completely on successfully working with communities. In a report on community-based dune restoration he wrote together with the then BOP Coast

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4 It was clear that Jim enjoyed sharing and discussing his views. When I introduced him to my supervisor visiting from Bremen University, he told another anecdote, this time about how he spoke to a colleague after one of our first encounters at a coastal science conference: "I said I have no idea what she's doing but we have to support her, she's a social scientist!" While I sometimes felt uneasy with his expectations – that I and fellow social scientists should produce some knowledge assisting his paradigm-changing project, overcoming resistance against soft protection or managed retreat – I felt very much connected to his approach of taking language seriously, especially in relation to framing erosion as a problem (see previous section). As Jim puts it: "This attitude of managing the coastline, you know, of wanting to control it – it's everywhere, it's just everywhere in our society. It's like Pavlov's dog, ring the bell, 'coastal erosion', and you know, 'rock rock' [imitates barking dog], it's just [that] it's not a joke. I mean it is really there and so retreat has got an enormous challenge because there's this paradigm that goes to our bones. It's in part [the concept of private] property, it's part rooted in a fear of this erosion, like maybe a fear of vampires or something like this, you know, it's irrational fear." (Interview with Jim Dahm)

Care coordinator Greg Jenks and another colleague involved in the Dunes Trust, the arguments for this reach from empowerment and awareness-raising to long-term success and cost-effectiveness of volunteer restoration. The authors conclude that:

> The success of the groups to date suggests that community-based approaches have considerable potential in promoting increased awareness of coastal hazards and climate change and assisting in the development of more resilient coastal communities. (Dahm et al. 2005: 21).

Coast Care then not only relies on communities and their willingness to perform volunteer work, it can be understood as a matter of making communities, or making communities work in a double sense – as volunteers, and as vehicles of a more resilient society in the face of global change.

Coast Care may not, in all cases, be able to replace the structural approaches favoured under the "engineering paradigm" because – as Jim and his fellows readily admit – there are situations where hard protection is the only possibility to maintain coastal development and infrastructure, especially in urban areas (Healy and Soomere 2008; Ministry for the Environment 2008). Commenting on an early version of the book, Jim asked me to make it more explicit that he is not an outright opponent of hard protection under all circumstances:

> Frieda – bear in mind again that I am not talking about sites where there is a real and serious risk to dwellings or major infrastructure, we all easily understand engineering in that context. We're talking about the inability to live with or accept even quite minor erosion, we've demonized this natural process to such an extent. (Jim Dahm, pers. comm., 11.03.2014)

The grey zone, however, seems to lie in those low-density rural and suburban coastal settlements which are so typical for Aotearoa New Zealand and the kiwi lifestyle. Here, the question of how far-reaching property rights actually are under given regimes of private property and how private and public interests should be balanced seems more open to intervention. In this situation, Coast Care (or Beachcare for that matter) works as a practical way to open up possibilities and discursive space for practices of 'working with nature'. Remarkably, Jim explicitly links up discourse or thought with action: this reminds me of Jasanoff and Kim's definition of how sociotechnical imaginaries operate "in the understudied regions between imagination and action, between discourse and decision, and between inchoate public opinion and instrumental state policy" (Jasanoff and Kim 2009: 163). Seen in this light, Coast Care can be reframed as a means of trying to push the 'working with nature' imaginary from below, in the most literal sense:

> We sort of work at ground level, with dunes. The thing we like about the Coast Care thing is you all can see good outcomes very quickly, when you restore a dune […] and that brings a lot of people into it, and success breeds involvement. And then you can bring a lot of other messages into that environment. So we use Coast Care as an avenue to bring all these messages in. You try to create an environment where everybody feels we are part of this success. And then there are certain messages which are a part of that environment, which come as part of the total package, you know the 'Why are we here?' We're here for these values, this is more about protecting these values. And what we're doing with dune restoration is complemented by setbacks which make sure that houses stay well back. [….] And we have another setback for global warming so we're internalizing awareness of that potential. And you're just preaching those messages […] But Coast Care, because it's such a successful thing; you can see that it is – visible returns. It's a Trojan horse in which you can bring a lot of these other messages in. (Interview with Jim Dahm)

This idea is employed from "above" as well; similar thoughts can also be found in brochures and handbooks for Council staff published by government agencies, for example "Coastal Hazards and Climate Change: A guidance manual for local government in New Zealand" (Ministry for the Environment 2008) which lists Coast Care as a so-called "non-statutory approach" to climate change adaptation and recommends:

> Coastcare initiatives may be supported in regional and district plans and be allocated funding support in annual plans. Such programmes have proven to be highly successful in enhancing the buffer provided by the natural dune system and are an effective way of empowering communities and raising their awareness of coastal hazard issues. (Ministry for the Environment 2008: 76)

This is *not* coincidental, but shows another inroad into coastal policy and politics: Jim's "advice and assistance" (amongst others) is acknowledged in the report, written by experts commissioned by the Ministry for the Environment. I interviewed a BOP coastal planning officer and asked if she was confident that Coast Care BOP has already reached these goals: to educate the public and promote soft protection. She directly links up the objectives of regional planning documents – to further a transition to sustainable coastal management – with the Coast Care work, which

> has really got that message out into the public realm. […] There's really good historical photographic evidence that dates back and shows the Mount main beach etcetera, before Coast Care got hold of it. And I think the philosophy was about use and development of the environment as opposed to protecting it because it has its own innate capacity to act as a barrier to coastal hazards. That's only been something that we've recently started pushing as a role and responsibility of the Regional Council, and I think if you did a survey of the coastal residents along Mount Maunganui, Omanu, Papamoa, and even up to Waihi [Beach], [...], I think you would see that the public perception of the use of soft protection methods has really increased in traction over the last ten years or so, five to ten years. (Interview with Linda Pierce, Bay of Plenty Regional Council)

The militaristic metaphor Jim uses above – Coast Care as a Trojan horse – makes sense because the spectrum of approaches that people are meant to digest via Coast Care extends to the managed retreat option, another tactic of warfare that could be employed when fighting coastal hazards, including anticipated climate change effects like sea level rise and increases in extreme weather events. Coast Care is understood as a "soft approach to hard issues", as another informant puts it (Fieldnotes February 2010), and managed retreat is part of this conversation. Jim's orientation is set towards the future he is trying to build – the sociotechnical imaginary of 'working with nature'.

> There's a famous New Zealand scientist, […] Rutherford, a nuclear scientist. And he had this saying: 'The money has run out, we have to use our brains', and I think that has to happen almost. The money has to run out and then we will use our brains you know, we may then suddenly realize, no we don't need to engineer all the rural coastline, we can actually live with it and we can transition to a peaceable relationship with that natural shore line. But at the moment it's just entrenched in our institutions, in our thinking, to engineer it. But I mean on my mind, at least we can start getting people to talk about the transition to retreat. What are the challenges, what are the obstacles to that and how might they be overcome. (Interview with Jim Dahm)

In public debates, managed retreat is unpopular, and is so far mostly discussed as the last resort against which other options are weighed. Managed retreat features as what needs to be prevented by making planning decisions more wisely, or the terrible truth that needs to be faced for the future, setting incentives to start addressing this future now, guided by manuals like "Planning for Climate Change Effects on Coastal Margins":

> For communities or infrastructure that are vulnerable, managed retreat and adaptation are the only reasonable long-term options, given that sea level is projected to continue rising for several centuries. (Bell et al. 2001: ix)

While managed retreat remains controversial, Coast Care features a host of positives to concentrate on: nice outdoor activities, educational goals, do-it-yourself protection, making things look nice, and (as the next chapter will show) helping native nature get back on track to where it once was. Both managed retreat and Coast Care are part of the portfolio of sustainable coastal management, but in discursive terms, they are located on almost opposite ends of a continuum between dystopian narrative and the benign (and practical) action.

8.5 Hibernating Through the Financial Crisis: The Mōkau Spit Camping Ground Investment

The experts' expectations that Coast Care is a sure way to foster the principles of sustainable coastal management can also be counteracted by actors on the ground, who may be clever enough to employ the practice to serve other ends not always congruent with all parts of the Coast Care philosophy. One of the latest additions to the Waikato Beachcare[5] portfolio is a group of permanent campers at Mōkau spit. Their campsite is located directly at a remote West Coast beach, just before the road turns away from the coast and inland towards the Waikato plains. The nearby river is famous for whitebaiting: juvenile fish that is very popular in Aotearoa New Zealand, fished from little stands on the riverside (Haggerty 2007). The campsite itself is very basic and full of whitebaiters. Here, the kiwi imaginary still strives: Good Old New Zealand, where a little spot by the sea, and be it a caravan, was affordable to each and everyone, and where being out for fishing all day was the thing to do. My contact at Waikato Beachcare is excited about the enthusiasm and motivation of this new group of dune restoration volunteers. However, speaking to the manager of the campsite, it turns out the project started because the campground was bought by an investor planning to turn it into an upmarket holiday chalet development.

The manager explains that while the seafront part of the property is subject to strict hazard line policies, the rear part is free from such building controls (Fieldnotes 24.09.2011). Here the owner is planning to build the chalets and then sell them to freeholders. The beachfront would remain a campsite, but the campers there would need to upgrade their old and ramshackle-looking mobile homes and caravans so the chalet owners could have a nice view from their properties. However, because of the ongoing financial crisis, it became difficult to get investors for the building project, and the owner found that while waiting for a better economic climate, part of his property that extends down to the beach (and includes the dune area) started to erode away. The campsite manager was tasked to find a solution and discovered Beachcare on the internet. He and the owner agreed that this was perfectly suited to their situation. Calling up Beachcare, they realized that the programme would pay for all the plants and even or-

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5 Similar to Bay of Plenty Coast Care, which was the main focus of my fieldwork, Waikato Beachcare is a volunteer dune restoration programme.

ganize excavation of the top layer of the dune, which was densely covered in non-native vegetation. The campground only had to pay the contractor for the latter part. The manager organized some of the permanent residents, most of them retired farmers who enjoy keeping themselves occupied with physical work (see Chapter 7.1). Some campers had already started other projects on the campsite, including building a new walkway, and were hard to stop anyway. At the first planting, 18 people showed up, an impressive number given that planting is done during the winter season when the campsite is not fully occupied.

Consequently, private land is being protected with a dune that is built on public funds and volunteer labour. The land behind is kept in a stand-by mode, so that it will still be there for development once the economic situation gets better. Converting this campsite into an upscale chalet development is exactly the kind of coastal change so fiercely opposed by many who perceive themselves as environmentally minded – the typical Coast Care/Beachcare constituency. The development plan behind the Beachcare project is a repercussion of the widely lamented loss of quintessential kiwi features through the ongoing development of the Aotearoa New Zealand coasts. And those doing the volunteer work here are those who might eventually be those impacted by the resulting changes – when they might have to invest into upgrading their mobile homes or will be threatened with eviction. They dig their own graves here, or put less dramatically, they work voluntarily for somebody who is himself actively working on destroying their kiwi dream (or planning to do so). This shows that Coast Care/ Beachcare can be employed to various ends, sometimes contradicting its built-in objectives. This new group of volunteers, one could assume, is nonetheless fulfilling the objectives of the Beachcare programme, under pressure to produce measurable success. However, compromises have to be made here in order to make dune restoration and property protection fit. This extends to the material qualities of the Mōkau dunes as well:

> [At] high tide, the water only comes up to only a few metres away from their land, and the campsites are right there. So you really wanna come back into their campsites, and they're not willing to do that. So you've only got a sort of five-metre dune rather than a ten-metre dune. (Interview with Lucas Pinnacles, Waikato Beach Care)

Here again, the possibilities of dune restoration evolve around the use of the limited coastal space. The minimum requirement for a functioning dune needs to be weighed

against the unwillingness of the campsite owner to give up any usable space. After all, protecting his economically viable land is the driving objective for this Beachcare project, even though the campers and the Beachcare coordinator clearly see other benefits.

8.6 Managing Coastal Naturecultures

When Jim Dahm and others speak about shifting towards the management paradigm, they think about managing humans instead of managing nature: "the idea of transitioning, from managing, or controlling nature, to [a paradigm] where we actually manage our own expectations" (Interview with Jim Dahm). It might be worth asking, though, if it is appropriate to think about this as an outright paradigm shift. The management of natural and social worlds is a principle deeply embedded in modernist approaches to governance (as described, for example, by Foucault 2007 and 2008). The move towards managing humans (instead of natural processes) then seems to be a change in degree at most, and not in kind.

The idea of managing nature has long been criticized, amongst many others, by Escobar (1999) as a fundamental principle of capitalist nature turned into commodity or resource. Now that capitalism has entered what Escobar calls its "ecological phase" (Escobar 1999: 7) there is no longer a uniform nature to be discovered which is then disciplined, scientifically managed and accumulated centrally. Under post-Fordist conditions, the management of natural resources and populations is increasingly turning to the more flexible regimes of sustainable development and biodiversity conservation (ibid), which now complements the continuing forms of "modern, reckless" commodification (ibid).

In regard to 'working with nature' in coastal protection, nature cannot said to be there before the practices of *making* it. Coastal restoration is the work of human and other forces which together produce nature. Coast Care and soft protection approaches are not so much about managing humans (or their expectations) *instead* of managing nature, as it is about constructing and managing specific coastal natures, or naturecultures. This runs contrary to a capital-N understanding of Nature as something that is clearly distinguishable from human interference, and located outside the social and political world. The effects of such a practice-based understanding of nature as multiple can be especially useful for thinking of climate change adaptation, which is a main driving fac-

tor for emerging coastal policy and planning. Climate change is seen by many commentators as the ultimate sign of the end of a nature independent of humans – which is what the term Anthropocene (Sayre 2012) indicates; humans are influencing the planet even on a geological time scale now.

However, large-scale human-induced environmental change is not a new phenomenon, and the Aotearoa New Zealand coast has been a primary location of human-environment interactions for centuries (see Chapter 9.3). Climate change, however, seems to work on a rhetorical level as an argument that questions any clear distinction between human and non-human nature. Castree (2005: 225) makes a similar argument: New technologies make intelligible that the boundary, once taken for granted, between society and nature has been trespassed by new creatures and objects. But, importantly, this should not turn the attention away from the fact that this boundary itself was the social construction of specific historic periods: naturecultures are not limited to techno-scientific objects, but a fundamental state of the world in which humans have been engaging with natural objects, landscapes and companion species for millennia. Latour argued in a similar vein that there have been hybrids all along: while Western modernism was ostensibly separating two ontological spheres of the natural and social world, this separation was only covering up the fact that the same "constitution" constantly produced socio-natural chimeras or hybrids (Latour 1993). Under conditions of (anticipated) climate change, the practices of distinguishing between nature and society (what Latour calls purifying), or nature and culture at the coast might be increasingly difficult to make, and therefore the subject of intensified questioning. This could open up discursive and practical spaces in which the making of coastal naturecultures emerges as a political object that can be discussed and decided as such. The coming section will focus on Coast Care's relationship to climate change policy and politics.

8.7 Coast Care as Climate Change Adaptation?

Talking to Kenny from Pukehina Beach (see Chapter 8.2) about how Coast Care successfully introduced the idea of dune plantings as a means of erosion control, he explicitly points to the role that he attributes to climate change in this development:

> I think before then there wasn't a lot of planting; there was a little bit of Coast Care work. […] It's been going for quite a few years but lately it seems to have become more and more of an issue. Global warming and everyone's worried about things and they're starting to look at what you can do in your little, your little patch. (Interview with Kenny Cooper, Pukehina Beach Coast Care)

Kenny draws a direct link between climate change discourse and people's motivation to get engaged in Coast Care. While looking after your own patch might be dismissed as NIMBYism (not in my backyard) in other contexts, the connotation is completely positive here, with Kenny not criticizing the fact that people are concerned about their little patch, but stressing that they are "starting to look at what you can *do*" (ibid).

In this vein, the momentum that Coast Care has been gaining in recent years can be called a "second order" effect of climate change. This concept focuses on the indirect effects of socio-natural change, especially social, political and cultural reactions to anticipated environmental changes. It has been used for example in the rich literature on the climate change and migration nexus, which explores, amongst other issues, how security discourses gain strength in Europe vis-à-vis expected migratory flows from areas specifically vulnerable to climate change impacts (Gupta 2009; Hartmann 2010; Herbeck and Flitner 2010).

But can dune restoration also be a means of adapting to the first order geophysical effects climate change might bear on coastal areas? Here, the answer is less clear. The founding Coast Care BOP coordinator had been actively pushing the idea that Coast Care could work directly as a means of climate change adaptation. The reports and leaflets produced during the roughly 10 years of his appointment feature statements like this throughout: "Partnership dune restoration programmes may be the most effective and affordable method of managing climate change impacts on the coast in the short to medium term at least." (Jenks, n.d.)

Collaborating with Willem de Lange from Waikato University, Jenks sought to underline this hypothesis with scientific credentials. In a joint presentation at the yearly Coastal Society meeting in 2007, the authors state that thanks to the Coast Care efforts in the Bay of Plenty, restored dunes are accreting to an extent that allows them to level out future sea level rise:

> With respect to coastal hazards, the restored dunes provide improved protection from tsunami, storm surge inundation, and coastal erosion. During 5-10 years of dune restoration over the last decade, all of the restored sites show a significant trend of accretion, despite climatic conditions favouring erosion. The measured rates of accretion are an order of magnitude larger that would be required to miti-

gate the worst sea level rise predicted by the fourth assessment report of the IPCC. (De Lange and Jenks 2007) [6]

This optimistic assessment of Coast Care's potential in climate change adaptation is, however, not univocally shared. A senior Regional Council manager comments that Coast Care is a really temporary measure that is only "delaying the inevitable" (Field-notes February 2010) for what he estimates to be about 1,000 houses under risk in the region within a 100-year time frame; only managed retreat will be a viable adaptation measure in the long run, he thinks.

Pim de Monchy, the coordinator of Coast Care during my period of fieldwork in 2010/11, also has his own opinion on the adaptation question: He makes it clear that he sees limits to the coastal protection function of Coast Care and dismisses his predecessor's theory that restored dunes are accreting enough sand to make up for future sea level rise. And he is also much more careful about the potential of Coast Care as a means of natural coastal protection in general. Pim remarks that the beginnings of Coast Care BOP in 1994 coincided with a historic low in sediment supply in the Bay of Plenty; from there it was easy to see how quickly the dunes recovered and grew forward:

> I think it's fair to say that a lot of Coast Care volunteers initially got involved with the programme in the mid-nineties during a period of erosion. In 1996 there was a minimum in the [beach] profiles […] and then they started to progress. […] So in some respects what people attribute to Coast Care is just natural accretion happening. And I think that it's quite possible that what Coast Care can achieve with erosion control has been overstated and is definitely thought of by some people, in much higher terms than it can actually achieve. I think all we can do with vegetation is accelerate the recovery. (Interview with Pim de Monchy, BOP Coast Care)

This specific situation might have been caused by the effects of a row of so-called El Niño years. The El Niño-Southern Oscillation (ENSO) phenomenon describes a sys-

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6 Prof. De Lange made similar comments in his expert witness statement in front of the Environment Court during the Waihi Beach protection scheme appeal: "In the 21st Century, sea level rise is forecast to accelerate, although current data indicate that sea level rise is slowing. Assuming the worst case scenario in the IPPC 2007 forecast, numerical modelling indicates that accretion of 0.1-0.2 m.y^{-1} would be sufficient to mitigate against [sic] any erosional trend induced by an accelerating sea level rise over the 21st century. This is more than a order of magnitude less than the rates achieved by dune restoration programmes operated around New Zealand, such as the Coast Care Programme operated by Environment Bay of Plenty. It is also comparable to the observed historical long-term trends for many New Zealand beaches. It is likely that if human impacts on beach processes are minimised, that natural processes can provide the necessary mitigation against sea level rise for sandy beaches around New Zealand." (De Lange 2007: 12f.)

tematic climate fluctuation in the Pacific atmospheric and oceanic circulation that influences sea surface temperatures, air pressure, wind and rainfall patterns. The extremes of this cyclical fluctuation are so-called El Niño and La Niña events. In Aotearoa New Zealand, El Niño leads to stronger or more frequent winds, lower temperatures and occurrences of drought in the north-eastern parts of the country, where the Bay of Plenty is located (Mullan et al. 2012; NIWA n.d.).

Presenting Coast Care as a means of climate change adaptation relies on the belief that under a dune restoration regime, the dunes will continuously prograde. This contradicts the now dominant understanding that coastal erosion is a natural, cyclical process of sand moving around in the dynamic equilibrium of the beach, a theory widely circulated throughout the Coast Care constituency by the main promoters of dune restoration in Aotearoa New Zealand (see Chapter 8.1). However, the expectation of ever-growing dunes was deliberately encouraged in the early years of Coast Care. For example, datum posts were installed at Coast Care locations to measure sand levels before and after restoration; images of these featured in numerous photographs circulated to prove accretion and advancement of the restored dunes. While these posts show erosion rates as well, they were widely perceived by volunteers as measures for their success only, supported by the beneficial influence of periodic accretion.

The Dune Restoration Trust of New Zealand stresses the role that community involvement plays in order for Coast Care to work as a means of climate change adaptation. The description of a workshop series called "Empowering coastal communities to adapt to climate change" makes the connection between Coast Care and climate change adaptation without promising quantifiable results:

> The aim is to provide coastal communities with an adaptive approach to help mitigate the effects of sea level rise and increased storms resulting from predicted climatic change. The emphasis is on working with communities to provide them with the skills to assess the state of their dunes and build resilient sustainable coastal communities. The focus is on restoring natural dune form and function and managing dunes systems using native plants. […] Free workshops are being run throughout the whole country with the aim of empowering coastal communities to better understand and manage their beaches and dunes systems, and to raise awareness of the likely effects of climatic change along their coast. It will provide practical methods that will enable local communities to maintain and restore natural dunes and dune function to better adapt to the likely effects of climatic change along their beaches. (Dune Restoration Trust of New Zealand n.d.)

People's engagement in voluntary restoration efforts here becomes one building block for resilient coastal communities, which are also more capable of adapting to the effects

of climate change. Dune restoration emerges as a shared practice for the making of future coastal natures – or naturecultures.

A colleague of Pim's, employed at one of Aotearoa New Zealand's other Coast Care programmes, is careful not to suggest too strongly the links between dune restoration and the climate change adaptation issue. He says that Beachcare is about adapting to climate change, amongst other things,

> but it just opens up a whole other kind of argument, you know. So, I mean we do use that. But we just have to be careful, because, you get new [elected] councillors in every three years. And the ones we have got now, with this whole global financial crisis people are kind of freaking out about putting money into climate change and stuff. And these councillors wouldn't be sold on that. You couldn't sell the project on climate change. They probably wouldn't go for it. So that's why I don't go so hard on that sort of aspect. […] I usually go more for, what it used to be like, and now just try to bring it back to that kind of natural state. Cause I think people prefer naturalness to, that kind of stuff. […] There's funds for climate change adaptation, and we can tap into those. So, there's an opportunity there as well. But then you wouldn't want to get a Council full of climate change sceptics come in, and don't want putting more money into climate change related projects. (Interview with Lucas Pinnacles, Waikato Beachcare)

To prevent Coast Care being perceived as too closely associated with climate change adaptation, he makes sure to stress the other major benefits of restoring coastal nature, including community participation and education and the restoration of native biodiversity. His approach of "selling" Beachcare on multifunctionality links up well not only with the soft engineering measures discussed in Chapter 10, but also with arguments used by advocates of the 'working with nature' imaginary worldwide (Michael Otto Stiftung 2010). At the same time, he makes recourse to a "natural" state where things should be brought back to, that does not need explanation, and that seems to fall out of this controversial realm of politics. Climate change adaptation is a possibly conflictive political issue, whereas bringing nature to "what it used to be like", or so Lucas argues, is something outside this realm of conflict and changing political powers, something that people could agree on.

8.8 "A Moving Target a Little Bit": Coastal Restoration from Foredune to Backdune

This chapter has shown how dune restoration (Coast Care and beyond) makes use of the dunes to provide coastal protection – within the limits caused by development located

too close to allow for the natural processes of erosion and accretion, storm cut and recovery to occur. While the promise of dunes as a natural coastal protection feature, and to some extent as climate change adaptation, has been strongly advocated during the initial phase of voluntary dune restoration in the Bay of Plenty, priorities are shifting. While the stated goals of Coast Care remain the same (education, community involvement, biodiversity, infrastructure protection), the order of importance seems to have changed under the current coordinator. He argues that because native dune vegetation is not preventing erosion, but only speeding up dune recovery, this alone is not a sufficient justification for planting native plants:

> I think we have to be really clear with people about that. And so when you try and justify this planting of native species, you say, 'Yes, it's to help the recovery of the dunes after a storm cut.' But the majority of the reason for putting native plants back in there is because this is a suite of native plants that live in a very restrictive environmental niche and they face a wide range of threats. And if we don't address those threats and maintain those plants they'll, to some extent, disappear. So the biodiversity component I think is a much more robust reason for doing the planting than the erosion control. (Interview with Pim de Monchy, BOP Coast Care)

The Dunes Trust actively supports the increased attention to biodiversity conservation as a goal in its own right. The Trust is also working to back up the more normative line of the argument – if we do not restore the dunes, native plants will disappear – with scientific authority and a more functionalistic point, by referring to the coastal ecosystem in its entirety:

> Many groups have moved from looking solely at foredunes, to considering entire ecosystems including wetland and riparian margins, a full range of fauna as well as flora, and long term restoration of coastal shrublands and forests. (Dune Restoration Trust of New Zealand 2013)

A Coast Care group participating in experiments on backdune restoration conducted by the Trust will be introduced in Chapter 9.7. Besides the normative and scientific arguments, there are also more practical reasons for Coast Care to move beyond the foredunes. Pim speaks of changing opportunities:

> I think when [my predecessor] was involved, there were much bigger areas of bare sand. Which you could look at and go – 'Oh!!' That's quite clear that this needs extensive Spinifex planting and then maybe a little bit of fencing to stop the wind blowing sand. So, over the years, those areas have been done, you know. (Interview with Pim de Monchy, BOP Coast Care)

The Eastern BOP Coast Care contractor tells a similar story: in his part of the region, with fewer sandy beaches (and lots of school classes enrolling into Coast Care events), there are simply almost no foredunes left to tackle. The task is done. So the way forward leads towards the backdune areas. Pim again:

> And now it's a case of what – if we still want to have a Coast Care programme, it now means we have to tackle the slightly more problematic areas. You know those weed-infested places, or the places where there are lots of rabbits, or where the vehicles are a problem. So we simply do different stuff. (Interview with Pim de Monchy, BOP Coast Care)

This is why he calls Coast Care a "moving target" (ibid) – because the practices can be associated with different objectives. And even though these objectives grounded in practice link up to sociotechnical imaginaries of global reach – soft protection, 'working with nature', or the invasive/native binary addressed in the upcoming chapter – they are tied to specific places (Tsing 2005). In the Bay of Plenty situation, Coast Care is developing in scope from the starting point of coastal protection towards a more specific Aotearoa New Zealand take on biodiversity conservation. The social nature of the Aotearoa New Zealand coastline more generally, combining isolated location and evolutionary development without mammals, the colonial history and postcolonial situation, make the intentional and unintentional introduction of species a central concern. The following chapter will delve deeper into native Aotearoa New Zealand nature and its reconstruction through Coast Care work.

These shifts in priorities do not translate into to a linear process leading from coastal hazard protection to biodiversity. Even though biodiversity has been getting much attention lately, with central actors arguing for the restoration of native nature as a goal in its own right, coastal protection aspects are by no means disappearing from Coast Care. Evidence of this continuing interest in Coast Care as a means of natural coastal protection is the recent involvement of Quinovic Property Managers as the Premier Principal Sponsor of the Dunes Trust. The "largest New Zealand-owned residential property management firm" explains its interest in sponsoring the Trust, and through it Coast Care groups:

> It's apparent that we're going to be relying increasingly on our dunes to protect the land and our communities from erosion by the sea, just as our business is based on managing our clients' properties for the future. (Quinovic 2012)

The company website argues further, drawing on the kiwi beach myth:

> Kiwis love their beaches. Every region holds some piece of our coastline dear, and has ownership of its particular environmental story. Our dunes perform a key role in helping protect our coastal communities from the threat of erosion and we all need to do our bit to keep them in good shape. (Quinovic n.d.)

However, there has definitely been a change on the spatial scale; Coast Care has lately been moving from the foredunes to the backdunes. In a changing climate, however, it seems important to keep in mind that these are relational scales, and not absolute, fixed locations – also moving targets, in the sense that where the foredune is today, there might be the rising sea of the future. The following chapter will comb through Coast Care again, now looking at it from the vantage point of biodiversity restoration, native nature and native narratives.

9. Reconstructing Native Nature

Erosion control remains a central goal of Coast Care. However, many projects increasingly focus on coastal protection in a different sense: the protection, preservation and reconstruction of native coastal nature. The stronger emphasis on nature protection goes hand in hand with the extension of restoration projects beyond the immediate foredune areas targeted in early erosion control attempts. As mentioned earlier, the Coast Care Bay of Plenty programme is defined around four objectives: participation, education, infrastructure protection and biodiversity. Stressing the biodiversity aspect of Coast Care does not necessary add to the popular appeal. As Pim, the Coast Care coordinator, dryly comments, "there's a much, much narrower group of people who were excited about biodiversity compared with erosion control" (Interview with Pim de Monchy, Coast Care BOP).

While there is a small group of people that is specifically interested in biodiversity (see Chapter 9.7), the driving concept is often a slightly different one: people are interested in caring for native nature. The objective to restore and (re)construct coastal nature emerges in line with a generally growing recognition of native flora and fauna in contemporary Aotearoa New Zealand. Looking at Coast Care from the angle of native nature, the local – an important category for the idea of a community-based, volunteer dune restoration – is gaining yet another meaning. The following comment on the Dunes Trust website provides a general description of New Zealand dune restoration, stating:

> Approaches to dune restoration have developed considerably in the past 20 years in New Zealand. Historically, hectares of coastal land was [sic!] planted with exotic marram grass on an almost cropping-based planting regime – now the approach is more site specific, involving local people and local plants with a more long-term understanding of the dynamics of New Zealand coastal dune systems. (Dune Restoration Trust of New Zealand 2001: 64)

This mission statement – involving local plants and local people – links the local to the native. By describing how native nature is realized in practice, this chapter will also try to address how these categories are becoming entangled. In the process, 'reconstructing native nature' emerges as a shared vision of how national nature ought to be(come again), providing a specific version of the 'working with nature' imaginary.

9.1 Why Restore (Native) Nature?

Restoration, in the broad and practice-centred definition offered by Paul Gobster and his collaborators in "Restoring Nature", are "intentional human practices to actively manage areas for their desired natural qualities" (Gobster 2000: 11). Most often, restoration projects are attempts to reverse the effects of previous environmental change or damage. This opens up difficult questions – scientific, political and normative – about the past and present. What is a desirable outcome, how are means and ends made to meet, and against which former state of the environment are changes determined? Or as Hull and Robertson put it: "Which nature should it be?" (Hull and Robertson 2009: 229)

In the context of postcolonial settler societies, this question is especially wide-ranging. These regions of the world have undergone rapid environmental change over a relatively limited historical period of European colonization, caused by land-use changes, deforestation and the introduction of flora and fauna from the Old World. Privatization of land and new agricultural modes of production interfered with and often destroyed existing indigenous subsistence practices and altered human-nature relationships. Put differently, the existing socio-natural ensembles of the colonized lands were fundamentally changed because the political, social and cultural conquest had immediate effects on the natural environment – and vice versa (see Cronon 2003 for a classic study of the New England case).

The binary of native versus introduced, alien or invasive species remains a common theme of restoration practice and discourse that is especially prominent in postcolonial settler society contexts. However, setting the beginning of European colonization (e.g. the date 1492 for the Americas, Sayre 2012, 61) as a baseline for the rightful belonging of flora and fauna can be problematic, because such a move fixes natural systems at a specific, static point in time, not taking into account that ecosystems do change over time even without such significant events, such as the sudden arrival of completely new species or classes of animals and plants. Such an approach runs up against other difficulties as well. Setting the baseline for restoration at the time of European arrival potentially directs the attention away from indigenous agency, including the use and modification of landscapes and the engagement with non-human species. There is a danger that indigenous people are viewed as either a part of nature or necessarily living in harmony with nature. Such othering idealizations of native humans are reminiscent of romantic European concepts of nature as wilderness (Castree 2005; Descola 2013) and the

"noble savage" as necessarily living in tune with nature in a timeless fashion (Sayre 2012: 60f.).

However, like any human-nature relationship, indigenous encounters with the material world always produced "social natures" (Castree and Braun 2001), even though these interactions might have been less destructive than modern capitalist forms and technological means of appropriating nature. Anna L. Tsing, in her fieldwork among Meratus Dayaks in the Kalimantan rainforests of Indonesia, explores how farm and forest, cultivated and wild, overlap in this productive zone of human-nature encounter. Far from being untouched wilderness, a closer look at the rainforest with its tended trees and temporary swiddens reveals a "history of weediness" (Tsing 2005: 171f.). Anthropology has only recently begun to pay more attention to the human in multispecies (Kirksey and Helmreich 2010) or interspecies relationships (Tsing 2012), for example exploring the entanglement of humans and other animals with microbial worlds (Paxson 2008; Helmreich 2012). Amongst others, such work draws on Donna Haraway's more recent preoccupation with dogs and other companion species (Haraway 2003; Haraway 2008). In her view, humans have not only been forming their companions over time, but what it means to be human has also been co-produced in countless interactions with non-humans.

There has also been a renewed interest in issues of conservation from anthropology that combines anthropological theory with data derived from digital technologies like accelerator mass spectrometry dating or computer simulations. Christopher Fisher and Gary Feinman, for example, argue for a refined perspective on landscapes, one that is attentive to long-term changes in the socio-natural ensemble:

> It is productive to conceptualize that environment and culture change in tandem and that this relationship is continually renegotiated at a variety of temporal and spatial scales. As humans engage with the environment, they construct their own niche, or landscape – that is, they modify the environment in pursuit of social, political, and economic goals. Of course, at the same time, there are certain environmental challenges and perturbations that may be beyond human control, and these can be met with a suite of alternative responses. (Fisher and Feinman 2005: 64)

Recently, conservation and restoration practices have been discussed under the impression that human modifications of nature have reached a novel level: the Anthropocene (Crutzen and Stoermer 2000; Johnson et al. 2014). Nathan Sayre remarks that this concept, which has recently gained currency in public and scientific discourses, has a tendency of differentiating the world in a "before" and "after" large-scale human interven-

tion that is similar to older ideas about baselines (Sayre 2012: 61). However, as Jamie Lorimer (2012) observes, there is a growing body of work that does problematize the natureculture dualism exactly by referring to the Anthropocene. These are approaches

> where recognition of the Anthropocene challenges prevalent and powerful understandings of biodiversity as Nature – a pure and timeless collection of objects, best removed from Society. For an emerging body of conservation biologists and social scientists the Anthropocene demands fresh approaches to biodiversity conservation that need not make recourse to Nature. (Lorimer 2012: 594)

Nature restoration projects can be read as serving cultural ends, as well as natural ones: they have a redemptive function in that they work on reversing sins of the past (Lien and Davison 2010). The vast literature on restoration shows how this can lead to significant conflicts when people are attached to the modified landscapes or the species that inhabit them now, even though they are relatively recent arrivals. In his introduction to "Restoring Nature", Paul Gobster recounts a plan to restore forests back to savannah in the outskirts of Chicago, which was met with fierce criticism. His analysis of objections showed that people were mostly not criticizing the goals of the project, but specific practices, in this case the killing of healthy trees, the use of herbicides, the effects of prescribed fire, and the justification of deer control as well as concern over the methods used (Gobster 2000: 7). But he also found concerns about how, where, and why restoration was carried out in the first place, including "fundamental ideas about the meaning of nature" (Gobster 2000: 8), which let him conclude that the critics were not simply ignorant protestors, but instead were raising serious concerns and complex issues.

In the context of Coast Care projects described in the previous chapter, conflicts over nature restoration could be observed in relation to the Papamoa Beach encroachment project (see Chapter 7.3), where people were protesting against the removal of their illegal gardens from the coastal dune area. However, while Gobster makes clear that "restoration-related concepts such as naturalness, health, and integrity not only are normative but have multiple and competing definitions" (Gobster 2000: 14), Coast Care on the whole is remarkably uncontroversial. With Coast Care, redemption is a manageable task: a limited number of species needs to be reintroduced into a clearly defined coastal space. Space for restoration might be limited because of coastal development that has occurred, but still the dune area is small and has rarely been put to other uses. The land is exposed to the forces of wind and sea, limiting other potential uses, and in most areas a public coastal reserve has remained. The changes in human behaviour that need to be

achieved in order to protect the plantings (staying on access ways, no driving on the beach, etc.) are easy and address all the citizens as beach users. No large-scale changes in human-nature relationships are necessary. The overall positive connotation of Coast Care style restoration, however, seems to be in large part due to the ubiquity of framing coastal restoration around the reintroduction of native plants. However, the native/alien binary has recently received some critical attention – both from within the ecological sciences, as well as from cultural scientists who question the links between biology, identity and belonging, and argue that regardless of actual environmental damage, these concepts carry a lot of cultural baggage.

9.2 Anthropological Perspectives on Native and Invasive Species

In his ethnography about marine microbiologists, "Alien Ocean" (Helmreich 2009), Stefan Helmreich addresses classifications of non-human species along binary catego-ries in the Hawaiian context: native, endemic, or indigenous species as opposed to alien, introduced, or invasive species. Each of these categories mirrors specific scientific and at the same time political and cultural preoccupations with species presence in the post-colonial island environment of Hawai'i, where Helmreich conducted his fieldwork:

> Global phenomena like alien species are at once technical and social objects, and the ways they are defined with respect to the 'cultural' question matters a good deal – not only, in this case, for how alien microbes or algae are interpreted but al-so for how they are delimited as such. (Helmreich 2009: 148f.)

In the field, Helmreich was irritated by the prevalence of discourses and practices that revolved around alien and invasive species, and by the different taxonomies he encoun-tered. Concentrating on red and blue-green algae, Helmreich takes a closer look at the surprising variety of scientists' (invasion biologists') and lay people's categorizations of species belonging, including indigenous Hawaiian names. The crux of his analysis is not the attempt to state a cultural difference between these groups, but to "show how definitions of nature and culture themselves, of figure and ground, are put into flux by the very idea of alien species […]" (Helmreich 2009: 150).

Such a move asks for a symmetrical analysis, which not only focuses on the defini-tions of invasive/alien/introduced species, but also on the corresponding definitions of nativeness and indigeneity. Different classification systems then turn out to be struc-

tured around human agency (Helmreich 2009: 150). Native species are defined as "naturally occurring and not introduced", and include both endemic species (only found in a certain area) and indigenous species (also native to other areas). If the species has been introduced, the question becomes, how did the species arrive in Hawai'i, with intentional or unintentional human assistance? The definition of invasive species includes that they are not only introduced (intentionally or not), but that additionally they are perceived as harmful or threatening by certain groups, adding another normative layer to the definition (ibid).

One point of possible tension within the classifications defined for the Hawaiian and other Pacific Island contexts is the (unanswered) question whether species introduced by the Polynesian first settlers – so-called "canoe species" should be considered native or introduced, suggesting "that not all human agency is to be treated identically" (Helmreich 2009: 153). What is native or indigenous can change over time; it is a historical category:

> Another means of approaching the question of how scientists think about natives would be to ask how scientists think about Captain Cook. Cook marks a difference in either degree or kind in the character of biological introductions to Hawai'i. Those who think Cook's arrival only accelerated the rate of a process already in motion – a difference in degree – will not class canoe species with the natives. Those who think Cook's arrival ushers in a different regime of introduction – a difference in kind – will be more likely to class Polynesian introductions with natives: Much turns on ideas about the history of nature and culture. (Helmreich 2009: 160)

As the quote indicates, the native-alien species binary translates into the much larger categorical work of defining nature and culture. Helmreich also observes a tendency towards a strategic essentialism in regard to identity claims by native Hawaiians, which gets linked up with native species discourses (Helmreich 2009: 155). Claims to certain species as the natural inheritance of native Hawaiians are used to argue for example against marine bioprospecting activities.

In contrast to the situation that Helmreich observes for Hawai'i, indigenous New Zealanders do not use the term "native" as a self-description. Instead the expressions "Māori people" or "tangata whenua" (people of the land) refer to the indigenous people of Aotearoa New Zealand in general. The terminology is, however, ubiquitous in everyday discourse in regard to non-human species. In terms of practice, Aotearoa New Zealand is internationally perceived as having extraordinary high standards of biosecurity legislation and control, especially in relation to governing the import of natural objects.

Kezia Barker states that "New Zealand's contemporary regime has been described as the most comprehensive and integrated biosecurity system in the world" (Barker 2008: 1615). Barker criticizes the bulk of social science engagement with biosecurity for concentrating too neatly on emergencies, on "dramatic events which are dramatic because they entail failures", thereby asking for more symmetry of the analysis (see Pinch and Bijker 1984) – because importantly, "the practice of biosecurity is not simply about emergency responses, but also about controlling the pervasive, mundane strangeness that is alien nature" (Barker 2008: 1600). Barker reminds us that in other contexts, the term biosecurity often refers to the containment of infectious diseases, including the prevention of bioterrorism (see Collier et al. 2004). In the UK, the term became widely used in relation to foot and mouth disease management (Barker 2008: 1598; Law 2006; Hinchliffe and Bingham 2008).

However, Aotearoa New Zealand has "150 years of social practices related to native and alien species concerns" (Barker 2008: 1598). Barker puts her focus on the practices of "internal pest management", which targets species that already occur in Aotearoa New Zealand, as opposed to the surveillance of border crossings. Here she attests the Aotearoa New Zealand concept a large degree of flexibility, enshrined in pest management plans and policies which explicitly consider values. These values include biodiversity, but also the relationship of Māori to land, water and taonga (treasures), human health, economic wellbeing, and recreational value of the environment. Plants categorized as pests are classified in relation to proposed management strategies, recognizing that in case pest plants are widely disseminated it might be more practicable to aim for containment than for eradication.

Also, pest control management strategies are regularly reassessed, including public consultation. Barker's example, gorse, shows biosecurity as an evolving practice and an open-ended process, where control categories produce a "complexity of overlapping physical and conceptual boundaries of differing permeability and mobility" (Barker 2008: 1611). Experimentation can occur, and controversies arise about "what plant biosecurity is trying to achieve: an aesthetic reproduction of native New Zealand, or an ecologically correct native assemblage." (Barker 2008: 1610). Barker concludes:

> At first glance, with its high-profile border-control systems and powerful legislation, New Zealand's biosecurity regime does seem to involve the imposition of static territorial boundaries onto a complex entanglement of people, plants, and differing values. It is doomed, it would seem, to failure. Through a detailed empirical engagement, however, what emerges is rather different. Instead of the inert, author-

> itative, 'all-or-nothing' governing approach expected, by drawing together institutional practices, public negotiations, and the ongoing surprises brought by a host of nonhuman elements, space has been made for an alternative narrative. (Barker 2008: 1611)

A flexible approach to managing introduced species is also advocated by biologist and invasion biology critic Mark Davis, who in a 2011 Nature article demands: "Don't judge species on their origins" (Davis et al. 2011, see also Borell 2009). Davies and his co-authors understand the native-alien binary not as a given, but insist that such characterizations have normative underpinnings which are part of the explanation for their success in framing discourses and practices towards introduced species:

> Over the past few decades, 'non-native' species have been vilified for driving beloved 'native' species to extinction and generally polluting 'natural' environments. Intentionally or not, such characterizations have helped to create a pervasive bias against alien species that has been embraced by the public, conservationists, land managers and policy-makers, as well by as many scientists, throughout the world. (Davis et al. 2011: 153)

Davis et al. argue that nativeness itself neither indicates evolutionary fitness nor positive effects of a species within an ecosystem. The rhetoric of invasion biology and the use of military metaphors, they state, have unduly generalized the effects of introduced species and marked them as "enemies of man and nature" (ibid). However, the existing data does not confirm earlier claims that introduced species are posing the second-greatest threat to biodiversity survival (Wilcove et al. 1998):

> The effects of non-native species may vary with time, and species that are not causing harm now might do so in the future. But the same is true of natives, particularly in rapidly changing environments. (Davis et al. 2011: 153)

While Davis et al. admit that invasive or introduced species may cause very serious impacts, they argue to concentrate decisions about restoration efforts on the function and not the origins of a species. They remark that

> [m]ost human and natural communities now consist both of long-term residents and of new arrivals, and ecosystems are emerging that never existed before. It is impractical to try to restore ecosystems to some 'rightful' historical state. (Davis et al. 2011: 154)

Davis et al. argue for the management of species according to "rational, not emotive reasons" (ibid). However, pushing this critique of the socio-cultural underpinning of species management even further, it might be worth asking if not function as well is a

culturally constructed category that is not just out there, objectifiable or measurable. When can a species be argued to be functional – in what sense, for whom and to what ends? Seen in this light, the coupling of the native-alien dualism with the natureculture binary is even more instructive. Not only is the native-alien dualism deeply entrenched with cultural meanings, but also the underlying nature culture split itself is a blurry construction that does not hold as a straightforward foundation to distinguish human agency from non-human, natural worlds.

The increasing number of critical accounts on the native/alien species binary from the social sciences and humanities (see Warren 2007 for a comprehensive review) generally focus less on questions of how to determine or manage the (negative) effects of non-native plants. The contributions discussed by Warren point less towards the admitted difficulties of categorizing native/non-native species along spatiotemporal scales, but instead concentrate on xenophobic or racist undertones of the discourse, and the dangers of slipping between terms attributed to human and non-human foreigners (Subramanian 2001). A more nuanced critique is offered by Hettinger (2001), who argues that "nativism" is not per se xenophobic, and that there may be good reasons to remove introduced plants in order to preserve "the diversity of ecological assemblages from the homogenising forces of globalisation" (Hettinger 2001: 193). Mastnak et al. (2014) argue further that in postcolonial settler societies, it makes more sense to think of introduced plants as remnants of the "multispecies colonial endeavor" (Mastnak et al. 2014: 363). Instead of comparing native plants to underprivileged alien immigrants and taking sides with the unwanted, Mastnak et al. insist on seeing invasive plants as a remaining legacy of settler colonialism. They call for a conscious act of "native plant advocacy as part of a broad process of botanical decolonization", serving as "a strategic location for ethical action in the Anthropocene" (ibid).

For the Aotearoa New Zealand context, anthropologist Eveline Dürr argues that the classification of native and foreign relies on the belief of a static concept of nature, even in "a pre-existing, naturally given, primordial order, determining the belonging of particular species to a defined territory" (Dürr 2007: 5, see Olsen 1999). In her article about imaginaries of New Zealand purity, Dürr reminds us of the conquest and simultaneous romanticization of nature in settler societies, a dual war against natives and nature (Bird 2003). Dürr observes that

> [t]he imagery of war against nature, rooted in the historical settlement process, does still persist in New Zealand. […] It is interesting to note that the present envi-

> ronmental discourse is shaped by a similar language, but applied with a different connotation. Today, the native environment should not necessarily be dominated or conquered, but, rather, must be protected and conserved. Due to ancient isolation, New Zealand's nature evolved without human interference producing a distinct flora and fauna (Clark, 2004, p.12). The fervour to protect these peculiar species from imported, 'alien' plants and animals, threatening Native wildlife and vegetation, is omnipresent. (Dürr 2007: 5)

In her critique, Dürr also addresses the influential imaginary of Aotearoa New Zealand as a bicultural nation. The idea of biculturalism – a postcolonial society consisting of Māori and Pākeha New Zealanders – also assumes a rather unproblematic binary (in and out, indigenous or not) that covers up the complexities of belonging and makes it in fact difficult to think about other subjectivities and cultural affiliations. Dürr argues that like the concept of multiculturalism, biculturalism is not good in picturing hybridity, or else representing the diverse make-up of Aotearoa New Zealand's postcolonial immigrant society (ibid).

Since the concern with being "native" so clearly points to the colonial past of settler societies, it seems instructive to look at other postcolonial situations and approaches to native nature. In the Australian and Tasmanian context, David Trigger and Lesley Head (Trigger and Head 2010) as well as Marianne Lien and Aidan Davison (Lien and Davison 2010) point out the contested politics of nature in relation to landscapes, where introduced plants are perceived as markers of identity and belonging by the descendants of immigrants from Europe and elsewhere. Lien and Davison describe a "remarkable growth" of voluntary community care groups that seems comparable to Aotearoa New Zealand (including Coast Care, but also Bushcare and Rivercare); these groups are supported by the authorities that hand over responsibility and funding (Lien and Davison 2010: 249). This sort of care work often entails aspects of a redemptive practice for Non-Aboriginals:

> As expressed in countless grant applications, the majority of urban landcare groups are acting upon a general concern to defend what are taken to be the precolonial ecologies against weedy invaders. Equipped by an Australian preoccupation with gardening (Head and Muir, 2006), and with gardeners' familiarity with weeding, they seek to 'reclaim' and 'restore' a variety of urban open spaces, from waterways and coastlines to remnant bushland and disused landfills. One could say that they work to rectify the wrongdoings of the past, seeking to resolve non-Aboriginal Australian tensions about belonging through resistance against the spread of non-human invaders of Australia. (Lien and Davison 2010: 249)

Trigger et al. observe that Australians are deeply preoccupied with questions of belonging, questions that come to the fore especially in regard to thinking about the possibility

of "naturalization" of non-Aboriginal Australians (Trigger et al. 2008; Trigger and Head 2010). What is specific about settler-descendant Australianness, and how to define it as an identity? These sensibilities can complicate the situation for restoration projects, when some settler-descendants champion native nature restoration, whereas others want to keep socio-natural objects that are non-indigenous, but symbolize belonging and naturalization for them[79]. In the Tasmanian case which Lien and Davison describe, conflict arises around a pair of introduced *Pinus radiata* earmarked for removal firstly because they are introduced trees, and secondly because an aboriginal midden (archaeological waste disposal site) was uncovered underneath them during the restoration process, which is now eroding. Protest arises, because the trees have been there for a long time, and local residents care about them because, as Lien and Davison put it succinctly, the pines "have also rooted themselves in memories of children-turned-adults who grew up in Taroona", the suburb in question (Lien and Davison 2010: 234f.).

Jean and John Comaroff discuss alien species concerns in post-Apartheid South Africa (Comaroff and Comaroff 2001). Here, the story about natives, identity and nation building hinges upon yet another locally important concept of belonging: autochthony as "a first-principle" defined as "the ineffable interests and connections, at once material and moral, that flow from 'native' rootedness, and special rights, in a place of birth" (Comaroff and Comaroff 2001: 635). Autochthony works as a naturalized binary that can be ascribed to humans and non-humans alike:

> [W]hen it comes to the limits of that difference, autochthony constitutes an ultimate line. Whatever other identities the citizen-subject of the twenty-first century polity may bear, s/he is unavoidably either an autochthon or an alien. Nor only s/he. It too. As we have seen, and will see further, nonhumans may also be ascribed the status of indigene or other. (Comaroff and Comaroff 2001: 635)

In their article, the Comaroffs interpret two instances of public concern over "alien" species as a matter of working through questions of membership, belonging and the policing of borders. In the first example, native bush ("fynbos") fires have been fuelling public hysteria over the loss of national natural heritage, even though biologists understand such fires as normal, regularly occurring events. Secondly, the destructive effects of flooding events have been blamed on the replacement of native trees with planta-

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79 Interestingly, Aboriginal people have been known to incorporate non-natives like cats and water buffalos into their natural cosmologies (Trigger et al. 2008).

tions. The authors make clear that they neither question the actual danger posed by the fires and floods nor the connection to native or invasive plants – but nonetheless argue that the extent of this public obsession asks for explanation. The analysis then opens up possibilities to understand social tensions and preoccupations with boundaries and their transgression, membership and citizenship, that are not easily articulated in a direct fashion, but become intelligible through the native-alien framing:

> [D]iscourses of nature cast a sharp light on the everyday actions and events through which definitions of belonging and citizenship – and their dark underside, the politics of exclusion – are being reframed in the postcolony. In particular, they illuminate the question of why it is that autochthony – a form of attachment that ties people to place, that natures the nation, that authorises entitlement – has become so central in an epoch when nationhood seems at once critical and yet in crisis, when borders everywhere present themselves as paradoxes, when a beleaguered political imagination strives to make sense of social being in a world of laissez faire. (Comaroff and Comaroff 2001: 651)

The Comaroffs understand the framing of the events via the botanical native/alien binary as an expression of deep-lying obsessions with the policing of borders and the limits of sovereignty under the conditions of a globalized world, where frontiers become ever more permeable, with flows of objects, people and information no longer controllable by the nation state (Comaroff and Comaroff 2001: 635). At the same time, in the post-Apartheid state native plants come to stand for a new South Africa. This is a story about "naturing the nation" (Comaroff and Comaroff 2001: 637). Referring to the fynbos fires, the Comaroffs observe "the promise that there might arise, out of the ashes, a greater good: a distinctly local, 'new' South African, sense of community, nation, civil society" (Comaroff and Comaroff 2001: 637).

This "naturing" of the South African nation further includes the reframing of indigenous West Cape plants that had mostly been called "Cape Flora" before, but are now known as fynbos, the establishment of a commercial market for such plants, and a new sense of endangerment of this native nature. This is a recent historical development; the authors argue that during the 1950s, fynbos was considered "an invader whose expansion threatened the mixed grassveld of the southwestern Cape" (Comaroff and Comaroff 2001: 638). This shows how the preferred state of nature informs the definition of species belonging.

In Aotearoa New Zealand, the appraisal of native bush is also relatively recent; here as well, native tree cover was long seen as what needed to be removed in order to allow European-style farming and pastoral practices. In regard to decorative plants, so-called

acclimatization societies have been actively promoting the introduction of new species from the mid-19th century (Star 2009; Walrond 2012: 52f.). In South Africa as well, species introduced during colonization had been naturalized and even gained the status of national symbols, but are now getting reframed as unwanted outsiders (Comaroff and Comaroff 2001: 645).

9.3 Postcolonial Natures: A History of Aotearoa New Zealand's Coastal Dunes

The Aotearoa New Zealand coasts are iconic pieces of national nature, and people often identify very strongly with coastal environments they inhabit or visit regularly (Kearns and Collins 2012). Dune restoration addresses postcolonial coastal natures, which are highly valued, and is as such met with growing interest. The goals informing coastal restoration projects are not limited to reversing environmental change brought about during the colonial past, but – as just described for the South African situation by Comaroff and Comaroff – also speak to pressing political issues of an insecure present. In line with widely voiced concerns over the increasing development of rural and remote coasts of Aotearoa New Zealand over the last decades (Freeman and Cheyne 2008; Peart 2009), Coast Carers claim to be motivated by the necessity to "protect what's left". Mark Dean, founder of the Naturally Native plant nursery (see Chapter 9.5) frames restoration, especially dune restoration, as a matter of protecting Aotearoa New Zealand's national natural identity: "I used to say I wanted New Zealand to be like Aotearoa and not like a mini England, and that was what we worked on." (Radio New Zealand National 2012b: 00:02:51)

Concerns with (wanted and unwanted) human modification of this distinct Aotearoa New Zealand coastal nature date back to botanist Leonard Cockayne who travelled extensively through the country in the early 20th century in order to prepare his "Report on the dune-areas of New Zealand" (Cockayne 1911). Summarizing his findings, Cockayne states:

> It is not altogether easy to present a picture of the virgin dunes of New Zealand. […] There are few places where man, his fires, and his grazing animals have not wrought great changes. (Cockayne 1911: 17)[80]

The report was published about 150 years after Captain Cook and his crew were the first Europeans to successfully land on Nova Zeelandia, the European name for the islands of the time, in 1769. At that point, no grazing animals inhabited the islands, though they were soon to be introduced by the European settlers that followed the explorers. However, Cockayne does not elaborate if, when writing about "virgin" dunes as void of "man", he is including indigenous human interference or if he thinks of pre-European nature as static and undisturbed by humans. The Māori people, however, had settled on the islands of Aotearoa for around a thousand years already, after arriving from Polynesia on voyaging canoes.

Today, scientists use several indicators of human presence to reconstruct the early human history of Aotearoa New Zealand, including archaeological findings, evidence of species introduction and extinctions, and fire disturbance (Wilmshurst et al. 2004). Radiocarbon analysis is used to determine the age of fossil pollen, seeds, sediment and charcoal samples, and to produce paleo-ecological data. There are many questions, some of which are controversial not only from a scientific point of view, but also in their intertwining with contemporary political struggles. When did the Polynesian people that eventually became the Māori of Aotearoa New Zealand arrive, and where did they come from? What impact did their presence have on the natural environments they found during the long period of settlement before European arrival? The past reconstructed with natural scientific methods also relates to questions of identity, belonging and responsibility that enter political discussions about the current state of Aotearoa New Zealand's nature.

Conservation science, policy and practice are deeply entrenched in such questions, because – as mentioned above – many decisions about actual restoration projects involve a definition of baselines for an assumed pre-human or pre-European state of the environment. As one informant, a dune restoration professional, put it during a field-

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80 There was a practical reason for farmers to let their cattle graze on the dunes: New Zealand soils tend to lack the trace element cobalt, and this malnutrition causes the so-called "bush disease" in cattle. Because the dune plants came in contact with seawater, they contained these essential minerals. Until the cause of bush disease was discovered in the 1930s and cobalt was added to soil and/or food, occasional dune grazing has been the only known remedy (Tonkin 2013).

work encounter, his goal lies in "restoring dunes to how they have been before humans came". "We still remember it", he said pointing to the beach, "that's only 100, 150 years ago, that this was a natural, unmodified environment" (Fieldnotes Dunes Trust Conference, February 2010). This opinion is not held up by scientific evidence; however, such misrepresentation of coastal environmental history is not uncommon. Already in 1989, New Zealand botanist McGlone wrote that two factors have impeded early research on anthropogenic environmental change: a "marked reluctance to accept that the settlement of New Zealand by Polynesians brought many environmental changes", resulting from the belief that these people lived in harmony with nature, and an overemphasis on the effects of historic climatic changes (Mc Glone 1999: 126). Today Māori settlement is thought to have caused significant impacts on the natural environment. New species arrived with the Polynesians: kiore (Polynesian rats), kurī (dogs) and food crops for cultivation, including sweet potato (kumara) and uwhi (yam). To clear the land for horticulture, an estimated half of the country's forest was cleared by fire, and horticulture was pursued mostly in the coastal areas (Wilmshurst et al. 2004; see also Peart 2009: 33f.).

However, it is unquestionable that the speed of environmental change grossly accelerated after European arrival. Dune ecosystems have been fundamentally modified throughout the country; Dahm et al. (2005: 12f.) suggest that "coastal dunelands are probably among the most modified of all New Zealand ecosystems". The introduction of grazing cattle and other mammals (for example rabbits) had large-scale effects, as had forest removal, wind erosion due to the disruption of stabilising dune vegetation, damage caused by vehicles, stock and pedestrians, coastal subdivision, and, importantly, the displacement of native dune vegetation by exotic species: the deliberate planting of European Marram grass (*Ammophila arenaria*) and the unintentional introduction of vegetation from gardens or garden wastes dumped in the foredunes. Today, only a small number of coastal sites exist that still feature what is presumed to be the natural succession of vegetation from foredune through backdune and into coastal forest (ibid).

In Coast Care brochures and reports, large emphasis is put on the ongoing impact of humans: coastal development, walking or driving (squad bikes or cars) through the dunes, horse riding, and the spread of garden weeds. But what are the arguments used in favour of the reintroduction of native dune plants in the Aotearoa New Zealand context? Why natives? What makes them preferable over the existing vegetation? Not everyone arguing for native plants is as enthusiastic as Greg Jenks, who writes in the New Zea-

land Journal of Botany about "the incredible functional and aesthetic superiority of New Zealand's native dune plants":

> [N]ot all sand-dwelling plants are created equal, with native dune plants again, for the first time in over 100 years, demonstrating their clear superiority in all regards. […] The differences in dune function and aesthetic appeal of native versus introduced plants are very pronounced and unequivocally in favour of the perfectly adapted indigenous species. (Jenks 2007: 293)

Jenks' argument of functional and aesthetic superiority hinges on native plants being "perfectly adapted" for their environments. While arguments like "keeping what we've got" centre on moral claims about the need to preserve a national natural identity, pro native arguments can also embrace a narrative where natives offer better natural coastal protection functions, especially in comparison to the introduced Marram which has been widely used in the past in order to stabilize coastal dunes. A dune restoration specialist interviewed for a Radio New Zealand programme about the work of the Dunes Trust argues:

> [A]round the country where you got big Marram dominated dunes, they are very tall, very steep, and they don't rebuild, they don't grow forward as they would when you had the native [plants]. Which is understandable, because the natives have been here for a million years or so, and these guys have just been dropped here in the last hundred years. (Radio New Zealand National 2012b, 00:10:24)

Because native dune plants work better, they should again replace the introduced species – be they sand binders common in Europe where they originate, or decorative plants and "garden escapees". Similar arguments are frequently put forward in the programmatic literature, as below in "Community-based Dune Management for the Mitigation of Coastal Hazards and Climate Change Effects":

> While many exotic species have been used to stabilise dunes such as Marram grass (*Ammophila arenaria*), ice plant (*Carpobrotus edulis*), and Kikuyu grass (*Pennisetum clandestinum*), experience has shown that these species are not as effective as Spinifex and Pingao in repairing storm-damaged frontal dunes. Without a good cover of Spinifex and Pingao on the seaward dune face, natural dune repair between storms tends to be very limited. This can result in the next storm picking up where the last one left off, giving rise to more serious dune erosion than would have occurred with some more natural dune recovery between the two events. (Dahm et al. 2005: 9)

However, while native plants are promoted because of their unique adaptive capacities in relation to their original environment, there is also a discourse of threat at work which is not dissimilar to the South African examples discussed by the Comaroffs

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above. In this line of argument, invasive plants have a tendency to "out-compete" native plants, which therefore have to be supported by restoration work, especially pest control. Bergin (2011) for example states:

> Control of pest plants is a major issue for dune restoration projects. Pest plants on foredunes, particularly invasive exotic grasses, often out-compete indigenous sand binding species and reduce or prevent natural dune form and function. It is essential that restoration programmes involving the establishment and management of indigenous coastal species have effective, practical, weed control. (Bergin 2011: 3)

There is a noticeable internal contradiction in the discourse, with native plants framed as perfectly adapted, yet at the same time threatened – because the conditions of post-colonial natureculture put too much pressure (from development, invasive species etc.) on them. Another variation on the theme is the statement that while European Marram grass does also stabilize sand dunes, it establishes the wrong – a less natural – sort of dunes. A Waikato Beachcare employee, for example, explains to me that these plants have "a different mechanism", to the following effect:

> They create really steep and narrow dunes, whereas Spinifex creates a really wide dune. So the wider, the better. So Marram is better than nothing, but […] it doesn't allow that accretion to go forward. And it also is so vigorous, that it sort of out-competes the Spinifex. So you end up with these Marram dunes that are just so enormous. They're not bad, it's better than no dune, but, it just doesn't allow natural dunes. (Interview with Lucas Pinnacles, Waikato Beachcare)

The use of native dune plants – endemic Pingao, indigenous Spinifex, and other species common in coastal restoration projects – then becomes a matter of re-establishing and protecting the distinctive Aotearoa New Zealand quality of the coastal landscape as much as the natural barrier function of the dunes. The following section underlines this double effect by glancing sideways at another native coastal plant, the mangrove, which surprisingly turns out to be unwanted by many who care for coastal (and estuarine) environments.

9.4 Invasive Native Plants: Mangroves

Mangroves are native to the subtropical northern regions of Aotearoa New Zealand's North Island and grow in sheltered estuaries and harbour environments. In the last decades, their distribution has expanded, and mangroves are now found further to the south then before (Harty 2009, Schwarz 2003). In areas where mangroves have already been

growing, they are taking up more space now, growing more densely and deeper into the estuaries. Most probably, the continuous spread of mangroves is caused by a combination of factors, increased sedimentation from land-use changes, and a warming climate being the most important ones. Framing of the issue at stake as a matter of increasing mangrove "colonization" of estuaries and natural harbours – a term used also in scientific literature and reports (Morrisey et al. 2007) – shows the normative underpinning of the discussion and signposts its socio-cultural relevance. How mangroves should be "managed" – which often means removed – is subject to much public debate as well. In Whangamata on the Coromandel Peninsula, for example, locals have engaged in illegal acts of mangrove removal, using tractors and other heavy machinery (Peart 2009).

In the Bay of Plenty region, manual removal by care groups had been authorized by the regional authorities before a resource consent was obtained for the mechanical removal, which is now regularly undertaken by Council staff. Those arguing for removal or management claim that mangroves are "choking up" the estuaries, cause odours, make access (by boat) more difficult and are unsightly (see for example Leaman 2012). This is not how it used to be, how familiar places looked. The extent of disapproval with which mangroves are met in the Aotearoa New Zealand context can be surprising, given that globally, mangroves are considered a vital part of the coastal ecosystem, important for marine biodiversity and a significant natural coastal protection feature (Othman 1994; Mazda et al. 2002; Winterwerp et al. 2005; Alliance Development Works 2012). In the wake of the 2004 South Asian Tsunami, research has intensified into whether and to what extent mangrove vegetation can provide protection against tsunami impacts (Dahdouh-Guebas et al. 2005; Kathiresan and Rajendran 2005). Those who argue for human control of mangrove spread in the Aotearoa New Zealand context are therefore quick to stress that those species occurring here do not grow on the open coast and are therefore not useful as natural coastal protection (Morrisey et al. 2007: 3). However, an outdated version of the New Zealand Coastal Policy Statement (NZCPS) nonetheless noted mangroves as worthy of protection:

> The ability of natural features such as beaches, sand dunes, mangroves, wetlands and barrier islands, to protect subdivision, use, or development should be recognised and maintained, and where appropriate, steps should be required to enhance that ability. (Department of Conservation 1994: 9)

This provision has been removed in the current 2010 version of the policy statement. The public concern over the expansion of coastal mangroves shows that identifying na-

tive nature as the preferred natural environment is by no means self-explicatory, and that native species can also be perceived as invasive, unwanted colonizers when they move beyond the spaces people believe they belong to.

9.5 Naturally Native: A Sustainable Business

Dune restoration in Aotearoa New Zealand today is inextricably linked to the practices of reintroducing native coastal vegetation. However, before Coast Care could take off at the scale it is working at today, some fundamental problems had to be solved, first of all: where to get native plants from? Post colonization, dunes had only been planted with introduced species; there was no experience with planting native dune species, and no knowledge as to how to produce and cultivate native plants like Spinifex and Pingao. In the 1990s, a group of people professionally interested in nature restoration held a series of meetings in the Bay of Plenty region and started to collect existing expertise and to experiment with Spinifex and Pingao propagation. The group formalized its structure into the Coastal Dune Vegetation Network (CDVN) in 1997. In 2007, the network became a charitable trust and changed its name to Dune Restoration Trust of New Zealand, or short: the Dunes Trust.

Today, the Dunes Trust works closely with regional Coast Care/Beachcare programmes and has many members amongst dune restoration professionals and volunteers throughout the country. The annual conferences of the Trust resemble a national Coast Care meeting, something that does not exist on that level; Aotearoa New Zealand's governance structure is highly regionalized and dune restoration programmes are exclusively organized by Regional Councils. The Trust remains the agency through which the majority of scientific research on dune restoration issues in Aotearoa New Zealand is conducted, using competitive public funding sources like the Ministry for the Environment's Sustainable Management Fund. The knowledge and information produced by the practitioners and scholars from the Trust has been taken up by Coast Care/Beachcare – or more precisely, it co-produced Coast Care, because the programme would not have been possible without it. A central node of the public-private "meshwork" (Ingold 2007: 80) of the Dunes Trust is the company that developed a method to grow Spinifex and thereby co-produced its own market niche: the Naturally Native plant nursery.

For more than 30 years now, Mark Dean has been running his nursery business. The company, Naturally Native is one of the country's largest specialist native plant growers (Naturally Native NZ Plants Ltd. 2007). Mark is the chairperson of the Dunes Trust and was described as a "conservation champion" by the Minister of Conservation, Hon Kate Wilkinson, when she handed him the Loder Cup, a prestigious conservation award, in 2011 (Department of Conservation n.d.b). While Mark always had an interest in plants and especially native trees, he originally started his career as a school teacher in Tauranga. His parents lived on three acres of land in the hills outside of the coastal town, and when their workload became too high, Mark and his wife took over the property. Mark started to grow and sell some plants, mostly kiwifruit, a growing business during the 1970s. Soon he realized that he had enough land to start a full-time business, because "nurseries don't need very much space". But what would be a good thing to grow?

> I said to my wife that we needed something that would be always ongoing, because kiwi fruit would be no good, because one day the Bay of Plenty would be full of kiwi fruit and no one would need any more plants. And so we happened to go to north of Auckland for a holiday – January 1979, and we passed a farm house that had a sign up at the gate: Native Plants for Sale. And I said, 'That's it'. (Interview with Mark Dean, Naturally Native)

They discovered that only a few nurseries were producing native plants, operating only on a very small scale, mostly selling their plants over the gate to botany enthusiasts with a special interest in native flora. Wholesale growing of native plants was a novelty. When Mark quit his teaching job and the couple started growing natives, this move was met with great scepticism by the people around them, because nobody thought it was possible to make a living by growing just native plants. Mark explains:

> Because in those days […], the attitude of farmers was, 'I've spent 40 years chopping the native plants off my farm, why should I plant them?' And people thought of native plants as just being bush; they didn't think of them as being able to be used in gardens. (Interview with Mark Dean, Naturally Native)

Mark is confident that he in fact contributed significantly to the development that changed this situation: native plants becoming ever more popular over the last decades. Evidence to this is also a growing market of books about New Zealanders "Living with Natives" (Spellerberg and Frey 2008). Drawing on his past as a teacher, Mark describes his business as fundamentally building on education:

> The first 10 or 15 years of our life running the nursery was educating the public that native plants were actually a good thing to plant, and we made it fashionable. […] Saturdays we ran seminars for the public at the nursery and that was – our whole marketing was based on education. (Interview with Mark Dean, Naturally Native)

This approach was also helpful when, slowly, other companies entered the market: "Our whole thing was to grow the market for native plants, and as we grew the market, so other competitors came in", Mark recounts (ibid). Naturally Native was losing its de facto monopoly and had to face this new competition. For a while, the company "got a little bit left behind […] because we didn't know how to market saying, 'My plants are better than this grower's plants,' and so we were caught off in the back foot as it was" (ibid). But Mark held on to his marketing by education approach, and ran seminars on native plants for landscape architects and others working for Councils.

In this situation, the production of dune plants for coastal restoration turned out to be another, even more specialized, manifestation of the native as a unique selling point. While looking for new opportunities, Mark and his team were approached by a landscaping company in the mid-1990s, which needed 5,000 Spinifex plants for a dune restoration project. At this point, Mark couldn't help, because the only known way to produce these plants was from cuttings, which turned out too costly an approach. During the same time however, a Naturally Native salesman attended the first meeting of what was to become the Coastal Dune Vegetation Network (CDVN) and reported back to his boss:

> [He] went to the first meeting and said to me, 'I think you'd better come along to the next meeting' […], because it wasn't really a sales function. [He] recognized that it wasn't really for selling plants. It was to do about finding out how to grow them. (Interview with Mark Dean, Naturally Native)

The meetings were attended by restoration professionals and Council employees, including the newly appointed Coast Care Bay of Plenty coordinator. Soon, the CDVN was formed as a means to further coastal restoration practices. Finding out how to grow Spinifex plants was defined as the first priority. Mark offered his nursery to the group and in 1997, experimenting started under the leadership of restoration scientist David Bergin:

> And very, very quickly, in the first year, we had them growing. And it wasn't as difficult as what we had thought. (Interview with Mark Dean, Naturally Native)

Conventional nursery industry practices, however, proved not suitable for growing Spinifex. The trials showed that pricking out (transplanting the plants from a seed tray to the next container) was not working as expected; the plants turned out to grow best when left in the place were the seed had germinated. The next year already, the team had produced 500 plants. The next step of the trial was the successful planting at Papamoa Beach (mentioned in Chapter 6). In 1999, Naturally Native took over another nursery at the Bay of Plenty coast, which had been run by Whakatane District Council, and the coastal environment proved perfect for growing dune plants. Also the nursery manager there had already been experimenting with growing Spinifex herself, and her knowledge was going beyond what the scientists from CDVN had found out. Using the manager's experience with watering and warmth, 5,000 plants were produced the next year.

Today, the Whakatane branch produces about 250,000 Spinifex specimen each year, as well as Pingao and many other coastal species used mostly by Coast Care groups[81]. The close links between nursery business and Coast Care remain. The plant production is exclusively based on pre-ordering, because, as Mark argues, "there's no market for those sort of things unless it's for a Council to supply to their Coast Care groups" (Interview with Mark Dean, Coast Care)[82]. This public-private linkage is remarkable since, as mentioned above, the company has taken over the main facility from Whakatane District Council, one of the authorities behind Bay of Plenty Coast Care. Now Mark's business is striving on producing plants for Coast Care – effectively, an outsourcing of the plant production necessary for the Coast Care programme[83].

Additionally, subscription to the principle of eco-sourcing means that only dune plants produced from local seeds are deemed suitable for Coast Care. Therefore, the plants have to be ordered the year before they can be planted; seeds are collected and cultivated to be planted the following year. This practice draws upon the question of how to define nativeness and localness – where to draw the boundary of the local when

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81 About 75% of the company business is now related to environmental restoration, while the garden centre market contributes the remaining 25%. Before entering into coastal restoration, the proportion had been the other way around.

82 Mark mentions that only one or two small orders were made outside the Coast Care business: "Developers who are doing, like coastal development; you know building buildings or sub-division and have needed some Spinifex to meet their resource consent requirements. But so far that side hasn't developed." (Interview with Mark Dean, Naturally Native plant nursery)

83 In 2013, Mark sold the Whakatane nursery to the manager Jo Benner.

this category is defined along spatial terms that are always in part social constructs? In the Coast Care world, local is defined as falling within the area of the specific care group; in the nursery, plants are arranged according to these locations, featuring labels with village names that translate into Coast Care groups. Mark accepts this hegemony of the local and follows it through in his practices of plant production, though he juxtaposes it with what he calls "the horticultural perspective" which would be more interested in producing the strongest possible plants[84]. While he subscribes to the idea of eco-sourcing as a means to "keep the difference", to maintain existing, biographically defined biodiversity within this plant species, he states that

> if we approached it from a horticultural point of view we should be finding the biggest, fastest growing Spinifex that we can lay our hands on and planting that all over the place so that we get much better sand holding ability (Interview with Mark Dean, Naturally Native).

Until recently, volunteers were also enrolled in seed collection for Spinifex production. Coast Care volunteer Edward White from Waihi Beach still takes pride in the high quality seed material he was picking in Waihi Beach. But effective collection requires knowledge and practice in distinguishing female from male flower heads, because the latter do not contain seeds (Dune Restoration Trust of New Zealand 2011c; Coast Care BOP Programme n.d.b). The nursery staff now finds it more efficient not to use volunteer labour, but rather take responsibility for seed picking themselves. In any case, the combination of pre-ordering requirements and the insistence on local eco-sourcing guarantee maximum customer loyalty. This is a literal growth economy; the business with natives is growing steadily, the dunes are growing – and when erosion events happen, new plantings are needed by Coast Care to assist dune recovery. Therefore, Mark does not expect that the market will ever be saturated, or that Pingao and Spinifex can be expected to completely self-reproduce on the dunes:

> Because with Spinifex and Pingao, [one] would always get storm events, and people will always want to augment plants; the beach will start recovering and they'll want to put some more in there to make sure that they're going to get the Spinifex and Pingao growing out to trap the sand. So, that's one of the things that I don't think will run out. […] That's why I think the whole thing of Coast Care is about,

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84 Mark shows that two areas of his large greenhouse are separated by another geographical scale: Spinifex plants grown with seeds originating from the west and east coasts (of the North Island) are visibly different. Mark attributes this to the different climate and weather conditions: the wind and the sea are much rougher in the West, therefore Spinifex plants grown from West Coast seeds are stronger.

is building the buffer to be eaten away and then helping it build again later. [Interviewer: "So you're also growing plants to be washed away?"] Yeah! [laughs] Sacrificial plants! (Interview with Mark Dean, Naturally Native)

Mark is also actively engaged in Coast Care's latest move towards the backdune areas. This is part and parcel of the founding of the Dunes Trust as a successor to the Coastal Dune Vegetation Network (CDVN):

> That developed like that because […] the Council started saying, 'Oh well, we know how to plant Spinifex; why should we be contributing 3,000 [NZD] a year to the CDVN?' And the CDVN didn't […] really have enough money out of that to do big research projects. And so nothing was done; and so it became harder and harder to get funding. (Interview with Mark Dean, Naturally Native)

Through founding the Trust, the group became able to apply for competitive research funds. Producing knowledge proved to be the avenue to develop the dune restoration sector in general, and Mark's nursery business in particular. The Dunes Trust, of which Mark is the chairman, has recently secured funding from the Ministry for the Environment (MfE) for planting trials on backdunes. As a result, he is getting more orders for backdune plants from Councils throughout the country. Building knowledge and building the business remains deeply entangled, as well as maintaining the public-private relationship:

> [T]hat will build the whole market for planting on backdunes and that'll give us more growth in that area. If it works as well as our Spinifex trials it'll end up being like a big leap forward in confidence and it'll give Councils confidence to order backdune plants and plant them. […] Hopefully at the end of the three years [of Ministry-funded research] there'll be enough knowledge and experience to see what succeeded and what didn't, and it'll be enough to build the growing of backdune plants from there. (Interview with Mark Dean, Naturally Native)

Given Mark's thorough (business and personal) interest in Coast Care, I am interested to know how he weighs the different objectives of the programme against each other. What is, seen from his central position in the meshwork of volunteers and professional actors, the main motivation for Coast Care practices? What role does dune restoration as coastal protection play, and how important is it to reconstruct native nature? Mark believes that aesthetics come before both for most of the volunteers:

> I think most people involved in doing the planting would most probably think they're planting the beach to look nice, and they don't think about the protection or the biodiversity and that side of it. (Interview with Mark Dean, Naturally Native)

Mark argues that from this initial approach to Coast Care as beautification of the beach, the link between dune restoration and coastal protection was made thanks to the pioneering work by people like Jim Dahm:

> I think firstly they just wanted to restore the dunes and they never thought about coastal protection, and then there was a few instances where storms would wash away what they'd done and they were, 'Oh, terrible terrible, its all been destroyed.' But it wasn't until Jim Dahm came along and said, 'That's actually what happens naturally', you know with these workshops that we [the Dune Restoration Trust of NZ] have been running, and Jim said that it's that you've gotta plant to protect and build the dune for the next erosion event. So people are now realizing that we're doing it as a sacrificial thing and that one day it might all be washed away, but at least it will have a buffer to wash away, rather than nothing there, allowing it to go straight into the properties. (Interview with Mark Dean, Naturally Native)

Mark himself has developed an interest in the promises of soft protection. When visiting family in Germany, he made contact with "Bestmann Green Systems", a company specializing in "Biological Engineering Systems". Their expertise includes fibre products that support plant growth and can be used in river restoration. The website features a variation on the 'working with nature' discourse:

> The use of living 'engineering biology' provides methods of construction which fit in with ecological needs. Such methods cannot always replace purely hard engineering solutions, but they can in many cases come very close to natural developments. (Bestmann Green Sytems n.d.)

Mark also advocates the backstop wall approach that has been discussed in Waihi Beach. Instead of regular seawalls, he argues for the use of buried walls and a planted dune to provide a buffer zone in front of the seawall. When asked if he sees any potential for coastal management practices developing in this direction, Mark also has high hopes for the role of Coast Care and its constituency:

> [A] lot of that ground swell comes from the likes of the members of Coast Care, the grassroots starting to say, 'Why are you doing this, why are doing that?' And eventually it filters up to the engineering division. I mean the attitude towards using plants for erosion control has changed dramatically in recent years. You know, engineers now specify planting plants to stop erosion. Sometimes with geotextile material underneath, and then the plants [on top]. But yes, there's a lot more research [that] needs to be done…. it's an area that I've sort of often thought we should target with seminars, and try and find people to give talks about various plants and their ability to stop erosion, and that sort of thing. (Interview with Mark Dean, Naturally Native)

With a good business instinct, Mark sees the promise of expanding his business towards soft engineering. Remarkably, this resembles closely what a representative of a geotex-

tile company presented me as his vision of the future of soft coastal engineering. This points to an ongoing conversation between dune restoration and soft engineering professionals and shows that Mark and his engineering counterpart both operate with an understanding of soft protection that allows human tinkering with and construction of coastal natures.

Mark's approach to the native business combines public and private sources of funding and knowledge production to make the native plants and his business strive. This way he navigates the restraints of the market, the administrative environment and limited research funds available in Aotearoa New Zealand. In the following section, I will further explore the role of narratives of nativeness, and start with turning to another protagonist of plant production who is operating on a completely different scale, following other visions. Here, the story is not about sustainable business development, but about community-scale restoration and education projects that combine the promotion of native plants with native knowledge and practice, especially weaving.

9.6 Native Naturecultures

At her Northland home, Betsy from Te Roopu Whakaoranga o te Taha Moana Trust is growing Pingao plants in a small-scale nursery, built with funding from the World Wildlife Fund (WWF). The Trust is a volunteer group that also engages in education programmes centring on Pingao and its role as a traditional plant for Māori. The Trust members educate children in the local schools, sell native plants, and promote traditional weaving techniques. These are small-scale projects drawing on do-it-yourself practices – Betsy, for example, experiments with self-made seaweed fertilizer. Members of the Trust have produced several award-winning books. "Nana's Koha" (McFadyen 2008) explains "how very important even the smallest things are in the ecology of the seashore" through an illustrated conversation between Raniera and his nana (grandmother). Nana teaches the boy how to weave little flowers or puti puti, and tells the story about the origins of the Pingao plant:

> 'Well,' says Nana, 'as Māori we believe that the Pingao are the eyebrows of Tane, the god of the forest.' 'The eyebrows!' exclaims Raniera. 'Ae, he and Tangaroa the god of the sea were always fighting until one day Tane decided he had had enough. He plucked out his eyebrows and gave them to Tangaroa as a sign of peace. But Tangaroa wasn't ready to forgive Tane and he threw the eyebrows onto the shore

and there they grow today as Pingao, which is the boundary between the forest and the sea'. (McFadyen 2008: 6)

This traditional story of Tane's eyebrows is very popular also amongst Pākeha members of Coast Care, and has been featured in Coast Care brochures (Northland Regional Council 2008; Coast Care BOP Programme n.d.a). Also, the use of Pingao plants for weaving, especially tuku tuku or wall panels for marae (meeting houses) gets often mentioned in conversations and brochures (ibid). Whereas Spinifex is a native plant too, it also occurs in other world regions, for example Australia. Pingao on the contrary is endemic, and maybe therefore more readily representing Aotearoa New Zealand's native nature and culture. Spinifex is also not commonly used for weaving.

Regardless of the central function of these narratives however, Pingao is not very central in contemporary weaving practice, even though the cultural renaissance of recent decades has seen a revitalization of weaving with traditional materials. At a weaving school in the Eastern Bay of Plenty, where people can learn the skill up to the level of a Bachelor's degree, the teacher explains to me that Pingao is not being used very much in her class simply because it is not suitable for beginners: the leaves are too short and irregularly shaped. Most common for weaving are Harakeke (New Zealand Flax) plants. Today, Pingao is mostly used for little bags (kite), whereas tuku tuku panels are mostly fabricated from plastics because it is easier to handle. However, the students at the weaving school are encouraged to try many different materials, including Pingao.

Pākeha New Zealanders who want to argue in favour of restoring native nature take up these narratives of nativeness and use them also to justify the importance of the effort (besides biodiversity or coastal protection aspects). Sometimes such stories are told in a way that seems largely ornamental. However, by acknowledging the spiritual value of native nature, and by expressing personal fascination with it, settler descendants might express a caring relationship to the land that embraces ecological *and* cultural values. But such narratives are also possible points of connection for Māori Coast Care volunteers. Moana from the Ngāti Mākino Coast Care group explicitly appreciates the links that are drawn by the Coast Care programme, connecting dune restoration, native plants and Māori cultural practice and values. Asked for the goals of her Coast Care work, she explains that it is done

> […] so that sand dunes will form and will help protect the land. Also I guess too, the other thing is, because we can utilize the plants that we are using; the native plants – the Pingao which we use in our weaving on the marae for our tuku tuku

> [wall panel] work, to make our kite [bags]. […] So it's to protect the land so that the sea doesn't come up; you know how it has a lot of areas […] where the beach comes right in and they're coming quite close to the homes. (Interview with Moana Takutai, Ngāti Mākino Coast Care)

Moana first heard about Coast Care at a public meeting held at Otamarakau Hall. Seeing before and after pictures of other Coast Care projects, she was immediately taken by the idea to protect the coast in this way. She went through the cultural protocols and got permission and support from her local marae, located on a small hill with an extraordinary view over the seashore below. While the Coast Care programme targets the beach and dune areas exclusively, Moana – in line with Māori concepts – does not perceive the coastal environment as separate from the adjacent areas. Her projects also include riparian plantings along the river that cuts through cattle grazing land before flowing into the sea. On her request, the local farm trust has fenced off the river to prevent erosion and pollution from cattle excrement and fertilizer, thereby also protecting native fish breeding grounds:

> They agreed about how it was really good for the environment, for the wairua [spirituality] and the cleanliness of the river. […] The spirituality of the river helps to try and keep it clean and fresh. Keep the spirituality of the river alive and well and protecting it. Growing all the native plants along there will help do that. (Interview with Moana Takutai, Ngāti Mākino Coast Care)

The native planting achieves the protection of the beauty of the scene, the spirituality of the river, and its cleanliness at the same time. As much as she subscribes to spiritual Māori concepts, Moana is also fascinated by natural science explanations provided by Coast Care for the cyclical changes she observes in the coastal environment:

> I lived here all my life and you always see the changing of the river and the moving of the sand but didn't realize until I went to the National Conference [of the Dune Restoration Trust of NZ] when they explained the phenomenon, how the sand will be taken out but it will also come back again. So it was nice understanding, hearing it from the science point of view, whereas I've just seen it happen and think, 'Oh.' and just accepted it as part of what happens along the coast. […] You've seen the sand being washed out and see the sand come back in and see the river change from side to side, and accepted it as that, that's it: that's how nature works. (Interview with Moana Takutai, Ngāti Mākino Coast Care)

The greatest fascination, however, for Moana is that the objectives of restoration work so easily overlap with Māori cosmologies of belonging, care and relationships – not all of which concern only humans. Moana has started to grow a Pa Harakeke, a flax garden that assembles flax plants used for weaving. These plants do not all originate from the

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surroundings of the local community or the marae – some of them are gifts by family members who live elsewhere, but share the same ancestral links:

> We're connected through our whakapapa, through our genealogy and we're also connecting through our Harakeke [flax] […]. Some of our family came to a tangi [funeral] here and I said to them, 'You know that Harakeke that I came and asked you for [….], come and see the plant, here it is, growing beautifully'. That plant came from them over in Rotorua. My kuia [grandmother] who used to be a weaver, she weaved from this flax in Rotorua. So bringing it here was, you know, bringing her here; her plant here. When I see that Harakeke plant it reminds me of my relation, my kuia who has been dead for many years now. It's really nice, that kind of connection. (Interview with Moana Takutai, Ngāti Mākino Coast Care)

Here, the native plants are essential participants in the forging, remaking, and confirming of place-based and cultural relationships. In analogy to the "eco-sourcing" of native plants (which are collected at a specific place or from an ecological niche, see Chapter 9.5), this could be called *cultural sourcing*: the choice of appropriate plants according to the genealogy of the humans who tend and use them as part of a caring relationship with nature. Such relations have never ceded to exist. On the other hand, they often have to be re-weaved, and only when Moana started taking weaving classes her appreciation grew for the native plants. While practicing the craft, something she says might best be called "a spiritual awakening" happened inside her that made her taking up the planting project as well (ibid).

For Moana, this spiritual aspect of nature restoration is inextricably linked to the re-introduction and preservation of native plants into the local environment, a natural and cultural resource:

> We've got the Pingao from the beach and […] a lot of these native trees we can use for Māori medicine. So we can use it in that way as well, as well as attracting the birds, protecting the land and the wairua [spirituality] of the river, and a lot of health-giving things from the Manuka plants, [and] from the flax. All those properties we can utilize cause they're all natural and all culturally good for us. (Interview with Moana Takutai, Ngāti Mākino Coast Care)

Here, nature and culture are neither opposites nor binary concepts that split the world into two parts. Moreover, the properties of native plants, their naturalness translates into being "culturally good" for Māori. It does not come as a surprise that this strong vision of the cultural and natural role of native plants has been an inspiration for Coast Care in general, and that narratives like the story of Tane's eyebrows enjoy such popularity. Seen in this light, the relationship between nature and culture is not organized in a

strictly dichotomic way; rather, what is happening is more of what Haraway calls "traffic on the bridge between what counts as nature and culture" (Haraway 1997).

Generally speaking, indigenous understandings of naturecultures can be a corrective that shows the historicity and place-bounded character of seemingly universal concepts like the nature culture binary. However, to not romanticize or essentialize indigenous cosmologies, it is important to note that the work of (re-) connecting nature and culture is a constantly evolving process for indigenous restorationists, as well as for others. The Māori concept of kaitiakitangi, or stewardship of nature relies on an active caring engagement of humans with their natural surroundings (Te Ahukaramū Charles Royal 2012). The focus on the connectedness of native natureculture is also not a given – it is a connection that is actively made. Hull and Robertson describe this in relation to restoration practices in general as dancing with nature:

> By way of actively tending nature, restorationists develop respect and concern for the environment as well as a vested interest in its future – a deeper meaning […] By exposing our own loss of innocence and in turn celebrating our own naturalness, a restoration ethic allows us to dance with rather than on nature. Restoration blurs the distinction between culture and nature. It makes an open continuum out of the more simplistic and polarizing human-nature dichotomy. (Hull and Robertson 2009: 300f.)

Reconstructing native nature is not the only objective of Coast Care. However, the focus on and exclusive use of indigenous species is an essential characteristic that – together with using volunteer work for planting only – is central in defining Coast Care as community-based dune restoration. For people to perceive of projects as meaningful examples of nature restoration, several aspects can become important, but the use of native plants often comes down to a sine qua non[85]. However, not all restoration projects that focus on native species are drawing connections to native culture in the way I have described here. The following section introduces a local group caring for native fauna and flora that tied its approach to science and universal ideas of nature protection.

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85 This became noticeable at a Dunes Trust conference presentation that introduced a large-scale commercial dune restoration project on Great Barrier Island, which used European Marram as a pioneer species to provide for quick progression of vegetation cover. This "very innovative approach", as the consultant who implemented it called it, relying on non-native species, was met with criticism from the Coast Care constituency. The audience questioned the use of non-native plants and herbicides, and the commercial background of a project where the principal's time schedule was seemingly trumping the times of natural plant progression (Fieldnotes Dunes Trust Conference, February 2010).

9.7 Universal Nature and Local Crisis: Maketu Spit

This section introduces a Coast Care project that concerns itself with native birds and the desire to turn agricultural lands into an internationally protected wetland area. The Maketu Ongatoro Wetland Society, also a registered Coast Care group, is working on a sand spit which is uninhabited by humans, but home to several breeding pairs of the rare New Zealand dotterel. According to the Department of Conservation (Department of Conservation 2004), only about 1,700 specimen of this once common endemic wading shorebird remain in Aotearoa New Zealand. Because the Maketu sand spit is separated by a cut from the long sandy beach that spreads many kilometres east of Tauranga, it can only be accessed from the mainland, or by boat from Maketu village via the Maketu estuary. This has limited the human interference on the spit.

Protecting the birds on Maketu spit is the primary and immediate concern of the Maketu Ongatoro Wetland Society. The name, however, signifies that another, longer-term project is also on the agenda: the protection and possible extension of the wetlands surrounding Maketu spit and estuary. The Maketu estuary itself has been created in its current form by diverting the Kaituna River mouth in order to prevent seasonal flooding of agricultural land. The Bay of Plenty Regional Council is currently planning to change the course of the river once again and create a larger wetland area:

> The goal of the Kaituna River Re-diversion and Wetland Creation Project is: to re-divert as much of the Kaituna River as possible through Ongatoro/Maketu Estuary, and in the process to create new wetlands by 2018 to maximise ecological and community benefits while ensuring the cost and environmental effects are also acceptable. (Bay of Plenty Regional Council 2009; see also Bay of Plenty Regional Council 2012)

The project is controversial and has been discussed for many years already. While some argue for the re-diversion as a way towards a more natural state of the estuary, others argue that the current level of pollution of the Kaituna River, especially from agriculture and pastoralism along the river bed, means that the estuary will be flooded with nutrients and sewage residues. This fuels fear that the local seafood might be diminished or become unhealthy to eat.

The Maketu care group ensures ongoing protection of the birds living on the spit by informing the public about their presence, and by trapping and fencing off pest animals. The spit is regularly sprayed to remove introduced vegetation and then planted with indigenous plants. These include not only the typical foredune plants like Spinifex and

Pingao, but also a succession of backdune plants as part of a trial project of the Dunes Trust (Dune Restoration Trust of New Zealand 2011b). While I am in contact with the group, the main organizer is a natural history writer from the UK who settled in Maketu some years ago. Lately, a young marine scientist has started to share the responsibility. Both leading figures are nature lovers who are driven by a science-based understanding of biodiversity protection. The natural history writer gives talks at the local Polytechnical College and organizes guided walks on the spit. He is in contact with an entomologist interested in the spit and becomes very excited when a new invertebrate species is discovered there.

The group has been instrumental in preparing a Biodiversity Management Plan defining future restoration work on the spit, including the resources and work contributed by the government agencies and the care group (Maketu Ongatoro Wetland Society n.d). This development of a management plan in collaboration with the Regional Council is a novelty and one reason why the Coast Care coordinator regards the group as a role model. In relation to his vision for a future with care groups that work mostly independently (voiced in Chapter 6), the coordinator sees the Maketu group as "probably closer than any of the other ones to fulfilling that objective" (Interview with Pim de Monchy, BOP Coast Care).

When I revisit the project some three and half years after the initial fieldwork, the process of professionalization has become even more evident. This time, my contact describes his work as that of a "semi-professional volunteer", having contracted himself to the Council in fulfilment of the objectives defined by the Biodiversity Management Plan. A lot of his work remains voluntary in the sense of being unpaid – the project has been extended into ever larger areas of the surrounding wetlands, and I am shown "walls of Pampas": invasive plants common in the wetland area, ripped out and piled up several metres high along the channels, waiting to be burned in a large public bonfire. But at least part of the tedious work of pest control and trapping is now remunerated by the Regional Council. In the process, Damian Hurst, the main organizer of the group, and his wife Laura have assembled a whole garage full of tools and objects that play a role in producing biosecurity on the dunes and in the wetlands: a quad bike to enter difficult to reach areas, a trailer for transport, many small and large canisters of herbicides neatly arranged on shelves, several "spraypacks", an assortment of spades and shovels, buckets of fertilizers, and a collection of warning and educational signs are crammed into the small space of the garage.

The reliance on the authority of science and the willingness and capabilities to engage with the existing bureaucratic tools define the group's success – but also seem to contribute to a perceived weakness: the failure to enrol other locals, especially the Māori majority in the economically underprivileged Maketu village[86]. Substantial parts of the area surrounding the spit were returned to the Te Ārawa Lakes Trust in 2006 as part of a Treaty of Waitangi settlement. The Trust is the tribal organization of the Te Ārawa Iwi which is based in inland Rotorua but has ancestral links to Maketu, the historical landing site of the Te Ārawa waka or voyaging canoe (Tapsell 2012). When interviewed in 2011, Damian expresses his disappointment with what he perceives as missing care for the environment by the Trust:

> You know, the Māori make a big thing about kitianga [kaitiakitangi] or whatever it is, you know about guardianship and you think well, what do you mean by guardianship, because you […] look at the land, you look at this gully here, and there's one on the other side as well, that belonged to Te Ārawa [Lakes Trust] and you look at the wetland as you come into Maketu, all that great mass of Pampas grass [an introduced plant species tackled by Coast Care] […]. If you can't make any money out of it, they're not terribly interested. And so it doesn't matter, they don't mind if it turns into a jungle sort of thing, just a wasteland, you know. That's the trouble, that once it gets invasive species in there, it's very difficult to get them out. (Interview with Damian Hurst, Maketu Ongatoro Wetland Society)

A recent arrival to Aotearoa New Zealand himself, Damian feels a lack of local support for his quest to remove unwanted invaders from the native ecosystem. Because he considers weed and pest control to be of utmost importance, he argues that the occurrence of introduced plants on the tribal lands is a sign of missing care that also translates into non-participation of Māori in care group activities like planting or trapping. During a meeting of the group, a local guy, however, offers a different explanation: the jetty located at the beginning of the spit is a very popular fishing spot for Māori (and migrants from the Pacific Islands living in the area), and the locals are concerned that heightened protection of the birds and the spit could lead to the loss of access to the kai moana or seafood so important in Māori cuisine and cosmology.

This fear that the Maketu Ongatoro Wetland Society could pursue what Adams and Mulligan call a fortress conservation approach (Adams and Mulligan 2003) – protecting nature by excluding humans and their traditional uses – might be fuelled by the group's

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86 67% of Maketu residents identified as Māori in the 2013 census, as compared to 18% for the whole Western Bay of Plenty District (Statistics New Zealand 2013a).

goal to turn the area surrounding the spit into a Ramsar site. This UN convention signed in Ramsar (Iran) in 1971 regulates the designation of protected wetlands sites (United Nations 1971). The connections made by the Maketu care group are oriented towards the global scale, to nature protection instruments that function through universalistic principles (Descola 2008). Seen from the perspective of what Annemarie Mol and John Law (Mol and Law 1994) call a topological approach, the group's project might be closer connected to other sites defined by this international convention than to its immediate surroundings, because the defining principles and narratives of protection are framed through international law and science, and not local epistemologies or indigenous understandings of caring for the local environment.

Like in the quote above, Pākeha tend to interpret the low representation of Māori in community care groups as refusal to take on responsibility (for a different interpretation, see Tūhua Brown in Chapter 5.3). In the Maketu case, however, this hegemonic understanding was radically challenged in a situation of emergency. When a container ship ran ground close to Tauranga harbour in October 2011, and the Bay of Plenty coast became covered in heavy fuel oils that spilled from the ship, the rocky coast of Maketu was cleaned by volunteers who were organized and equipped through Whakaue marae. Throughout the region, volunteers literally took the oily matter into their own hands – flocking to the beach in great numbers with bucket and shovel, ready to pick up the large clumps of sticky oil that soon started to arrive on the coast, but unfortunately also spreading the contamination because of insufficient protection gear and a lack of care. The authorities were practically forced to organize a volunteer response programme that took off in a matter of days after the accident, with tens of thousands of people registering online and on the phone to take part in "Operation Beach-Clean".

Operation Beach-Clean was organized through the Maritime New Zealand control centre, where a whole division of seconded public servants worked 24/7 on the commercial clean-up and salvage logistics. The Coast Care coordinator became part of the volunteer coordination team, and the Coast Care mailing list became one important channel of information and volunteer recruitment. Crucially, people were told to wait until contacted and assigned to a cleaning team (led by a team supervisor who had received special training) and deployed to the beach, according to a grid that worked around the tides. After the acute phase, residents formed "Adopt-a-Beach" teams who regularly patrolled nearby beaches to quickly respond to occasional oil or cargo that continued to wash ashore, though in much smaller quantities. Some of these teams, in

turn, were continued as new Coast Care groups. Almost a year later, Pim de Monchy reported in a Radio New Zealand feature that 3 out of 11 former Adopt-a-Beach groups in the Tauranga area were still active Coast Care groups (Radio New Zealand National 2012a).

In the suburban areas around Tauranga, mostly Mount Maunganui and Papamoa Beach, this worked out well, and Pim was later named "Regional Coastal Champion" by the New Zealand Coastal Society, an award with which the professional society of coastal professionals "recognizes individuals who have shown a commitment to the sustainable management of our coastal environment and have made a difference within their community":

> As his nominators explained in their submission, 'In his role as Volunteer Coordinator on secondment to Maritime New Zealand, Pim stepped up when his community needed him most and led an army of volunteers to clean up the beaches in the Bay of Plenty, including Mt Maunganui, Papamoa Motiti, Matakana Islands, and further afield. Within the first month of the Rena grounding, over 3,000 volunteers were organised by Pim and his colleagues to remove the oil and restore our beautiful beaches and also our coastal identity.' (Biswell 2013: 3)

In Maketu however, everything was different, as "they were a couple of steps ahead of the response in terms of organizing themselves as a volunteer group", as Pim put it on Radio New Zealand (Radio New Zealand National 2012a). There, the "coastal identity" for many was also essentially a tribal connection, and this required a response that acknowledged the principles of indigenous self-organization. The official response took this into account and organized a second tier of volunteer coordination structure for iwi, and appointed two full-time iwi liaison officers.

Regardless of this double structure, in Maketu the "locals [took] the matter into their own hands", as TV channel OneNews reported. Instead of waiting to be instructed by whatever outside authority, local people gathered at the fire station to organize the clean-up. At this public meeting, open conflict broke out over the question of who was responsible and who was authorized to make decisions in this situation. Deeper-lying questions about rightful belonging emerged and were framed through the question of appropriate ways to care for the environment and legitimate forms of participation. While the Maketu Ongatoro Wetland Society chair felt he and his care group were well positioned to take over the organizing role, it was the Te Ārawa people who successfully insisted that they were the legitimate locals who would take care of the problem. Walking out of the public meeting, the marae representatives claimed to organize things

through their pre-existing structures, including family and tribal bonds to mainland Rotorua – and soon, helpers from there also arrived (Te Arawa 2011). The Whakaue marae representative who coordinated the response also stated that she would prefer to make the decision locally and then be able to get the necessary assistance from headquarters directly – not via the official Operation Beach-Clean iwi response channel.

Maketu was initially not hit very hard compared to the sandy beaches further west which were quickly covered in a thick slick of black oil. In Maketu, two main concerns emerged: the rockiness of the beach, which meant that the oil could not be as easily removed as on sand, and the threat that oil could enter into the mouth of the estuary. The necessary equipment for those doing the physical clean-up work was delivered to the marae and from there distributed to the helpers: locals, Māori affiliated to Te Ārawa, and also some people from throughout the country who had wanted to help out but were unwilling to follow the official policy of rightful volunteering. The volunteers from "the city" however, which had registered through the official database, seemed to vanish on their way to rural Maketu.

On the first weekend after the oil started to spill from the grounded MV Rena, I encountered two old acquaintances from the Coast Care world. Simon and Peter, both with the experience of having worked for Coast Care, arrived in Maketu as a vanguard for 200 volunteers to be sent from "headquarters" in town (Fieldnotes October 2011). They were both unhappy about their task, which they perceived as highly politically charged; while some voices had called for as many helpers as possible, there remained much mistrust towards outside interference in the self-organized response.

The bicultural underpinning of the conflict was obvious, and the Pākeha men arriving from the official authorities located in town felt uncomfortable in their position. But they reacted delighted to see me: "What do you know?" they asked me when they realized that I had been around a couple of days already. At that point, I had been out on the beach around the Maketu surf club with one of the cleaning crews a few times, where we tried out a peat moss substance called "spill sorb". The product was applied to the sticky patches of oil on the rocks and rubbed off with a gloved hand or a brush. On the day in question, I took off with the guys from headquarters to the spit to wait for the Operation Beach-Clean volunteers to arrive – feeling a little disapproval from the others who continued the tedious work around the rocks. On the spit, a group of soldiers was also waiting for the "civilian volunteers", as their commander put it. The presence of the

army seemed to be much less problematic from the perspective of the marae organizers than the expected townspeople.

Being official coordinators meant that Simon and Peter had to follow health and safety regulations, and we delved into a complicated logistical planning about how to move the volunteers along the 3.5 km long spit. People had to be called to find a person able to contribute a quad bike, to get the key to a gate closing off the spit, and to find somebody with a boat so that the volunteers would not need to walk all the way back on the spit once they had finished their task, but could be taken over the river mouth to the village. Also, a bus was needed to return the people to their cars parked at the spit. But then the volunteers never arrived. People at the marae in Maketu village claimed that they had sent some people out to the spit, however, nobody ever showed up. There seemed to be a tacit agreement between Simon and Peter not to ask too many questions about this, the whole story being too embarrassing, a worst case scenario as they told me, making a big fuss and in the end not providing any labour.

The Maketu Ongatoro Wetland Society organizer eventually found a role for himself and took on responsibility for the deployment of oil booms across the estuary. Lobbying for this technical, precautionary response at Maritime New Zealand, using every contact he had, and welcoming TV teams and politicians to Maketu in search of first-hand experience, he concentrated on what he knew best and on what he cherished the most: the dotterel birds, who soon were to be caught and put into "pre-emptive captivity". One of the marae clean-up coordinators approved, telling him in a matter of confirmation: "Okay, you can be our wildlife person".

This ethnographic vignette of the conflict about who had been entitled to organize and to take part in the crisis response shows that work, and also unpaid work, can be inextricably linked to questions of rightful belonging. The work in question might most appropriately be described as care work, and tangata whenua were determined to gain the authority over who can be entrusted with this work. In the times of sudden environmental crisis, the local, and the "cultural" (in the sense of indigenous belonging) became the categories that made most sense in thinking about rights and responsibilities – not the universalist nature protection agenda symbolized by the Maketu care group and their Ramsar plans. In Maketu, tribal connections re-emerged as the most powerful criteria to define the limits of what counts as local, reaching out to include the inland kin, but not recent arrivals from Europe. In hindsight, the Regional Council's report on the volunteer response states that Maketu exemplified the need to modify

the volunteer model to meet the differing needs of various communities. Maketu people, for example, mobilised local people quickly and began cleaning up their beach and estuary areas as soon as the oil arrived. For them, the centrally organized public clean-ups were not appropriate and the Volunteer Team needed to listen to local issues and concerns, modify their systems and provide support in different ways. (Fraser et al. 2012: 12)

The simplest insight here is that just because work is voluntary, that does not mean everyone has the right to do it – however much they wish to take part. That volunteer work is at the same time unpaid work possibly complicates the situation, because it might divert attention from the fact that there are rules to be followed. While Maritime New Zealand tried to hold up health and safety, with a centralized structure, instructions and protective gear for the volunteers, the Maketu locals concentrated on what they regarded most important: keeping the work to themselves. The following excursion away from the coast, and to a small, Māori-dominated village bordering Tauranga harbour picks up on this idea of 'working with nature' relying on a specific entitlement to engage with local naturecultues.

9.8 "Soft Is What We Can Do Ourselves": Natureculture Restoration as Employment Project for Māori Youth

Te Puna is a small village on the branched shores of Tauranga Harbour. Mostly Māori from the Pirirakau hapū live here[87]. One of Te Puna's traditional burial grounds, or urupa, is called Epeha and belongs to Tu Tereinga marae of Pirirakau. Located on top of a headland with a fantastic view over the harbour, the site has been subject to cliff erosion, with parts of the clay grounds breaking off and falling down into the estuary. So far, the area concerned is still some metres away from most of the graves; however, the situation is already a matter of serious concern for the people connected to the urupa. As an elder explains, the erosion has progressed since the old days; the graves weren't as close to the edge back then. But also, he underlines that the site has most probably been

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87 Many locals carry French surnames as a reminder of Te Puna's colonial history: in the 1850s, two French sailors from Honfleur on the French Normandy coast – Louis Bidois and Emile Joseph Borell – settled here and married women from Pirirakau hapū. The heritage of the "French Māori" is being held up by local character and children's book author Tommy "Kapai" Wilson who self-published a book about "Le Whanau" (Wilson 2006) and organized a gourmet hangi for French Rugby supporters during the Rugby World Cup in 2011 (Bradley 2011; Irvine 2011).

chosen because of the spectacular location: "You will find that we bury our dead at the most prominent places, always, that is how we feel about the ones who have gone, that is where we think they should be." (Interview with Pirirakau elder)

Findings of weapons on an old part of the urupa where graves are unnamed indicate that it might have already been in use during the land wars in the mid-19th century. A new part was started by the elder's grandfather in the 1940s. In the meantime, land had been confiscated and partitioned by the Crown; the area of the urupa changed hands and the new owners tried to prevent further use of the burial ground. However, the Māori Land Court decided in favour of this man's whanau (extended family) which invested considerable amounts of money in legal costs "to fight this other family, to still have control of what happens with our family and to be able to bury our people there" – to gain the right to continue a practice that had never been completely abandoned.

The current battle consists of ongoing attempts to stabilize the cliff edge. One possibility would be to build a large retaining wall resting on deep foundations, covering the instable cliff, and to then fill the irregular gap between wall and cliff with more clay or another material. The locals are, however, sceptical about engineering solutions: they would be costly, would imply the need to contract technical experts from outside, and might even run the critical risk of exposing ko iwi (human remains). Burial grounds are considered tapu or sacred, and the exposure of ko iwi is the worst possible violation of this tapu. For the time being, another idea is being considered: using a "soft option" and planting trees into the cliff edge in the hope that their roots will hold onto it. This would be hard physical labour and involve abseiling down the instable cliff. And this is how I encountered Akona Miller and her boys from Papatuanuku Environment Care.

Akona is a friendly, funny and energetic Māori woman in her forties. Her kids and her whanau come first for her, and even though money is scarce and they live in a converted shed, "it's a happy loving shed" (Fieldnotes 15.06.2011). I first met her at Te Puna school were she co-organizes an educational workshop for "kids at risk" who are unemployed, have dropped off school or have no formal tertiary education and are now enrolled into technical training programmes. 98% of the students are Māori, explains the trainer (Fieldnotes 15.06.2011). Akona runs the Papatuanuku Environment Care group which currently consists of six Māori rangatahi (teenagers), boys between the age of 16 and 18. The rangatahi carry out environmental restoration work for which they receive wages through a program of the Ministry of Social Development. They have an-

cestral relations with (whakapapa to) Pirirakau, but also other hapū and areas. This ge-
nealogical link is an important aspect in Akona's concept of the restoration work:

> I try and take the rangatahi out to lots of different cultural sites, not only in Pi-
> rirakau, [but] throughout the Bay of Plenty region. And through my good relation-
> ships with other tangata whenua they'll come and give a historical korero [infor-
> mation] about the site and tell them why the site's so significant. But the rangatahi
> that I do have also whakapapa to many different areas. So some of the sites are
> quite specific to one person, so even though all the rangatahi might be enjoying the
> benefits of that knowledge, one in particular will have a strong whakapapa link to
> the tūpuna [ancestors] who used to live there; the ancestors that used to live there.
> So for me it's all about giving these kids a sense of pride and belonging, and con-
> necting to their history as they're going into the future. […] For me, our tūpuna,
> when they worked, they didn't have all the implements and tools that we have to-
> day. So I think we're quite privileged. But I still think the obligation to care for
> those sites is there and so while we're privileged that we have those extra modern
> tools and things like that, we still have that same obligation that they had, and it's
> an obligation to them and to our environment. And that's the cultural significance
> for me. (Interview with Akona Miller, Papatuanuku Environment Care)

Through the cultural significance of the sites, environmental restoration work becomes
a form of working with the ancestors. This reminds of Moana in the previous chapter
who works on restoring the river, the coast, and on reestablishing the ancestral connec-
tions with her flax garden project. The use of native plants is an obvious part of this
work on the natural-cultural landscape, even though the need to do so is itself a sign of
the changes that have taken place; there was no ancestral practice of planting natives:

> Pre-colonisation, everything was native for New Zealand anyway. So other than
> trying to spread their resources or have more intensive areas of resource gathering,
> I don't think that they went out and planted as we do. But because there's so many
> exotic species here, now – to preserve our people's history, I'm all about planting
> natives, and I don't plant exotics. Especially on cultural sites. (Interview with
> Akona Miller, Papatuanuku Environment Care)

Akona stresses that she thinks of her work as having as strong a link to the past as it is
providing a vision for the future. For her, this is an act of reconciliation, of finding a
productive way forward that does not lose sight of the loss that colonization has caused:

> You know our people suffered a lot through the loss of land. You hear it all the
> time you know, our people are in an impoverished state. Would we be if we had re-
> tained the land and we were still the major land holders? Would we be in this state?
> That's the question I ask. I don't hold anything against anyone post-colonisation
> because they can't be held accountable today for what their ancestors did. But that
> still is the fact of the matter. And, you know, for us, we just have to get on with it
> and get over it. So that's my contribution to getting over it, [it] is trying to do posi-
> tive things. (Interview with Akona Miller, Papatuanuku Environment Care)

For Akona, everything comes down to relationships. This expands also to the Councils and government agencies she works with; she explicitly mentions that she met many "really good people":

> So as long as we have people at that level that have the heart and a commitment to see tangata whenua being involved and included, you know there's always hope. […] I think it all comes down to how you relate to people. It's no good going in there jumping up and down: this is what happened, it's wrong. Because you know we don't live there anymore; we don't live in that time anymore. And [now], how can we work, you know, together to go forward? (Interview with Akona Miller, Papatuanuku Environment Care)

Importantly though, this hope is connected to the possibilities of providing paid employment to Māori youth who are often still losing out in the education sector and the formal job market. Papatuanuku Environment Care is not a volunteer group, and a structure like Coast Care would simply not be suitable for these rangatahi (though some people may be able to use Coast Care work as an inroad into employment, see Chapter 7.2). Akona makes the point:

> Care groups are often elderly people. We need to encourage younger people, but they often don't understand voluntary work. I am talking about real kids here, not the university kids, kids that do not have these possibilities, 'kids at risk'. (Fieldnotes 15.06.2011)

The actual funding structure of Papatuanuku Environment Care is complicated and creative: Akona is a registered contractor for all three Councils in the area. At different sites around the Bay of Plenty, the young men provide physical labour to restoration projects. Akona gets paid by the Council clients when she herself takes part in the physical work, but she does not charge for the young men's work as they receive their wages from the Ministry of Social Development (MSD). This funding has to be reapplied for every year – when I spoke to Akona the project was already in its fourth year. Akona then puts most of the money she receives from the Council back into the project to buy tools and other provisions like agrochemicals. The MSD also provides some funding for supervision of the rangatahi – this money goes to Akona's cousin who helps her and seems to need the money more urgently. With all this juggling of a precarious financial arrangement, Akona is still positive and laughs away:

> It's certainly not economic gain that's for sure! That's more like economic loss! But you know: get another job. If you haven't got enough money, get another job! Yeah. I've got three, I wouldn't want to have four. (Interview with Akona Miller, Papatuanuku Environment Care)

When I meet Akona and "the boys" at their seminar, Kingi Martens from the local Estuary Care group (which removes mangroves from the Te Puna estuary, see Chapter 9.4) delivers a talk on why caring for the environment is important, and for Māori even more so. Kingi promotes the idea to work in the restoration business: "Learning about resource consents and about environmental stuff – that's how we gonna protect our lands. Not with fitting tyres or picking kiwifruit." (Fieldnotes 15.06.2011) He also speaks about "hard" and "soft" measures to deal with (coastal and cliff) erosion, and rests his case for the latter by exclaiming that "soft is what we can do ourselves" (ibid).

However, when we visit the urupa again another day (Fieldnotes 04.07. 2011), the slip has worsened and Akona now thinks of contacting one of the engineering firms from nearby Tauranga; there she has had good experience with a trustworthy technical expert who shows consideration for Māori concerns. This will probably be approved of by the marae elder who said before about the erosion that "we have to do whatever we can do to stop it" (Fieldnotes 03.10.2011). This makes it clear that the use of soft options is not a matter of idealism here, nor is it the only way to protect the ancestral heritage. Rather, it is one option that might be preferred for the reasons already mentioned; however, the decision how to proceed is a pragmatic one. This is about a sacred site; as Kingi Martens puts it, "this is more important than just protecting property – it is about our tūpuna. If we loose this, we loose everything" (Fieldnotes 15.06.2011). The boys, in the meantime, look at the slip and discuss structural solutions. Even though they will not be able to take part in the project anymore if the engineering company steps in, they still have ideas; one of them shows me a sketch he drew of a retention wall – "put it rite in the ground", he has written next to it, and included plans for the right material and where to plant trees afterwards. Akona and Kingi, in the meantime, inspect the urupa and decide where to clear vegetation to unravel the original trenches, another maintenance project that will soon be worked on by the rangatahi.

While the issue with Te Puna's cliffs eroding into Tauranga Harbour is different from the effects of coastal erosion on the sandy beaches in the Bay of Plenty, many of the themes that have been emerging throughout the previous three chapters come together here: the complex economies of paid and unpaid work (Chapter 7), the use of nature restoration practices as a soft coastal protection practice (Chapter 8), and the making of native naturecultures (Chapter 9).

9.9 Working with Native Natures

From the exemplary field sites assembled in the course of this chapter, reconstructing native nature emerges as an important way of putting 'working with nature' into practice. This sociotechnical imaginary, as has been argued before, relies on multiple and material practices of making coastal natures (also including public discourse and knowledge production). The contemporary renaissance of native nature and culture in Aotearoa New Zealand, spanning across biodiversity conservation and bicultural politics, forms a backdrop against which the 'working with nature' imaginary currently fuels coastal restoration practices.

This reconstruction of an imagined New Zealand coastal nature is an example for the coproduction of natural and cultural orders (Jasanoff 2004). The right state of Aotearoa New Zealand coastal nature is at stake here, with restoration practice as a way of translating ongoing self-reflection about the country's bicultural past, present, and future into the politics and practices of nature. A pervasive sense of national natural identity is produced in the process, just as the Comaroffs have described it for the South African case (Comaroff and Comaroff 2001). The practices of reconstructing native nature help actors to articulate a sense of who they are and to locate themselves in and through "spaces for nature" (Hinchliffe 2007: 6). For Māori, the recurrence to genealogical links can become a vital aspect of connecting native nature and culture. However, the nature-making practices of coastal restoration play an important role for imagining the bicultural nation, not only for those who themselves identify as indigenous. As Mark Dean has put it above, coastal restoration is about working on New Zealand being "like Aotearoa and not like a mini England" (Radio New Zealand National 2012b: 00:02:51). What is at stake here is the distinctiveness of Aotearoa New Zealand's natureculture, that is at least partly expressed through the native plants and the coastal landscapes they inhabit.

10. Understanding Nature, Making Waves: Multipurpose Reefs

Coastal experts set high hopes on scientific progress and the increasing knowledge about the natural dynamics of coastal processes produced by the relatively young discipline of coastal science (Schwartz 2005: 1099). One of the most popular textbooks on coastal engineering for example – introducing students to the profession that designs and builds coastal protection measures – states that "[t]here is a trend toward softer and less obtrusive coastal structures", characterized by "less negative aesthetic impact" (Sorensen 2006: 5f.). This development, the author explains, has been aided by advances in numerical modelling, as well as by political processes: "In some coastal areas coastal structures are discouraged" (ibid). This last empirical chapter deals with artificial reefs, a so-called soft engineering technology used for coastal protection. The approach differs significantly from the dune restoration techniques discussed so far: while also framed as soft protection, this is a high-tech intervention whose merits are argued on basis of its innovative and science-based character. The main focus of the chapter lies on fieldwork conducted at ASR, a former New Zealand-based company which developed artificial reefs for multiple uses. The chapter illustrates the incremental role that coastal science and surfing as well as the dream of artificial surf breaks have played for this technology to work technically, socially and economically. I will discuss exactly how the framing of the approach as soft, multifunctional, and working "in concert with nature" has been achieved. A failure in the eyes of the surfing community in terms of the goal to produce better surf breaks, the coastal protection aspect of the technology still seems promising, especially as it goes hand in hand with economic development agendas for the coast.

10.1 The Dream of Artificial Surfing Breaks

My fieldwork takes place in 2011 at ASR, a marine consultancy that has its office in the small coastal town of Raglan on the west coast of New Zealand[1] – a remote place even for New Zealand standards, while at the same time a centre of the globalized surfing world. Famous for its long right-handed break featured in the classic surf movie "Endless Summer" (Brown 1966), Raglan is populated by surfing tourists, backpackers, and daytrippers during the summer months, and home to about 2,600 locals all year round, many of them seasoned surfers themselves. From Hamilton, the university town and centre of the Waikato region, one drives up and down around the typical mix of green hills, sheep and dense areas of Manuka trees, to the little town nestled into Whaingaroa Harbour. The road passes through the town and leads past a series of surf breaks before it turns into a windy gravel road that leads around Mount Karioi and towards some remote farms and lonely beaches, beyond the scope of most summer tourists.

The ASR office is located in the very centre of town, spanning the second floor of a building that hosts shops selling surfing equipment, souvenirs and clothes on the ground floor. On entering the office, one passes a kitchen area towards the reception, where Mary, the secretary, sits – a big, chatty, middle-aged matron with a good sense of humour. She is a daily commuter from Hamilton, and the only female permanent employee. While she might look like a typical secretary for a small company, the rest of the team emanates the spirit of a surfing picture. Most of the team are sitting in two large rooms: the technical staff in one, and the interns in the other. Whereas there are one or two female interns, only men are on the permanent team. It is easy to spot on first sight that most of them are surfers, even before the running gag of the "board meeting" reaches my ears, which means that the board of directors is on their boards, out of office in the middle of the work day, gone surfing. The surfing beaches and the general amenity of living in Raglan is a strong incentive for the interns, too: MA students coming from Europe – mostly Germany and France – to spend an average of six months of unpaid work at the company[2].

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1 The fieldwork was conducted one year before the company went into liquidation and the majority of the team started a new firm called eCoast, see below.
2 There are no kiwi interns, I am told, because "Kiwis can't afford it, we don't have the socialized education system that you have there; we need to f[…] work or we're fucked".

Under the motto "Understand, Innovate, Sustain", ASR provides a number of services in terms of coastal research and sustainable management, ranging from fieldwork and numerical modelling to marine spatial planning, port and infrastructure development, and coastal risk assessments. Most people however know ASR as "the reef guys" – the company that designs and constructs artificial reefs. Originally named Artificial Surfing Reef, the technique is now marketed as MPR, the acronym standing for Multi Purpose Reef. This change in names is symptomatic of the history of ASR varying between promoting its reefs primarily as a means of enhancing surfing conditions, or as a coastal protection technique, or as a multifunctional approach combining both with ecological benefits.

The history of the technique and the ASR company itself is tied up in publicly funded research projects. In 1995, the University of Waikato and the National Institute of Water and Atmospheric Research (NIWA) started the Artificial Reefs Programme (ARP). Under this umbrella, Coastal Science Professor Kerry Black and a number of his postgraduate students started working on the design of submerged structures installed underwater and off-shore to influence wave patterns. In this regard, artificial reefs can be seen as a form of detached breakwaters, common coastal protection structures used to keep more sand on the beach (Herbich 2000). On the other hand, artificial reefs have long been used to attract marine life for fishing and recreational purposes, especially diving. Any structure located on a sandy seabed will be quickly colonized by marine life typical for naturally occurring rocky reef structures (Mead and Borrero 2011: 2). This effect is well-known, and artificial reefs have often been constructed throughout the world by sinking scrap materials ranging from old tires to washing machines, ship wrecks or retired subway cars (United States Department of Commerce National Oceanic and Atmospheric Administration 2007; Urbina 2008).

But Kerry and his team were thinking bigger: their aim was to use the latest advances in coastal science, including the growing capacities for numerical modelling, to design large artificial reefs that could predictably affect the surf zone in order to fulfil an old dream of the surfing community: to create artificial surfbreaks. A commercial enterprise developed out of the ARP when Kerry Black – followed by some of his former students – left the University after a conflict over how deeply the institution could be involved in the actual construction of New Zealand's first artificial reef project at Mount Maunganui in the Bay of Plenty. Science and business finally merged when ASR installed its Raglan office.

The quick progress that numerical modelling tools and data processing power have made during recent years means that effects of artificial reef structures can be modelled with the help of 3D computer software developed by the gaming industry. Physical models have to be built and tested only as a next step. The actual multipurpose reef is constructed of very large geotextile bags that are filled with sand. Dave Becker, who has worked for ASR since the start of the company, explains what makes the product an innovation even though submerged breakwaters themselves are nothing new:

> Submerged breakwaters have worked very well [in the past] … In some areas of the world they are used a lot: they have been used around the Mediterranean a lot, they use them in Japan a lot. […] The only thing we do different is one: look at the multipurpose purpose aspects of them, and that's in terms of the surfing, and we've learnt more and more; that's been a new thing, a very innovative and new thing. […] The other thing really is applying that understand principle, we are measuring waves and currents and then we are modelling them and modelling the response so that they are designed properly. (Interview with Dave Becker, ASR)

As the first student from the original ARP group to finish his doctoral degree, Dave wrote an analysis of famous surfbreaks worldwide. The coastal science questions he put to the characteristics of surfbreaks exemplify the ARP approach to develop its "understanding principle":

> What is it that makes a good surfing break? I mean, you can describe it but I wouldn't say it's hollow, it's fast, it's heavy, whatever; surfers all know that and then surfers can look at a wave in a mag[azine] and say, 'Oh, that looks like Chopes [a famous surfbreak at Teahupoo, Tahiti], that looks like so and so', but how do we define the shape of that wave with actual numerical parameters, what [is] the shape of the seabed, how fast are the waves? All those things came out of the Artificial Reefs Programme. (Interview with Dave Becker, ASR)

In talking about his PhD project, Dave relates surfing and science: his interest has developed out of his own experience as a surfer, but it is essential to define this as a science question, which distinguishes it from the experimental knowledge of the common surfer. At the same time, this remains a difference in degree rather than in kind. What is described by Dave as really different is the discipline of coastal engineering, which he believes has a substantially different approach from coastal science:

> I mean the surfing was something that made me personally get into this thing, but the driving factor […] is that we've come out as academics […]. As academics there is the knowledge and the understanding within the world to do better jobs. We know that seawalls bugger up the thing, and that's why I say it's not being applied by the guy with the bucket and spade and a Civil Engineering degree, he should be building roads not pissing around on the coast. And that is my motiva-

tion for sure – apply our understanding that we've got and also develop better understanding. It's a young discipline. (Interview with Dave Becker, ASR)

These coastal experts perceive their role as fundamentally opposed to what they call "the engineering approach" (Fieldnotes 20./23.05.2011). They have "gone down the modelling path" (ibid); they try to understand and quantify the environment before they start "messing around with it" (Interview with Dave Becker), whereas "most coastal engineering is done without collecting any data", but "standing on the beach and keeping dry feet" (ibid), applying standard solutions to complex issues and only addressing the small scope of property protection, not the bigger picture of the beach. The possible impact of engineered structures on the waves – of vital interest for surfers – is usually not on the engineers' agenda.

Many of the existing surfbreaks worldwide are in fact artificial, because they are the unintentional result of coastal structures such as jetties that have been built in the coastal area and now influence the wave climate. An article in the "Surfer Magazine" online edition explains the phenomenon to its audience:

> Nature makes waves. Man makes surf. And pretty damn good surf, too. Granted, not deliberately. In fact, with almost no exception, any attempt man has made to design and produce rideable surf has met with lamentable failure. And yet the coastlines of the world are littered with breaks that without man's helping hand – man's uncaring and often destructive hand – would otherwise not exist. (Surfer Magazine 2010b)

So why not try to deliberately design new surfbreaks or enhance existing ones? Already in 1967, a famous Californian surfer called Ron Drummond predicted that "specialized surfing reefs could be perfected to produce practically any type of wave desired" – which he found desirable not only for more variety, but also to "relieve the terribly overcrowded situation that exists" (Sanders 2005). In fact, the first attempt to create an artificial surfing break was meant to reduce overcrowding of a popular surf spot: Cable Station close to Perth in Western Australia. Another project, Pratte's Reef, was built in El Segundo, California, in 2000, as a compensatory measure financed by Chevron. The oil company had constructed a jetty to protect an outfall pipe in 1984, a permitted activity only under the condition that, if the wave climate were negatively affected, the company would make up for it. When monitoring showed that the surf had deteriorated, Chevron and the Surfrider Foundation – a political lobby group of surfers – agreed on

the construction of the reef, which was named after the Surfrider Foundation co-founder Tom Pratte (Sanders 2005).

However, the reef did not perform as expected and was removed in 2008, probably because of its insufficient size (Mead and Borrero 2011: 4) – as "volume, volume, volume" seems the decisive factor for successful surfing reef design (Surfer Magazine 2010a). Yet the episode triggered some discussion on the normative questions related to the idea of creating nature and the stance of the Surfrider foundation towards compensatory measures – a difficult question for a group that had gradually turned from "a surfing group concerned with the environment" into a "group of environmentalists who surf", according to commentator Marcus Sanders from Surfline Magazine (Sanders 2005). Sanders reflects on the commonalities with wetland mitigation projects in the US:

> Pratte's Reef is essentially the same thing. Chevron is saying 'whoops, we ruined this wave, so here's another one to take its place. Sorry 'bout that, guys'. If we figure out how to reproduce waves – whether for shoreline erosion or surfing or both – the challenge then becomes slightly more philosophical. Is it fair for a company to destroy a surf spot if it promises that it'll build one to replace it? (Sanders 2005)

Hamish Rennie, a New Zealand geographer who has been involved with ASR and the idea of artificial surfing reefs from the very beginning, is concerned with such offsetting activities and insists that "natural surfbreaks are important because they are natural phenomena" (Fieldnotes 05.07.2011), resting his argument on a clear distinction between natural and artificial breaks. In a statement of evidence for the Proposed New Zealand Coastal Policy Statement 2008 that Rennie prepared for the New Zealand Surfbreak Protection Society, he elaborates:

> It is important to recognise that artificial surfbreaks are relatively recent. Their long-term effectiveness is being monitored with interest. If proven, then they offer the potential to add new, improved or less damaged surfbreaks, but the technology does not yet exist to be confident that a natural surfbreak can be restored or recreated artificially. It is clearly preferable at present to avoid damage to natural surfbreaks, as opposed to attempting to use artificial breaks to mitigate or provide remedies for their damage or destruction. This is not to suggest that there is not a place for multipurpose artificial reefs, especially where there are no existing natural surfbreaks. However, given the time needed to adequately assess the effects of such artificial surf reefs, I do not consider they will be able to provide a proven means to mitigate or remedy damage of natural breaks in the next ten years. (Rennie n.d.: 9)

The idea to intentionally create artificial breaks – be they compensatory measures or meant to create new surfing spots – has in any case been a matter of vital interest for the surfing community. Tommy Hamilton, who also works at ASR, puts it:

> You'd just have to say the words artificial reef and surfers, just the idea of it, it's like, 'Fuck I'm sitting on this bank and it's just turned to crap; it'd be great if we had a reef, if we could do something more permanent, if we could just change this little bit'. I'm sitting here, a 40 kilometre long beach and there's crap everywhere, the whole beach is crap, and the idea that we could change and influence and do things to make better surf it's just like, hoh! And we have, people have by accident, you know there's plenty of artificial waves around the world that are insane and it's like, 'Well, shit, let's try and do that on purpose', so that's the promise and you don't have to say shit, and that gets people excited as hell. Then you start saying shit and you start saying that it's gonna be good and phurrh, the expectations go through the roof. (Interview with Tommy Hamilton, ASR)

The success of Surfrider and similar organisations such as Save the Waves, SurfAid international or – in New Zealand – the Surfbreak Protection Society, are expressions of the deep connection that most surfers feel with the ocean, often described as a quasi spiritual experience (Kerby 2010; Moore 2011), which for many triggers the motivation to protect the coastal environment – in this case understood as safeguarding waves. ASR has been collaborating with the Surfbreak Protection Society in relation to a new provision introduced with the latest version of the New Zealand Coastal Policy Statement, which aims at protecting "surfbreaks of national importance" (Policy 16, Department of Conservation 2010: 19). Again combining professional knowledge as coastal scientists and personal interests as passionate surfers, a new instrument has been developed: the Surfability Impact Assessment, a form of environmental impact assessment for coastal construction projects (ASR America LLC 2011).

The ASR marketing concept heavily draws upon the credibility of being surfing scientists – and on coastal science approaches as a means of 'working with nature'. In a promotional video called "Making waves", the business is presented as a "mission":

> What drives us is protecting what is precious for us and for many people around the world. We work in concert with nature. Instead of building ugly seawalls, we build our geotextile reefs, which are far less intrusive than seawalls. […] Nature makes good reefs. We wanna reproduce it. We wanna understand how nature works, we've gone out, we've measured the shape of the seabed and the reefs. What we've been able to do is find what makes reefs so perfect. […] The people in our company, and all of us, you know, we're surfers, and we really understand and love this environment. We go into the water on an almost daily basis, we interact with the ocean, and we take that overriding experience into what we do. We want to have an impact on how our beaches and coastlines are managed. Making waves, saving beaches, helping beaches […] On the journey we surf, we visit new places,

and always work hard to enhance coastal communities around the world. Halleluja! (ASR Ltd. 2010)

However, the ethos of surfing has made it a difficult balancing act for the ASR team to translate between their roles as surfers, activists, scientists, and operators of a commercial enterprise. This became especially noticeable when surfers started to fiercely criticize the ASR's artificial reef projects in internet forums and online comments on press coverage. The tenor of the critique was that the ASR projects realized in New Zealand, the UK, Australia and India had not produced better surfing conditions. ASR employee John Green attributes much of the disappointment to unrealistic expectations:

> We're dealing with people who aren't educated in this field either, you know. We know obviously because we work in this industry and it's what we've been doing for a long time. But a lot of people think that you build a reef and it's gonna create waves magically. We have that in Boscombe [in the UK]. We had finished the reef and we would have the public saying, 'When do the waves start?' And for a joke we'd say, 'Well we have to run the cable. We have to run the cable from the reef up the beach and we have to put the switch in so that when we flick the switch you'll see waves'. You know, people have got no idea that the reef is there to try and condition waves to break. It doesn't make waves break or it doesn't create waves itself you know. (Interview with John Green, ASR)

Media attention itself has been negative too, claiming that that the projects had taken considerable overtime for completion and the final costs had exceeded budgets (Telegraph Media Group Limited 2010; Leighton 2011; McPherson 2011). Interview partners at ASR argued that this was unfair and mostly unsubstantiated, that the responsibility for delays and unfinished projects often had nothing to do with ASR, and felt that the new US management had not addressed the issues in a constructive way. However, they also admitted that the original founder of the company had "oversold" or promised too much in terms of surfing enhancement. Nevertheless, surfing magazine articles did take part in celebrating the idea, testified by quotes such as the following lines introducing a 2004 interview with Kerry Black in the Surfing Magazine: "In the cosmos of surfing there is God, there is Mother Nature, and there is Dr Kerry Black" (Walker 2004). At least, Kerry's attitude contributed significantly to the popularity of the business. During the interview, Tommy tries to give me an impression of the matter:

> You haven't met Kerry but I think five minutes with the guy you'd probably quite easily see that if he was enthusiastic and thinking that other people were wrong, he would react in a certain way and that burned a lot of bridges for us. But at the same time that enthusiasm and tenacity got the company where it is today. I don't know, you've kinda gotta take the good with the bad in some ways […], that's the way it is. And shit, there's a lot of, it's a small community, people, academics have big

> egos and they tend to live for conflict and they argue amongst each other, that's just the way it is. (Interview with Tommy Hamilton, ASR)

At the time of fieldwork, Kerry had already left the business: he had sold his shares to an American investor who was putting high hopes into the artificial reefs technique, not only for surfing, but also as a means of soft coastal protection with a promising future in a world with increasing values concentrated in some areas of highly developed, but vulnerable coastlines. Tommy believes that the East Coast of the US could offer enormous possibilities for the company in case the US Army Corps of Engineers – the government agency responsible for coastal protection issues – would be willing to "accept the idea" of multipurpose reef construction for coastal protection (Fieldnotes 20./23.05.2011).

From the start, the Artificial Reefs Program (and later ASR) had been exploring the use of artificial reefs as a coastal protection technique, regardless of the high hopes put into what the proponents called "surfing enhancement". Framing the technique as an alternative to hard structures has been essential – "build reefs, not walls" reads an ASR banner used for social media sites. Narrowneck reef on the Australian Gold Coast was "the first ever MPR designed primarily for coastal protection while attempting to incorporate surfing enhancement" (Mead and Borrero 2011: 4), and also the first project built by the founder-to-be of ASR in 1999. It received a Queensland Earth Environment Award in 2000 (Council of the City of Gold Coast n.d.). In light of the widespread doubts that the dream of creating or enhancing surfbreaks with artificial reefs will become true any time soon, it seems a sensible strategy for ASR to concentrate more on the soft protection framing and function of the MPR approach. In a climate-changed world with a growing interest in sustainable or soft protection methods, this seems likely to be a more promising option for the future of the business.

Dave Becker is convinced that the deficits of the American office in dealing with setbacks and bad press in relation to the Boscombe reef, ASR's first European reef project constructed at Bornemouth beach in the UK, has closed the door to the surfing and tourism applications of multipurpose reefs, and that "the only way we will go forward with multipurpose reefs now is via coastal protection projects" (Interview with Dave Becker, ASR). But at the same time, the surfing aspect remains the unique selling point and the reason for ASR's high degree of familiarity. As Tommy puts it, talking "about the coastal protection side of things" created only "a tenth or a hundredth of the excitement from the surfing world" (Interview with Tommy Hamilton, ASR).

This double bind is also reflected when ASR employees talk about the role that MPRs play for the company's self image. The ASR team is often perceived as "the reef guys", because ASR's reef projects are what is most widely known and associated with the company. But as Tommy insists, they are not just "fucking reefs salespersons" (Fieldnotes 20./23.05.2011) meaning that reef design is not the only answer to coastal management issues the company has to offer. In fact, as mentioned above, artificial reef projects continue to be only one part of the marine consultancy – between 20 and 30% of the projects and turnover each year; the core business remains numerical modelling (Interview with Dave Becker). Again, this perception is at least partly attributed to the company's own strategic behaviour in the early days of artificial reef design. Tommy comments on what he thinks of as unrealistic expectations:

> Back in the day, ASR really pushed the idea of multipurpose reefs and I can under-stand that at that time it was like, 'Dude we've just come up with a technology', that we feel like we've proved in Narrowneck, and the numerical modelling and all the work that we done. That would displace huge, huge, huge budgets that are gon-na go into hard coastal protection that we could grab a hold of. So, you know, the promise was pretty huge and the excitement from a perspective of coastal protec-tion was pretty, pretty big and it was probably, really, reasonably justifiable. What they probably didn't realize is ... and this is probably a tale of it that happens all the time; you know engineers just presume that the people and society will react in a certain way to a development or a new innovation. And they probably should have realized that that doesn't happen that way very often. (Interview with Tommy Hamilton, ASR)

10.2 Towards Multifunctionality – A Soft Option?

Promoting the reefs as a matter of surfing enhancement, versus framing them first and foremost as coastal protection, is also literally a material question, because it concerns the scale of the project necessary to achieve the desired effect. The coastal protection function of artificial reefs is based on an alteration of wave patterns which may lead to a stabilization of the beach. The objective is to stop coastal erosion by influencing the wave climate to keep more sand in the coastal system (or, in coastal science terms, to induce changes to the overall sediment budget). In theory, the additional sand will be deposited in the form of a salient, forming a wider beach, which in turn offers additional protection. Another possible application is to combine artificial reefs with beach renour-ishment in order to keep added sand on the beach for a longer time span, extending the period before the nourishment needs to be repeated. The surfing aspect is more compli-

cated to plan and realize and works on a different scale. To influence the coastal system in a way that has a measurable effect on the surf, the structure has to be specifically designed and, most importantly, be of significant size.

But what is it that makes artificial reefs count as a soft engineering approach? ASR explicitly promotes artificial reefs as a soft coastal protection method and claims to be "one of the few companies in the world developing innovative solutions for coastal protection that work in concert with natural processes rather than against them" (ASR Ltd. n.d.). Forming a wider beach, the argument goes, provides a natural form of coastal protection. As Dave puts it, "a wide healthy beach is your best form of coastal protection" (Interview with Dave Becker, ASR). While this is arguably achieved by manipulating natural processes, this intervention is framed simply as a matter of assisting nature, mimicking natural coastal dynamics or even improving nature. Dave Becker contemplates the question of how to define soft options:

> Yeah what is a soft option? Sand isn't soft either, you know. But I guess... from my perspective it's a soft option if it's not on the beach and it's not causing damage to the beach or elsewhere. If anything it's enhancing it, yeah that's where we got to. (Interview with Dave Becker, ASR)

Since the sociotechnical imaginary to 'work with nature', here understood as natural coastal processes, is such a strong objective for the company and part and parcel of its marketing approach, it seems important for ASR to ensure that artificial reefs are defined as soft protection in legal terms as well. However, in the context of recent coastal policy in New Zealand, the definition of artificial reefs has been subject to discussion. The now superseded proposed version of the current New Zealand Coastal Policy Statement (Department of Conservation 2008) listed artificial reefs as hard protection structures in a glossary of technical terms. Shaw Mead, ASR's technical director, wrote a submission to the statement where he argued that

> artificial, or 'multi-purpose' reefs are located offshore of the beach and are submerged – unlike hard protection structures, they are not built on the beach and are designed and built to address the causes of coastal erosion rather than the effects. Another important distinction is that they can [*sic*] and are usually built from sand-filled geotextile containers, which can be easily emptied and removed if needed, unlike rock or concrete structures they are not 'hard'. (ASR Ltd. n.d.)

Here, more arguments for the softness of the technique are introduced: its reversibility, and that it explicitly targets the causes of erosion. Or, as Tommy puts it, the aim is to protect the beach and not only the properties built next to it. A seawall might achieve

the same, but at the expense of the beach: "If a seawall works as intended you don't have a high tide beach. […] If you have a seawall and a high tide beach, you wouldn't have needed the seawall." (Fieldnotes 20./23.05. 2011)

Geographers J. A. G. Cooper and J. McKenna, however, argue differently. In their paper on "Working with natural processes: the challenge for coastal protection strategies" (Cooper and McKenna 2008b), they observe a continuum of approaches claiming to work with natural processes, spanning from what they call the "engineering perspective – the deliberate manipulation of the shoreline to satisfy human need/preference" to the "ecosystem perspective", which they characterize as "permitting sufficient space for coastal adjustment to changing natural circumstances" (Cooper and McKenna 2008b: 318, see Chapter 1). Quoting examples from the coastal engineering literature as well as from policy and coastal management plans, they observe a "range of visions of the concept of 'working with natural processes'" in coastal protection (Cooper and McKenna 2008b: 317):

> At one extreme […] is the aim to allow sufficient space for natural processes to operate […] while at the other is the construction of hard structures such as offshore breakwaters that are viewed as working with natural processes in the sense that the structure causes a change in the natural sedimentary dynamics […]. Between the two extremes are a range of 'soft engineering' approaches such as beach nourishment, artificial dune construction, beach drainage, saltmarsh creation that seek to augment sediment supply, enhance sediment accumulation rates or minimise erosion rates using human intervention in natural processes but avoiding permanent solid structures. (Cooper and McKenna 2008b: 318)

Beach nourishment is located in the middle, as one example for an approach that is "resisting natural trends with 'soft' engineering". While Cooper and McKenna do not explicitly mention artificial reefs, it can be assumed that they would actually classify them – in analogy to offshore breakwaters – as hard structures (though ones that still claim to work with natural processes and not against them).

In regard to ASR and the multipurpose reef approach, the disputed glossary entry was removed in the final version of the policy (Department of Conservation 2010). In any case, artificial reefs do substantially differ from other approaches framed as soft protection in regard to the amount of resources they require. Tommy explains the specificity of reef projects in comparison to managed retreat, but also dune restoration:

> It makes it come into an interesting dynamic because of the amount of resources that are needed, because of the understanding that's required and the degree of expertise that's required to make a multipurpose reef […] compared to 'okay we just buy your property and you move', you know. Or we revegetate the sand dune with

vegetation that's going to cause or induce better dune shape and sand retention when storms happen; all those sorts of things. The difference [is that] there's a quite a big jump if you think about the resources that are required and the investigation that's needed, between doing those sort of – for the most part – terrestrial soft options activities compared to building a structure offshore and under water […]. (Interview with Tommy Hamilton, ASR)

In terms of the scale of resources needed, soft engineering projects can easily equal traditional, hard engineering approaches. Even more so, artificial reef projects may require work in the design stages that tends to be more expensive than a conventional seawall design. Field data have to be collected to quantify the coastal morphology, currents and waves. This feeds into the modelling which is necessary to assess the feasibility of an artificial reef project at a specified location before a detailed design can be made. The construction phase is only the last step in this process; however, it is crucial as only a fully completed reef work may work as intended.

In contrast to land-based soft options, artificial reefs are expensive technologies. While coastal restoration activities are to the most part low tech, low investment and volunteer-based – "soft is what we can do ourselves", as Kingi Martens put it in Chapter 9.9 – artificial reef projects require investments of millions of dollars. Tommy emphasizes that the idea of using soft options often coincides with the expectation that these are less costly, in his example compared to groynes, structures that are built perpendicular to the coast to act as wave breakers and to retain sediment:

So yeah, it becomes a big jump between 'okay, well soft options are all good' and then you go, 'oh, okay but we need a groyne field budget to be able to give a groyne field similar outcome'. (Interview with Tommy Hamilton, ASR)

Not only is a considerable amount of money necessary, but the degree of invasiveness in the coastal environment might also be perceived as inadequate. Tommy explains how the construction process of an artificial reef might be incompatible with common notions of softness or 'working with nature':

It's [perceived by people to be] okay to design something that can be done with volunteers and there's a community involvement, but when you get all industrial and you build a big structure you're jumping up in resources, and the actual construction process is quite invasive on a beach. And […], there's no sort of getting around it and there's no sort of touchy feely, let's all go plant some sand dunes or do a beach clean up or […] architecturally design our house so it can be moved or whatever. (Interview with Tommy Hamilton, ASR)

From the perspective of the ASR company, the question of cost and the availability of (public or private) funds remains the decisive factor in regard to the future success of artificial reef schemes. But the technique is still experimental and would require significant investment to further develop and prove – "or otherwise!" comments Jim Dahm. In his opinion, none of the MPR projects so far has really delivered, though there might still be a chance for it to work – emerging technologies take a while to develop and perfect, you do not always get it right on the first few attempts. How to assess the promises of novel soft engineering approaches is also discussed in other national contexts. For example, a "Technical Advisory Committee on Innovative Erosion Control Measures" in the US state of Massachusetts observes that

> [i]ncreasingly, coastal property owners, engineers, and manufacturers are advocating for coastal protection approaches that incorporate the use of 'new and innovative' protection alternatives. Lack of actual performance and impact data, coupled with difficulties fitting such proposals into the existing regulatory framework, often make permitting difficult. (Coastal Hazards Commission 2007: 21)

The committee therefore recommends establishing a technical advisory body to evaluate and monitor such new and innovative protection approaches. To Jim Dahm, commenting on the situation in Aotearoa New Zealand, it seems unfair that in the absence of sufficient outside funding, the burden of financing these experiments lies with local communities who are not informed and also not aware that these are experiments that could fail. If they did know this, would they knowingly pay for this out of their own pockets? If it worked, however, this would be the first engineering solution without visible structures that could widen beaches instead of directly or indirectly shrinking them.

However, as long as there is no public money available for such experiments, proponents have to "sell" them to local communities or Councils in New Zealand and elsewhere, and people have commented that the multifunctionality argument might simply be used as a means to counter suspicions that MPRs are expensive protection devices for the rich. A multipurpose reef that enhances marine biodiversity, opens up tourism and surfing opportunities and creates a wider beach might be more easily framed as furthering the public good and therefore justifying public funding. ASR has repeatedly relied on locally organized trust structures, which not only lobby locally for the construction of an artificial reef, but also raise private and public funds towards the realization of the project.

10.3 Working Economically: Artificial Reefs as Coastal Development Projects

Orewa Beach is a coastal destination about an hour north of Auckland. The beach is very shallow and bordered by a row of houses sitting next to an eroding dune scarp. Here, I meet Mark Manning from the Orewa Beach Reef Trust, a local surfer and tourism marketing professional. Mark is doing a postgraduate degree in Economic Development and is working on a thesis about "Economic development opportunities using multipurpose offshore submerged reefs at Orewa Beach". Mark argues that for Orewa, "the beach is the asset", as two key sectors depend on it: the residential property market and tourism. Therefore, he says, an artificial reef could provide protection for economic opportunities that rely on safe, high-tide beaches, referring to a scientific study that found that every tourist at Orewa Beach spends an estimated 50 dollars per visit. He concludes:

> Knowing that the biggest thing that drives that market away is coastal erosion and so on, we can say for every ten thousand people that turned away, because there's no dry beach at high tide, we are losing half a million dollars. [...] The beach is our reason for being, you know. If we didn't have a beach we'd just be another inland farm community. (Interview with Mark Manning, Orewa Beach Reef Trust)

With this economies of scale calculation, he and the Trust have been able to raise about NZD 500,000 so far for the initial stages of the reef project, one quarter from the local Council and the rest from private investors – "the community's very supportive", Mark says. To construct the series of reefs the Trust envisages would, however, require a far bigger investment, but Mark is confident that once the project has gained the necessary resource consent, more private funds will be contributed by local organizations and individuals who have promised their support. With his objective to use the reef as an "economic development initiative", Mark explicitly links the project to earlier ASR projects, especially the Boscombe reef, the company's first artificial reef project in Europe.

A promotional video produced by ASR to promote the Boscombe reef also concentrates on the *economic* effects of the project, in this case an artificial reef primarily designed for surfing enhancement. The reef is presented as part of a successful strategy of urban redevelopment, with a derelict pier area converted into commercial and residential properties. This line of argument implicitly addresses the question as to if and how the investment in artificial reefs could be of public interest. In the UK case, the reef was financed by the local Council through the sale of Council-owned real estate and land.

Now, the story goes, a formerly deprived area is blossoming again, well-off people have moved to the area and the tourism industry (including surfing) is striving. While local media refer to economic benefits as well (Robinson 2010), they argue that the reef has not worked properly in a technological sense, as the reef has reportedly failed to meet seven out of eleven predefined criteria for surfing enhancement. ASR disputed the procedure of criteria definition and insisted that only the wave length did not meet the requirements (BBC News Dorset 2011); apart from that they blame the American management for its inability to deal with the press:

> There's videos and all sorts of stuff showing from our numerical and our physical modelling; it's doing what we promised. There's a bunch of local surfers and body boarders that have got their own websites and Facebook pages and the local retailers and the buzz of that whole place is amazing. So it has done everything that it should have, but for 14, 15 months now, as far as the rest of the world is concerned, it's a failure. And that has been solely, from my perspective the inability of our Venice [Beach] office to do anything about it in terms of managing the mass press. (Interview with Dave Becker, ASR)

Another critical point for ASR is that the media did not pick up their definition of the project as a coastal protection measure, which shows that the general framing of artificial reefs as multifunctional can also work against the company's interests: "The articles that came out you know, it was all about the surfing, even though this one was primarily for coastal protection, and how it had failed." (Interview with Dave Becker, ASR)

Since Mark is also framing his project in terms of economic advantages, the negative press coverage of the UK reef project is an immediate concern for him, too:

> This has been part of the problem, […] it's annoying and it's unfortunate because it's badly reported and we've been very mindful to look at all those projects and see what's going on, absolutely, we have to. And I've got absolutely no concerns about any of them because I understand it. And this will be the problem in the submission process. We'll get a whole lot of people that will make comments based on what they've seen in the press, without actually understanding what's going on. (Interview with Mark Manning, Orewa Beach Reef Trust)

Mark argues that the crucial point will be to have enough money to build the reef project to completion, which has proven problematic with some of ASR's earlier projects. But, he insists that the UK reef works in an economic sense. Referring to a telephone interview with a Bornemouth City Council representative, Mark elaborates:

> In terms of what it did in town regeneration and economic regeneration, it's been massive and that whole Boscombe Spa project attracted £84,000,000 worth of out-

side investment […]. And that's a good reason to do it, you know? Socially, economically, well demographically it was a very low area and they used to send a lot of the methadone users and junkies out of London down to get them out. So it had real social issues; alcohol, drug abuse, that kind of stuff. […] It was a really dilapidated place, wasn't somewhere it was safe to be. Now, after the reef project, and the chine gardens and all they did, he said to me, 'look, the magic ingredient was the reef, that kinda captured the imagination of people and gave confidence that we were doing something that started bringing all this investment'. We've got cafes along there, they've got the Reef Restaurant, they've got all these apartments and stuff, heaps of people coming down there. The visitor market's gone from 4 weeks a year to 52, which is just unreal. I mean that's just bizarre stuff. And crimes, reported crime, according to the police, is down by 40 percent. They've got universities bringing kids down there to do, kind of healthy outdoor activities. […] And basically that's a screaming success. (Interview with Mark Manning, Orewa Beach Reef Trust)

Not only that – according to Mark, the "Brits" see the project as a way to import the lifestyle of New Zealand and Australia to Europe. However, the UK reef has not been active very long. In May 2011, less than two years after its official opening, the reef had to be closed again after it was damaged by a boat propeller (BBC News Dorset 2011; Williams 2012).

After that the project got caught up in other turmoil. Already in 2009, ASR founder Kerry Black had sold his shares to a US American investor and retired to Australia. The rest of the ASR team left in 2011, and founded a new company with a similar portfolio; ASR went into liquidation and did not fulfil its obligations to repair the damaged UK reef. In late 2013, Bornemouth City Council was reported to have received insurance payments that will allow repair and reopening of the reef (Williams 2013). Whether the reef has had a positive economic effect remains a subject of discussion and ongoing academic research (Plymouth University News Centre 2012). The Orewa Beach project has not been pursued further after the consent application for the project was publicly notified in August 2011 (Fairfax NZ News 2011; Thompson 2011).

Before the company ceased trading, it had been looking into other markets for MPRs. In Kovalam, Kerala, a reef project for coastal protection and surfing enhancement has been realized using funds from a Tsunami Rehabilitation Programme (TRP) provided by the Indian central government (Radhakrishnan 2010; The Times of India 2010). The local NGO Kerala Tourism Watch critiqued this as a diversion of Tsunami relief funds towards tourism development and campaigned against the project, arguing that it should not have been realized, at least not without a prior Environment Impact Assessment (EIA), Social Impact Assessment (SIA), or Fisheries Impact Assessment (Abraham 2010). The NGO criticizes what they perceive as aggressive marketing, inap-

propriate mixing of public and private interests and missing independent monitoring:

> At the same time the New Zealand based MNC [multinational company] ASR Ltd. and Kerala Tourism department are engaged in aggressive propaganda and lobbying for more reefs, highlighting the Kovalam artificial reef as a replicable model. The Kerala Tourism preaches on their website that this technology could be used in other locations in India. The ASR Ltd. Company in their blog [is] advertising that 'the monitored results of Kovalam Multipurpose Reef, released by Kerala Tourism, indicate that it is a success'. This published report in the Kerala Tourism website is prepared by ASR Ltd. Company and not a scientific and independent report. The Kerala Tourism misused a government website for the promotion and recommendation of a failure model for a private Multinational company. Someone can read this in the context of the recent Coastal Protection and Management Project Report worth thousands of crore rupees, suggesting reefs as a major portion of the solution for coastal protection/restoration and management in coastal areas of the country prepared by ASR Ltd. company for Asian Development Bank (ADB). The groups in Kerala [are] demanding an enquiry and an appropriate action against the officials who misused their designation for the promotion of an unproved method for a private company. (Abraham 2010)

The protest has also been supported by a UK-based NGO (Abraham 2010). ASR on the other hand used images of local fishermen and a working elephant employed for the reef construction, joining forces in what they promote as a sustainable development project.

10.4 The Future: Managed Advance?

Another major market possibility for artificial reef projects might be found in neighbouring Australia. As mentioned before, the limited success of surfing reefs – attributed to insufficient size – is also a factor of the scale of the investment. A reef for coastal protection alone does not need the same volume – it is not as expensive as a structure that is meant to create surfing waves. The New South Wales (NSW) coast is characterized by many highly developed urban and suburban beaches with popular residential areas and tourist destinations. While coastal erosion is a problem at many sites, there has also been protest against hard protection measures in the past. In Narrabeen, a coastal suburb of Sydney, local residents and members of the Surfrider Foundation successfully organized a human "line in the sand" against the planned construction of a seawall in 2002 (Smith and O'Rourke 2002). At the same time, the State government has officially defined "erosion hotspots" (State of New South Wales Office of Environment and Her-

itage 2011) and some Councils have started to implement Planned Retreat policies (Byron Shire Council n.d.).

While looking for possible alternatives, lobby groups from three of these hotspots have contacted ASR to explore the possibilities of constructing artificial reefs for coastal protection, and the company director has travelled there to promote the MPR in form of "workshops" organized by the local proponents of the reef idea. These are well-off coastal communities that are able to raise the 35,000-50,000 NZD which ASR charges for a preliminary study (the price can rise up to 100,000 NZD in cases where no data from previous studies is available). Consequently, ASR has discovered the Australian coasts as a possible new market. This not only includes NSW, but also other states:

> Western Australia is probably one of the best places in the world for multipurpose reefs. There's more surfers per capita than anywhere else in the world, they have a very exposed coast and a very small tidal range; there's millions of natural cases of salients and you don't need to over-engineer and put rocks all up and down your beaches, so yeah we'll see how we go with Western Australia, [...] you know, it's that integrated approach of looking after your beaches. (Interview with Tommy Hamilton, ASR)

As in Orewa Beach, the collaboration with local lobby groups allows ASR to indirectly promote its services while referring to the projects as community-based initiatives. This is another important building block in the company's self image as a responsible business, and underlines the softness of its methods by stressing its social grounding, even though the construction process is high-tech and the costs involved difficult to meet for most communities. Blackett et al. discuss several New Zealand case studies of local initiatives for coastal erosion management and show how some community groups are often essentially lobby groups for minority interests of beachfront property owners (Blackett et al. 2010).

The potential NSW clients are targeted with a new catch phrase for the MPR technique: "managed advance". Against the backdrop of emerging policy instruments pointing to managed (or planned) retreat from eroding coasts, the ASR company promotes artificial reefs as a means to reverse the trend, to widen the beach and not to give in to natural processes. This echoes the widespread protest against managed retreat policies – as it was encountered, for example, with regards to the Waihi Beach seawall controversy discussed in Part II. Such a line of argument however seems to be a partial departure from the "working in concert with nature" theme, and opens up the possibility to close

the ranks with concerned property owners – the most promising set of potential customers in the absence of concerted state action or funding of coastal protection measures.

ASR is not the only player in the soft protection business who seeks new opportunities vis-à-vis emerging managed retreat policies. Holmberg Technologies Inc. based in Florida, for example, offers a patented technique named Undercurrent Stabilizer™. On his website, the company director Dick Holmberg explicitly counters arguments for a managed retreat strategy brought forward by marine geologist Orrin Pilkey, Professor Emeritus of Earth and Ocean Sciences at Duke University in North Carolina. Pilkey is a well-known opponent of hard protection measures and part of the emerging international community of practice promoting soft protection. He got involved in some controversial cases, most prominently at North Top Sail Beach in North Carolina (Lehmann 2013), where he argues that managed retreat would be the only viable option.

Pilkey believes that there has already been some progress made by those promoting the idea to retreat, especially towards the position represented by the US Army Corps of Engineers. This federal agency is responsible for publicly funded structural coastal protection projects in the US, and also defines common procedures in its Coastal Engineering Manual (CEM) (U.S. Army Corps of Engineers 2002), which is referred to by private sector engineers world-wide. In a documentary produced by the Santa Aguila Foundation and accessible via its website "Coastal Care", Pilkey argues that the Corps had already started to reconsider its position towards managed retreat:

> We're talking about retreating from the shore, 20 years ago that was unpatriotic, unamerican, for God's sake. And so, and it really was. For the [….] US Army Corps of Engineers, which is supposed to make the decisions about what to do about our beaches and so forth, for them, retreat – of course, they're in the army – retreat is unthinkable. So […] we have made good progress and the Corps really has to really evaluate the retreat alternative, when they look at what do to about a beach. (Orrin Pilkey in Santa Aguila Charitable Trust 2010b, 17:15)

Dick Holmberg however promotes his beach stabilization technique as a way out of the cul-de-sac of hard protection or managed retreat:

> One area where both Pilkey and the [Army] Corps [of Engineers] agree is that you can't work proactively with natural sedimentological processes. Pilkey claims we should retreat from a 'naturally' migrating shoreline. The Corps fights what it calls 'natural and inevitable erosion' by armoring the coast (which exacerbates erosion) and by throwing more and more dredging at an erosion problem that simply did not exist before dredges began altering seabeds. (Holmberg Technologies 2010)

ASR employee John Green takes a much more pragmatic stance. He argues that since managed retreat is unlikely to be politically viable in many locations, MPRs are at least "softer" than hard measures. Instead of arguing for MPRs as a direct alternative to managed retreat, his argument for the ASR technology rests on the grounds that it can prevent the use of hard protection:

> There's places where they just will not give up their land, they will not allow the ocean to advance on their shores any more than it already has, you know. [A] lot of people just don't want to give in, you know, and give up. But you're drawing a line in the sand and telling the ocean it can't go beyond that line, and that's a really, really hard thing to do, so while man still exists and man still loves to be near the ocean, there's still gonna be issues, you know, and they're still gonna try hard structures to protect the coast. Hopefully we're on the side of the soft, softer options and we can ride that wave. If there is a wave towards those softer options then yeah I think we're on the right side. (Interview with John Green, ASR)

The now liquidized ASR company did not succeed in building a new market in NSW. However, the successor company eCoast may still pick up the thread. It remains to be seen how this new company will frame the technology in the future: as surfing enhancement, as multifunctional, or primarily as a coastal protection measure. In 2012, shortly after the new company was formed, the eCoast website claimed that

> [a]ll of the MPRs built with the primary purpose of coastal protection have proved very successful, and have also enhanced the local ecology, beach amenity and socio-economic situation (eCoast 2012).

Multipurpose reefs are described as "a form of coastal protection for exposed coasts that incorporate environmentally sensitive function and ecological, amenity and socio-economic benefits", but without the mentioning of surfing aspects, although "surf science and surf break management" are defined as central areas of expertise on the company's home page. The basic principles of the MPR approach are outlined as

> applying modern coastal science and engineering principles which work within the existing coastal processes (rather than against them), [and] developing eco-recreation opportunities which are beneficial to the lifestyle and health of communities (eCoast 2012).

In 2015, the webpage is still active, but no longer directly accessible. Do multifunctional reefs still have economic potential as soft protection? Jim Dahm underlines that

> [t]here are […] significant questions around whether it is really practical to achieve cost-effective outcomes in terms of both erosion protection and enhanced surfing amenity – that the requirements for these outcomes are too different. At the moment, the technology is struggling for credibility and they need to make sure the

next 2-3 projects are constructed as designed. Another couple of high profile failures […] will set the idea back a decade or two. (Jim Dahm, pers. comm., 11.03.2014)

Even though largely carried out by volunteers, dune restoration is also connected to the market – serving as an entry point for people looking for paid labour, as a niche market for "voluntourism" (Callanan and Thomas 2005), and as a general motor for the promotion of soft protection technologies. The reef technology discussed in this chapter however plays in a different field in terms of the scale of necessary financial and other resources. High investment costs and the absence of public funding make artificial reefs a soft coastal protection technology for the rich – and its novelty and experimental character leave it vulnerable to setbacks and failures. At the same time, the interest the approach has attracted from investors might be seen as another indication that soft protection technologies are gaining momentum, also in business terms.

The multipurpose reef approach relies on coastal science knowledge as much as surfers' ethics, which both feed into the goal of working with natural coastal processes. It provides another example of how the sociotechnical imaginary to 'work with nature' emerges through practices of making coastal natures. The practices and discourses of soft engineering draw upon the relatively young discipline of coastal science (Schwartz 2005: 1099) and use computer modelling and 3D animation technologies adopted from other fields to understand and mimic natural processes. Through this, nature becomes legible in a scientific sense, and open to practical encounters and tinkering. While the progress of scientific knowledge alone is – contrary to the hopes of some commentators (Pilkey and Hume 2001) – no guarantee that the 'working with nature' imaginary will take hold and acquire the discursive and practical power to influence the future politics of the coast, science is nonetheless one of the most influential modes of making claims of how the world, and thereby coastal naturecultures, ought to be ordered.

Conclusion:
Working with Nature, Making Coastal Naturecultures

"[N]atures […] are often unfinished matters." (Hinchliffe 2008: 95)

The increasing popularity of soft protection approaches challenges established ways of defending the coast. In a world altered by climate change and in search of more sustainable avenues into the common anthropocenic future, an emerging sociotechnical imaginary reenvisions coastal protection: 'to work with nature – and not against it'. Instead of eternally fixing the boundaries between land and sea and securing them by all means, the practices of soft coastal protection allow for more flexibility and openness to fluctuation and change. These practices are necessarily place-bound and embedded into specific figurations of different actors, material objects, living matter, legal frameworks, scientific discourses, and further important imaginaries addressing questions of nature *and* culture. The empirical work of ethnography can make the issues at stake visible and show the investments and work involved in soft protection projects of different scale. It can also assist those engaged in such practices to enter a conversation on common goals and initiatives by providing context through the ethnographic work of connecting, juxtaposing, and comparison. Bringing theory to the field can open up new conceptual spaces for actors imagining and practicing nature, proffering opportunities to consider what nature it is that they want (Hull and Robertson 2009).

Even where soft protection is not yet realized, the 'working with nature' imaginary frames how people discuss possibilities for transitioning to a different coastal protection regime and the obstacles faced for the time being. In the case of the Waihi Beach protection scheme analysed in the opening of the book, residents, scientists and consultants collaborated to achieve a solution beyond hard protection – but they did not succeed. The community of practice involved, made up of locals, practitioners and coastal policy-makers, felt that "the science has been done", that neither scientific arguments nor the already existing political frameworks were sufficient to support a soft solution. But still, the conflict has changed the local environment, with ratepayers questioning the legitimacy of the Council's rule and local Māori exploring possibilities to better voice their opposition to hard structures on the beach assisted by a four-pillar model of sus-

tainability that includes cultural aspects into resource management policies. Furthermore, there is hope that the seawall's materiality and sheer unsightfulness may become enrolled into a different coastal policy in the future. In this way, the case illustrates the coproduction of natural and social orders emerging from the practices of coastal protection as a complex process involving more than just human actors.

The controversial Waihi Beach coastal protection scheme also included the construction of an artificial dune very similar to the methods successfully used by dune care advocates in other locations – but in Waihi Beach, it utterly failed. This failure shows how important the role of human labour and acceptance of the project is, but also how the material forces of the coastal environment need to be counted in. The Waihi Beach dune was a technical failure: it was washed away shortly after it was planted, probably due to the insufficient room provided in the neat strip between people's properties and the tide line, because the quantity of sand used was too small and the project did not include the necessary maintenance effort of repeated sand application. But it was also a social failure, because the local Coast Care volunteers strongly refused to donate their labour force only to become enrolled into a project they perceived as a co-optation strategy eventually aiming to stabilize the seawall scheme. With this perspective, they found themselves in rare agreement with their antagonists from the local hard protection lobby group who called the dune enhancement "a sob to the greenies".

This non-participation needs to be understood in light of New Zealanders' remarkable willingness to contribute extensive volunteer labour, including the widespread engagement in nature conservation groups like Coast Care. In the second empirical part of the book, I looked at exemplary practices of caring for the coast, many of which are being carried out by volunteers. When it comes to dune restoration, 'working with nature' approaches in fact involve a massive amount of human work, mostly provided by Coast Carers and other volunteers. The economy of volunteer labour enrolled into Coast Care projects is crucial for them to be realized and maintained, and makes them economically feasible in the first place. This workforce consists not only of a large constituency of senior residents that want to take things into their own hands and "do their bit" in the quest for sightly and functional dune environments, but also people looking to gain qualifications that might help them to enter or re-enter the formal job market – because they are unemployed, have difficulties to fund expensive tertiary education programs, or in the case of international volunteers, are part of a highly mobile percentile of well-educated young people who try to distinguish their CVs from competitors by ways of

overseas volunteering experience. Large-scale dune restoration projects also rely on labour provided by people in the criminal justice system working on periodic detention schemes. Their labour force is used to free large areas of dune land from infesting weeds and thus provide emptied, easy-to-plant dunes for unexperienced volunteers, especially the many school groups enrolled in the Coast Care program.

Throughout the chapters of part III, I described a diversity of nature-making projects, ranging from do-it-yourself coastal protection by coastal property owners to local authorities removing people's gardens encroaching onto the dunes, and from conservation projects enrolling unemployed Māori youth to surfer-scientists and their business of selling artificial reefs. While these projects follow different internal logics, they all connect coastal management practices to the sociotechnical imaginary of 'working with nature'. Here again, coastal protection projects are producing and reproducing social as well as natural orders. Where dune restoration projects – in the scope of Coast Care and beyond – function as do-it-yourself, cost-effective approaches to erosion control, they rely on people accepting erosion as a natural process. 'Working with nature' in this regard means to work with an environment in constant flux, with the advantages of using dune restoration as a soft protection technique making up for it not settling things once and for all. While dune restoration comes with low initial financial costs, especially if compared to hard structures, ongoing maintenance is required. Dune scrapings might need to be repeated after major storm events, and besides the ongoing maintenance work of pest control, coastal vegetation that has been washed away by the sea has to be replaced regularly: "sacrificial plants", as the owner of a native plant nursery calls them. But still, people accept this approach and make it work.

The Papamoa Beach encroachment project shows how dune restoration is used by the local Council as a means to reclaim the dunes as a public space for nature. The project reinforces property boundaries by removing privatized garden spaces and reinstalling a dune ecosystem. At the same time, the public space of the beach is tied to a right state of coastal nature that features native sand-binding vegetation and functional dunes, and not the pretty garden flowers introduced from elsewhere. The public interest of the project is underlined by the enrolment of school children, while ironically, the enforcement of boundaries is reflected by the massive use of periodic detention workers who are sanctioned for their own overstepping of (other) boundaries.

While the initial goal of coastal erosion control remains the prime motivation for many Coast Carers, especially beachfront house owners subscribing to dune restoration

approaches, another interest has emerged in the field, attracting increasing attention. Connected to what I have called the imaginary of 'reconstructing native nature', the primary goal of many dune restoration projects is now the reintroduction of a specific Aotearoa New Zealand coastal nature. As such, Coast Care has become part of a larger development, with the bicultural nation of Aotearoa New Zealand coming to terms with its native nature and culture. A clear departure from earlier attempts to acclimatize (Star 2009), that is to deliberately introduce species into the (post)colony, the progress of native plants over the last few decades coincides with the cultural and political renaissance of indigeneity in Aotearoa New Zealand. The emerging interest in native nature can be understood as a symptom of a changing national identity not only for those who identify as Māori. In the process where biculturalism emerges as the distinctive feature of Aotearoa New Zealand, native nature becomes an important signifier of a desirable common future for the nation.

The multipurpose reef approach is also visionary in its own sense. While soft approaches based on dune restoration techniques can be achieved with relatively simple technological means and rely mostly on physical labour, soft engineering approaches can have very high entry costs: an investment into expensive and often still experimental approaches whose merits are yet to be proved. The artificial reef developed by the ASR company relies on recent technoscientific progress: the rise of coastal science, the invention of novel geotextile materials, and advances in computer modelling technologies and 3D graphics. The example shows that the 'working with nature' approach thwarts across categories like low and high tech. Here, nature is understood through scientific means, with the goal to subtly manipulate, mimick and enhance it, producing better surfing conditions, broader beaches, and marine habitat. The way to achieve this is found in the understanding of root causes, or underlying mechanisms of sediment distribution, and dealing with them by harnessing natural processes to the desired end. However, nature is not limited to numbers and functions alone here. An environmental consciousness built on the shared experience of surfing provides another layer of tacit understanding of nature for the proponents of the artificial reef company. The multipurpose reef approach still constitutes an open field of experimentation, and it remains unsettled if it will eventually work in political, technological and economic terms. However, the idea is persuasive exactly because of its promise to work "in concert with natural processes" (ASR Ltd. n.d.) on a larger economic and technological scale and with reference to scientific progress.

Looking at the scope of examples discussed, the ethnography of soft coastal protection opens up for analysis the coproduction of coastal nature in Aotearoa New Zealand. People's shared practices are coproductive in the sense that specific naturecultures are resulting from the material practices of engaging with, caring for, and making natures at the coast – like do-it-yourself coastal protection, the reconstruction of native natureculture, or the development of artificial reef technologies in concert with nature. These naturalcultural assemblages are orders of nature and culture, with material and symbolic qualities. They are evidence to what people believe is the right way to interact with the coastal environment as much as they are outcomes of the endless redistribution of material through the coastal system, the growing and dying of plants, and the effects of returning storms. The sociotechnical imaginary of 'working with nature – and not against it', while potentially of global extension, becomes adopted and adapted as a framework for thought and action only by means of its entanglement with other important imaginaries defining the common future of Aotearoa New Zealand. These address not only the right state of nature – accessible as the public space of the beach, equitable in remembrance of the national beach bach myth, native as found by the European explorers and colonizers, and unspoiled, providing the scenic views and nature experience that New Zealanders perceive as their birthright (Kearns and Collins 2012; Phillips 2012). They also legitimize certain forms of human engagement in coastal nature: the hands-on, physical volunteer labour needed to maintain the distinctiveness of Aotearoa New Zealand as a country, an understanding of local Māori that defines soft as what they can achieve without the outside interference of Pākeha engineers, or the connection to the coastal environment born out of the daily immersion of surfer-scientists into the sea.

However, in spite of this diversity of practices, and arguably multiple naturecultures emerging from them, the immediate appeal of the sociotechnical imaginary of 'working with nature – and not against it' relies at least partly on the implicit idea of a singular, universal nature. What others have called "capital-N Nature" (Hinchliffe 2007; Tsing 2005; Castree 2005) locates nature firmly outside the social and political sphere. Nature can then serve as an expression of how the world should be ordered ideally. Similar to what Cooper and McKenna (2008b: 315) observe in relation to the overwhelmingly positive connotation of the term "protection", it is difficult to construct an argument to explicitly work against nature. 'Working with nature' provides this community of practice with a vision and a mission, with a motivation that easily translates into practice

and is a driver for positive change. Seen from the point of view of those who promote soft protection, hard structures are not a viable approach to coastal protection because they too often entail the loss of sandy beaches. Related to this, hard protection does not offer a desirable future. This combination of description and prescription characterizes sociotechnical imaginaries as collective imaginations of the common future (Jasanoff and Kim 2009; 2013; 2015).

Anna Tsing has observed how the universal idea of global Nature connects to situated projects of "making and remaking the variety of small-n nature" (Tsing 2005:112). There remains a tension between different effects of generalized Nature, providing inspiration and covering up exclusions at the same time:

> "Global Nature both facilitates and obscures worldwide collaborations. […] Global Nature can inspire moral views and actions. […F]orms of global Nature are resources for everyone involved in using or advocating for the environment. They make it possible to make claims for Nature, and for the globe. The cultural specificity of their universals does not, in itself, make them wrong. However, claims of universality do make it hard for us to see just who can imagine themselves inside, and who is out. (Tsing 2005: 111f.)

This is productive, but difficult terrain. Throughout the book, I have argued that coastal protection practices form a politics of nature. Taking Steve Hinchliffe's claim serious that nature writ large is losing its persuasiveness as a political shortcut – or, as he puts it, "Nature doesn't seem to be working as a rallying site for everyone and everything anymore" (Hinchliffe 2007: 188; see Lorimer 2015), I believe that those working towards a transition in coastal protection regimes can profit from making explicit what nature(s) they are working towards, who is legitimately included into their projects, and why. I do not want to delimit the enabling role of the sociotechnical imaginary 'working with nature' in framing the politics of coastal nature and soft protection, especially since it has been shown to be sufficiently open to include more specific claims to natures situated in the Aotearoa New Zealand context. However, I suggest to think of 'working with nature' as the expression of a strategic naturalisation. I take this concept from the anthropology of reproduction, where Sarah Franklin and others have observed "processes of naturalization, de-naturalization, and re-naturalization" (Franklin et al. 2000: 9f.) in the context of assisted reproduction. Charis Thompson (Thompson 2001; 2005) refers to "strategic naturalizing" in her analysis of a complex "ontological choreography" carried out in order to make the Euro-American principle of biological kinship fit with the possibilities of new reproductive technologies. By highlighting some connections,

downplaying others, these practices eventually produce parenthood as socially *and* naturally grounded.

My own observations on the 'working with nature' imaginary in the politics and practices of soft coastal protection could be seen as evidence to a strategic *naturalization of nature* happening in the field. Importantly, the interventions I deal with come from relatively powerless positions: people that want to transition to a more sustainable coastal future in an environment affected by economic interests in coastal space above all. However, referring to Nature as a beacon for a more sustainable future, I would argue, requires some mindful attention to actual practices and the rationales guiding them, given Nature's potential to foreclose political discourse. Towards this end, combining the heuristic of sociotechnical imaginaries with a sharpened focus on nature as practice allows us to analyse the potential multiplicity of natures resulting from approaches that aim to 'work with nature – and not against it'. My experience with translating theory back to the field – briefly discussed in Chapter 2 – showed that people in the field perceived opening up the blackbox of Nature also as enabling, not limiting. To the contrary, theoretical inspiration has been welcomed as a vehicle to think more explicitly about how material practices are framed by imaginaries of what one finds are desirable coastal natures.

Cracking open the underlying concepts of nature can then become an analytical tool that opens up space for a critical investigation of related practices of naturemaking and the politics involved. The 'working with nature' imaginary can be used to different ends and by different actors, and that includes powerful ones pursuing strategic goals. Looking into possible futures, there are signs that the idea of green infrastructure will get more traction and attention in the near future (NYS 2100 Commission 2013; European Commission 2011; The Nature Conservancy 2013a/b). A prominent example is the NYS 2100 Commission's suggestion for infrastructure restructuring in New York State post hurricane Sandy, which includes soft coastal protection elements. And departing from a logic of compensation for the destruction of environmental damage caused by infrastructural projects, concepts like the "Working with Nature" position paper of the port development lobby (PIANC 2011) or "Building with Nature" by the Dutch Ecoshape consortium (Ecoshape 2012; Deltares 2013) argue that nature can be enhanced by development and construction projects that have restoration aspects included from the start. Infrastructure engineering is said to potentially lead to a net gain in environmental value, making for more, or better nature than before – nature enhanced, and

not compromised, by human intervention. Such projects are consequently presented as "a unique opportunity to induce positive change" (Deltares 2013). Importantly, the argument relies on a concept of nature that is compatible to understanding natural and social worlds as coproduced, with the assumption that "man-made projects are an inherent part of the environment" (ibid). At the same time however, the agendas quoted above once again draw legitimizing power from capital-N Nature for the interventions they propose.

Given that instead of one Nature there are always specific tangible natures in the plural, a closer empirical look at actual projects can show how ideas are translated into naturecultures – sometimes making a difference to established practices, sometimes continuing the same under a different name. The analysis of practices framed by the 'working with nature' imaginary or other emerging concepts like soft engineering or green infrastructure will be useful to figure out what is actually done by whom and how, what the outcomes are, who profits and who or what is left out of these projects of nature-making (Hinchliffe 2007: 186). This way, theory can make a real difference: as a tool for people to make sense of the world, and to understand and critically engage with the practices and politics of nature emerging from the manifold projects happening on the ground.

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42. Jim Dahm* (together with Michael Flitner), Thames, 04.09.2011
43. Toby Waters, Wainui Beach resident, 07.09.2011

44. Jasemine Baker, Papamoa Beach Coast Care, 18.09.2011
45. Walther Smith, Papamoa Beach Coast Care, 29.09.2011
46. Linda Pierce, Bay of Plenty Regional Council, 03.10.2011
47. Shawn Schiller, Port of Tauranga, 04.10.2011
48. Manawa Roberts, Te Tumu Land Trust, 04.10.2011
49. Tūhua Brown, Te Rūnanga O Ngāi Te Rangi Iwi Trust, 06.10.2011
50. Taika Rogers, Matakana Island community nursery, 07.10.2011

Interview Minutes

1. Haumoana beachfront resident, 22.03.2010
2. PD worker, 01.07.2011
3. Keith Kendall, BOP Coast Care contractor, 03.07.2011
4. Silvie and Tane, Ohiwa Coast Care, 03.07.2011
5. Jennifer, Eva, Elisabeth, Conservation Volunteers New Zealand, 02.08.2011
6. James Herbert, Bay of Plenty Regional Council, 19.08.2011
7. Sven Dahlson, Gisborne Disctrict Council, 07.09.2011
8. Matemoana Johnson, University of Waikato, 08.09.2011
9. Mokau Spit Camping Ground manager, 24.09.2011
10. Te Puna Tutereinga marae elder, 03.10.2011
11. Peter Jackson, Whangapuoa Ratepayers Association, 05.10.2011

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