WHALES AND WIND FARMS

Towards a Poetics of the Sea in the Twenty-First Century

Thesis submitted for the award of Doctor of Philosophy by

Tomas Buitendijk

BA (Hons), MPhil

Supervised by Dr. Michael Hinds

School of English

Dublin City University

June 2021

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work, and that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed:  ID No: 17213569 Date: 25/06/2021

In memoriam Gerda Buitendijk-de Rijke (1963-2019)

‘But the writer knows something no-one else knows; the sea-change of the imagination.’
- Nadine Gordimer, *Loot and Other Stories*

Table of Contents

Table of Figures

Note on Style

This thesis follows the guidelines of the 7th edition of the Modern Language Association (MLA) Handbook for Referencing and Style, rather than its most recent (8th) iteration. The reason for this is that the former pays greater attention to bibliographical detail, including publication format and location, and allows for differentiation between works by the same author using the year of publication rather than an abbreviated title.

Abstract

Tomas Buitendijk

WHALES AND WIND FARMS
Towards a Poetics of the Sea in the Twenty-First Century

The aim of this project is to contribute to and stimulate the growing body of academic work being carried out within the Blue Humanities by developing a 'poetics' of the twenty-first century sea. The thesis defines these poetics as the accurate representation of present-day and near-future marine environments, validated through reference to their manifold contemporary expressions: physical reality, news reporting, and (critical) theory, but also fiction, film, installation, music, painting, poetry, and sound recording. The forward-looking aspect of the thesis ultimately results in the outline for a model for cross-species saltwater cohabitation: the 'multispecies marine society'. The discussion begins by revisiting such concepts as 'society', 'citizen', and 'culture' in the context of a new critical appreciation of the shared physicality of human beings and non-human marine beings and environments. The thesis builds on these findings to demonstrate the value of situating the totality of marine actors in a network configuration. Following this reappraisal of the modern seascape, the project draws on the work of a number of key authors – Stacy Alaimo, Karen Barad, Donna Haraway, Bruno Latour, and Anna L. Tsing – to describe the world-building, or sea-defining powers of storytelling. It also establishes the importance of key ecofeminist principles in recalibrating the relationship between humanity and the sea, and calls for acts of remembrance and reconciliation with respect to past and present injustices inflicted by humans on non- and more-than-human marine others. Finally, the validity of the concept of multispecies marine society is tested through juxtaposition with the stark reality of ongoing environmental degradation; it is found that cross-species saltwater 'becoming' holds promise no matter the circumstances, and today more than ever before. This helps the thesis maintain a pragmatic view of the disappearance of familiar seascapes: in their place comes a multispecies ferment of possibility.

Introduction – Wandering Whales[1]

Interrogating Contemporary Representations of the Sea and Marine Life

In October 2018, a short video was circulated by a number of Dutch media outlets. While carrying out repairs on a wind farm some twenty kilometres off the coast of IJmuiden, North Holland, engineers working for energy firm Eneco had captured a rare sight on camera: at a distance of a few meters, a young right whale was swimming between the wind turbines. The resulting imagery – of a large mammal slowly manoeuvring through an obstacle course of half-submerged metal installations – is remarkable. The difference between the whale and the wind farm could not be greater, yet both seem equally at home in their watery environment. Near the end of the video, the whale approaches the shadow cast by one of the turbines, and for a split second it seems as if the two might blend into one. The Eneco engineers are delighted with this and cheer the mammal on to their hearts' content. 'It's a dolphin!', one of them yells. Everyone laughs. And: 'It's giving us a show!'. Someone adds that they have 'only ever seen whales on the beach before' (NOS 2018). This final comment might not be far off the mark: the right whale is virtually never seen in the North Sea, and it is quite possible that this particular specimen has veered off course due to changed water temperatures or noise pollution (cf. NOAA; Pirotta et al. 2018). As a result, the animal has ended up in a space unlike anything it has ever seen before. Human ingenuity has leveraged the marine environment in a display of technological prowess, and one might justifiably ask if the whale will ever make it out of this maze alive. The young mammal is hardly 'giving a show' to the audience of engineers; it is simply struggling to survive.

Fast forward to late April 2019, when another cetacean makes the headlines. Norwegian fishermen in the coastal village of Inga report a number of encounters with a beluga whale that is following their boats and upsetting their fishing nets. The whale is otherwise tame, seems used to contact with human beings, and comes equipped with a harness that researchers say could be used to mount a camera or even a weapon. When the device is removed, an inscription is discovered that reads: 'Equipment of St. Petersburg'. Notwithstanding the utter simplicity of the harness, which is really little more than a belt, allegations are quickly made. It is suggested that this whale could be part of some Russian bio-special-ops programme similar to the ones run by the Soviet Union in the 1980s. The fact that the beluga whale purposely seeks out fishing boats and disturbs their gear indicates it might have received 'military-grade training', researchers say (Ellis-Petersen 2019). All

[1] The first paragraph of this introduction was published in revised translation in De Volkskrant, with the title '"Spelende" vinvis wilde alleen maar overleven' (Buitendijk 2018).

allegations are swiftly rejected by the Russian navy (Henley 2019). One of their partner organisations, the Murmansk Marine Biology Institute, did run some tests with seals, dolphins, and beluga whales in recent years, but the latter species were dropped from the programme at an early stage. They were found useless for military purposes, lacking both the '"high professionalism"' of seals and their indifference to cold water (Ellis-Petersen 2019). There is little anyone could hope to achieve by continuing to train them.

The 'wandering whales' in these two examples raise any number of questions on contemporary human engagements with marine environments. What does it mean when the wildly different worlds of nature and twenty-first century human culture and technology meet? What informs the behaviour of the various actors involved in these incidents: engineers, scientists, whales, turbines, dolphins, fishing boats, and the sea itself? And what is the influence of the forces looming in the background: of neoliberal capitalism, global warming, the green energy movement, international politics, and the military-industrial complex? Simply put, what on earth is happening out at sea? These questions are urgent, but their answers have largely failed to materialise, both in immediate response to the two incidents and in a more general sense. Natural-scientific and social inquiries into the marine biosphere may have proliferated, but critical scholarships on the sea-as-sea, the relationship between human individuals and marine non-human (e.g. animal) and more-than-human others (multimodal entities, objects, phenomena), and possible futures of sustainable cohabitation remain virtually non-existent. In the field of the Humanities, this relatively recent lack of interest in the marine realm has become so pervasive that it has received its own name: 'hydrophasia' (Cohen 2013: 14), or '"forgetting the sea"' (Sekula in Cohen 2013: 14). The problem has many different causes. Some researchers have turned away from the sea to pursue more terrestrial topics of interest, following the logic that events on 'terra firma' resonate stronger with the human experience (cf. Cohen 2013: 13). Others forget about the sea-as-sea in subtler ways: their critiques extol allegory and metaphor in depictions of marine environments, yet fail to remark on their physical reality or the role of human society and individuals in their ongoing actualisation (cf. Cohen 2013: 14). There are also those who dither at the edges of the marine frontier: students of liminality who focus on coasts, jetties, quays, harbours, ports, and islands, thus endlessly postponing the encounter with the space that lies beyond.

Only in the last ten to fifteen years has this hydrophasia begun to ebb somewhat. A growing cross-disciplinary interest in ecocriticism has spurred the development of a dedicated field of cultural-marine research, aptly named the Blue Humanities. National and international networks for knowledge exchange and collaboration have been established, and

the sea is fast becoming the subject of new, exciting, and above all vital inquiries. Even so, marine environments are still all too often used as placeholders for other, more pressing (or rather: more relatable) concerns such as global trade, international development and politics, and resource mapping and extraction. For one, a surge in interest in the North Sea from the 1960s onwards can be attributed almost entirely to the energy-generating potential of the area for nations like Britain, Denmark, Germany, the Netherlands, and Norway (cf. Couling and Hein 2020). Similarly, heated recent debates about the post-Brexit future of European fisheries operating in Britain's waters were born from political concerns – and to a lesser degree, economic ones – rather than an interest in stock and biodiversity or human-sea relationships (cf. Voce et al. 2020). Examples such as these serve to reiterate the ongoing importance of the project of 'returning' to the sea and the need to critically evaluate one's own knowledge practices. The latter is key in safeguarding against the continued domination of hydrophasia in both academic and public discourse.

Towards a 'Poetics' of the Sea in the Twenty-First Century

The aim of this project is to contribute to and stimulate the growing body of scholarly work being carried out within the Blue Humanities by developing a 'poetics' of the twenty-first century sea. The term 'poetic' comes from the Greek ποιητικός, meaning 'poetical' or 'from the poets', which in turn comes from ποιητής, 'poet' or 'maker', derived from the verb ποιέω, meaning 'make', 'produce', or 'bring into existence' (Liddell and Scott 1940). However, the term should not be taken as an indication that the composition of a poetics is an act of invention. Neither is 'poetic' solely a quality of language, as it tends to be understood today. In his foundational treatise on the subject, Aristotle argues instead that poetics follow the principle of μίμησις, or mimesis, meaning they are 'representations of life' (*Poetics,* 1447a.13-17). One commentator explains this use of μίμησις as follows: 'Life "presents" to the artist the phenomena of sense, which the artist "re-presents" in his own medium, giving coherence, designing a pattern' (Fyfe in Aristotle 1932). At a later stage in the text, Aristotle remarks that 'a poet's object is not to tell what actually happened but what could happen and would happen either probably or inevitably' (*Poetics,* 1451a.36-37). This means that poets do not necessarily take a historical approach to their subject, but rather write indicatively, both of things *that (do) occur today* and of those *that could occur tomorrow*. It is also worth noting that the 'poets' or 'makers' of Aristotle's time in fact connoted a wide range of creators, including dancers, dramatists, lyricists, and even philosophers (*Poetics,* 1447a.8-1447b.22). Following the same logic, the thesis understands the project of composing a poetics of the twenty-first century sea to be the presentation of a

compound image of marine environments as distilled from their manifold contemporary expressions. Inspiration is drawn from a wide range of sources, including physical reality, news reporting, and (critical) theory, but also fiction, film, installation, music, painting, poetry, and sound recordings. The resulting poetics are capable of describing the sea in-itself and for-itself, while also capturing fundamental aspects of the current relationship between human societies and the marine environment. Furthermore, the dual function of the term 'poetic' – i.e. its acute present-ness and its ability to forecast or look ahead – allows the thesis to describe possible future marine realities, ultimately leading to a projective model for cross-species saltwater cohabitation (the 'multispecies marine society'). The forward trajectory of the inquiry necessarily means that the poetics accelerate away from past iterations of human-sea relationships and their concurrent representations, by primarily capturing *new* anxieties, manners-of-being, and tendencies of expression as they emerge in art and reality.

All chapters in this thesis follow the same pattern. To begin with, each respective opening section draws attention to a cultural or physical signifier that is indicative of a larger aspect of the character of contemporary seascapes. Examples range from a Dutch government campaign regarding the risk of flooding, to the 'Disneyfication' of (marine) ecocritical discourse, and further incidents involving 'wandering whales'. These introductions are followed by an overview of relevant theoretical positions and a careful appraisal of their applicability in the given situation. A number of key authors – Stacy Alaimo, Karen Barad, Donna Haraway, Bruno Latour, and Anna L. Tsing – appear in these discussions, in conjunction with work by a great number of their peers. Each chapter is completed by application of its theory to a work of art displaying the same sensibility towards the particular contemporary marine characteristic under investigation. This final step serves to reiterate the various ways in which the sea can be for-itself and in-itself, while also acknowledging and demonstrating from (creative) practice the many human, non-human, and more-than-human interactions that take place in and around marine environments. The main works of art discussed in the thesis are, in order of appearance, Lucien Castaing-Taylor and Véréna Paravel's documentary film *Leviathan* (2013); Sam Taylor's novel *The Island at the End of the World* (2010); Amy Sackville's novel *Orkney* (2014; orig. 2013); Ben Smith's novel *Doggerland* (2019a); and Kim Stanley Robinson's novel *New York 2140* (2018; orig. 2017). Given the commitment of the project to an ongoing movement *towards* a poetics of the twenty-first century sea, the discussion remains open to the possibility of great forthcoming or as yet undiscovered contemporary marine art.

Constraints and Definitions

Besides the 'poetics', the premise of this thesis is rooted in two key concepts: contemporaneity (captured in expressions such as 'the current moment', or even 'the twenty-first century') and the marine environment (or simply 'the sea'). The first of these terms requires a temporal limit in order for the project to maintain both its present relevance and its forward trajectory; to identify for analysis *only those (creative) expressions* that help establish an image of the sea as it is today, or as it might be in the short- to medium-term future. One particular study, geographer Philip Steinberg's *The Social Construction of the Ocean* (2001), may help effect this watershed. Published shortly after the turn of the twenty-first century, Steinberg's work has been widely praised for marking the beginning of the period in which '[g]eography (…) finally begun to take an interest in the oceans' (Gillis 2013). It accounts for a number of phenomena commonly observed in today's marine environments, including but not limited to widespread natural resource extraction, ongoing globalisation, and the explosive growth of the shipping industry (Steinberg 2001: 110ff). It displays critical awareness of the way in which previous human-sea engagements have shaped the contemporary relationship (e.g. the late fifteenth-century division of the sea into separate Iberian 'spheres of influence' by Papal decree; the subsequent debate on sea governance between Hugo Grotius, Seraphim de Freitas, and John Selden; and many of the discussions on stewardship that followed in their wake, Steinberg 2001: 75ff), and already takes a tentative interest in marine pollution and overfishing (cf. Steinberg 2001: 125-135), both of which became pressing themes in the public debate in the years that followed. However, Steinberg's book ultimately remains limited in scope. This is because it only considers the marine environment as subject of interest in the context of (human) cultural and socioeconomic activity. In this way, the work continues to display traits of hydrophasia: the marine environment remains a placeholder for societal issues and never becomes an object of study in its own right.

Steinberg's publication is of particular interest to this thesis because it performs a dual function. It was one of the first studies to 'return' to the subject of the sea in earnest, yet it also marks the end of an era for a particular *type* of inquiry. Its date of publication roughly coincides with atmospheric chemist Paul Crutzen and biologist Eugene Stoermer's proposal of the term 'Anthropocene' (derived from ἄνθρωπος - human, and καινός - new, cf. Liddell and Scott 1940) to mark the new geological epoch in which mankind has become a geophysical agent due to its 'major and still growing impacts (…) on earth and atmosphere (…) at all, including global, scales' (2000: 41). This concept, which gained great traction in the years that followed, forces a shift away from appraisals of the environment that are

concerned solely with their human meaning or value by re-emphasising the importance of physicality. In other words, the invention of the term 'Anthropocene' signals a departure from the kind of inquiry performed by Steinberg.

In this project, I suggest that the meeting of 'old' and 'new' appropriations of the sea around the turn of the century was a productive moment that marked the beginning of present-day marine reality. More specifically, I take stock of findings by Steinberg and a number of his colleagues and critically (re)assess their continued relevance using contemporary ecological and social frameworks of analysis (such as found in the emergent field of Anthropocene studies). This approach allows me to appreciate the widest possible range of modern seascapes. For example, when a whale becomes stuck in an offshore wind farm in October 2018, I am able to account for the particular physical situation – an urbanised offshore environment – but also for the living conditions of the animal, the public perception of the incident, and possible future clashes of interest between human-technocratic and natural-biological realities. When a few months later a different whale appears at the centre of an international controversy regarding animal agency and politics, I can explicate underlying (historical) assumptions about the relationship between humans and non-human others, and make a reasonable prediction of the nature of such interactions going forward. In other words, the approach I have chosen for this thesis is equipped with critical awareness of the past, firmly rooted in the present, and able to reckon with the future.

It must be noted here that the concept of the Anthropocene has incited substantial controversy for supposedly misidentifying the root cause of anthropogenic climate change: the human species itself rather than a specific phenomenon such as capitalism, fossil fuel consumption, or exploitation (cf. Haraway 2016: 99-103). Many alternatives have been suggested, including but not limited to the 'Chthulucene' (indicating a veritable monstrosity of connections between different entities, Haraway 2016), the 'Plantationocene' (caused by subjugation and extraction practices that date back as far as the transatlantic slave trade, cf. Haraway et al. 2015), and the 'Capitalocene' (resulting from unbridled profit-seeking under the influence of neo-liberal capitalism, cf. Moore 2016). In the case of this thesis, different chapters will bring into focus different aspects of the negative human impact on global and local marine biotopes, each of which might be tied to different classifications of the '-(s)cene' the world finds itself in. To avoid confusion and emphasise a common element across the range of available options – namely human involvement – the thesis chooses to restrict itself to use of the umbrella term, 'Anthropocene'.

Further qualification of the term 'sea' is required because all marine environments are unique settings, characterised by specific biological, ecological, and social cultures. These

differences give rise to a wide variety of physical human-sea relationships and associated cultural expressions, often making it almost impossible to compare one locality with another. At the same time, seas are nothing if not global. They flow into one another past diffuse edges; they are connected by international currents of industry and communication; and they are governed using the same treaty, UNCLOS III (UN General Assembly 1982). This conflation of the local and the global may well finds its strongest expression in a biophysical context: ecological stressors do not restrict themselves to single localities, but instead have a tendency to travel and affect neighbouring areas, doing so regardless of national borders or other geographical demarcations. Most marine 'dead zones', for instance, develop thousands of miles from the original source of (agricultural fertiliser) contamination (Bähr 2017: 14-15). The same goes for plastic pollution: disposables can travel a long way from their original point of entry into the ecosystem, riding streams, rivers, and currents to ultimately end up on the sea floor or in one of several large marine trash vortices dotted around the globe (Bähr 2017: 18-19). This one area of concern already suggests that neither a local nor a global approach to seascapes and their contemporary representations will do justice to the character of the subject material: they preclude either the possibility of universality or that of its inverse, singularity.

The fact that human-sea relationships continue to find their main expression in relatively near-shore environments may help resolve the tension described above. Possibly owing to long-standing anxieties with regard to venturing out 'too far' (cf. Pye 2015: 13ff), or else due to the (still) limited options for economic gain beyond the edge of the continental shelf (cf. Steinberg 2001: 180-188; Bähr 2017: 34-35), the majority of human marine activity in fact plays out no more than 200 nautical miles from the nearest coast, the usual limit of a nation's Exclusive Economic Zone, or EEZ (UN General Assembly 1982: 44). This is immediately evident from the subject material of the creative works discussed in the thesis, which refer (almost) exclusively to named localities (e.g. bays, bights, and seas) around the edges of the North Atlantic Ocean. They are also located more or less exactly on the New York - London - Amsterdam axis, which is indicative of the central role played by ports and major cities in the constitution of human-sea relationships. The resulting congruence of subject material allows the thesis to draw conclusions that pertain to a *cluster of localities* rather than an isolated seascape or a global marine reality. The benefit of this approach is that one can pay close attention to the influence of regional cultures and customs on human-marine interactions, while remaining acutely aware of the fact that some (or even many) of the issues engaged with are not unique to this particular setting. The thesis thus recalls

Doreen Massey's (1991) contention that the local is always embedded in the global, as well as the apparent inaccuracy of its inverse: *the global is not always local*.

One implication of this voluntarily adopted geographical restriction is that henceforth, the preferred term in the thesis to indicate marine or saltwater environments will be 'sea' rather than 'ocean'; the former being understood as *specific locality within a larger (oceanic) environment*, and usually adjacent to a landmass. The seas and regions discussed in this thesis are, in no particular order: the main body of the North Sea, between the United Kingdom and the Netherlands; the border of the North Sea and the North Atlantic around the Orkney Islands; the area east of Nantucket (MA) up to the edge of the United States' EEZ; New York City Harbour and the adjacent bight; and a (fictional) constructed sea in a California mountain range. Rare mentions of the 'ocean' in the thesis will generally pertain to the North Atlantic itself.

Crisis as Common Theme

The discussion on marine ecological stressors signals a recurrent topic in these poetics of the twenty-first century sea: environmental crisis. Among other things, this manifests itself as species and habitat loss (referred to by many as the 'sixth great extinction event', cf. Heise 2016: 1-4), global warming and associated sea level rise, water acidification, resource depletion, pollution, and more. Growing concerns about the failing health of the (marine) environment have led to an increased ecological consciousness in academia and the general public, which in turn may well have contributed to a recent surge in interest in new modes of engaging with more-than-human lifeworlds. In particular the field of ecocriticism and a number of related disciplines (new materialism, ecofeminism, and non- and post-human studies) have proven indispensable to the present inquiry, effectively giving shape to the majority of the chapters. In other words – and strange as it may sound – the acute and ever intensifying drama of environmental disaster is what brings together many of the observations made over the course of this project.

A contribution of ecocriticism at this early stage is that it helps identify a productive lack in most of the available primary material. Even though the non-human world features in some shape or form in virtually all creative expressions, many artists and writers still struggle to bring the question of climate change – and related issues such as agency, representation, and voice – into their narratives. Author and critic Amitav Ghosh has argued that part of the reason for this lack of engagement is 'that fiction that deals with climate change is almost by definition not of the kind that is taken seriously by literary journals: the mere mention of the subject is often enough to relegate a novel or a short story to the genre

of science fiction' (2017: 7). This confounds him because '[i]t is very difficult, surely, to imagine a conception of seriousness that is blind to potentially life-changing threats,' adding that 'if the urgency of a subject were indeed a criterion of its seriousness, then, considering what climate change actually portends for the future of the earth, it should surely follow that this would be the principal preoccupation of writers the world over – and this, I think, is very far from being the case' (Ghosh 2017: 7-8). The problem with representing changes in the global climate, then, is not so much a lack of interest as it is a 'crisis of culture, and thus of the imagination' (Ghosh 2017: 9).

One of the constituent elements of this crisis is that depictions of climate change events have a tendency to come across as unlikely or improbable. This may even extend to incidents that did, in fact, occur in reality (Ghosh 2017: 11-17). What are the odds, a reader might demand, of entire nations disappearing underwater due to rising sea levels (cf. Roy 2019)? Who would believe accounts of a sudden cross-species extinction event occurring along one of the least populated coasts in the world (Luhn 2020)? Nor do the narrative instruments available to authors to describe climate catastrophe – fictional or not – instil confidence in their readership. For example, when a writer attempts to represent 'slow' ecological threats and their associated timescales, which can span tens of thousands of years, the result can be dissociation from the story (Weik von Mossner 2016: 87-88); or worse, the collapse of their audience's suspension of disbelief. The result of these difficulties is that there are very few, if any, works of (marine) fiction and film that successfully capture contemporary and future ecological disaster. Much of the available material (forming the loose collection known as 'cli-fi', or climate fiction) dithers at the fringes of the topic. Known tactics include forestalling the drama of contemporary climate threats by only referring to distant but dire future situations (including George Turner's early, or 'proto' work of cli-fi *The Sea and Summer* [1987] and Julie Bertagna's *Exodus* trilogy [2002; 2007; 2011]); employing one or several time skips or flashbacks to easily represent changes in society and global climate as they unfold over a longer period of time (Margaret Atwood's *MaddAdam* trilogy [2003; 2009; 2013]); or relying on a post-apocalyptic setting in which environmental disaster has already peaked (proto-cli-fi novel *The Drowned World* [1999; orig. 1962] by J. G. Ballard, John Lanchester's *The Wall* [2019], and of course Kevin Reynolds' *Waterworld* [1995]).

Some of the texts that were selected for analysis in this thesis employ similar tactics as the ones listed above: for example, both Smith's *Doggerland* and Robinson's *New York 2140* rely on a combination of allusion to ecologically pressured futures and (mild) post-apocalypticism to get their message across. At the same time, a handful of artists and authors has stepped up to the challenge and engaged with the pressing questions of climate change

and human-sea relationships in new and innovative ways: the results include Taylor's *The Island at the End of the World* and Sackville's *Orkney*. The different creative approaches to capturing this subject material are a logical result of the challenges of the current period of climatic upheaval. As is now evident, the ongoing ecological crisis puts pressure on entrenched modes of representation, demanding that artists and authors begin to think differently and imagine alternative realities against the (near-literal) tide of the 'now'. Even if these attempts at achieving a new kind of writing are not unequivocally successful, their efforts still count: they help effect a slow but steady paradigm shift in thinking about the human place in a more-than-human marine realm.

Project Overview

Chapter I opens the inquiry into the poetics of the contemporary marine environment by making visible the formidable ontological and epistemological challenges posed by a phenomenon such as the sea. The chapter likens marine reality to a complicated game of cat's cradle, and posits that a key reason for this complexity is that many of the players involved are altogether of different species and kinds than the human. This begs the question: what constitutes a society in the twenty-first century, and what is the place of humanity in it? The idea of the 'multispecies' society is discussed, and the need for a 'flat' ontology in relating to non-human others is explicated. The first methodological candidate to be reviewed comes from the discipline of speculative realism and is known as Object-Oriented Ontology (OOO). The discussion reveals that a number of the underlying assumptions of OOO's theoretical framework are self-contradictory, meaning the methodology as a whole becomes untenable. However, it is also shown that the concept of the 'hyperobject' can be decoupled from its OOO legacy and employed as a standalone tool. An approach that does justice to the plurality of the sea and its relations to people, objects, animals, and phenomena is ultimately found in so-called Actor-Network Theory (ANT). This methodology is particularly valuable due to its modus operandi of disentanglement: it helps the researcher unpick the many relational threads of today's marine environments. To prove the practical value of ANT, the chapter uses it to analyse the diffractive mode of representation found in Lucien Castaing-Taylor and Véréna Paravel's documentary film *Leviathan* (2013). Along the way, the discussion reveals the plurality of connections and viewpoints that can be found in any given marine environment, most of them existing quite independently from human involvement.

Chapter II begins by asking if a contemporary public is able to relate directly to (climate) scientists' reports on the state of the sea. Despite their heightened ecological awareness, it is

found that citizens are rendered paralysed when confronted with such natural-scientific 'data dumps', even if – or precisely because – they quantify in great detail the extent of the crisis unfolding in marine environments. The chapter explains that the only way to combat this passivity is through storytelling. It argues that human beings have always relied on fictions to relate to the sea, among other things casting it as antagonist, cornucopia, frontier, space of connection, or holiday destination. All of these past narratives combine in the present moment to provide a rudimentary idea of the modern human relationship to the sea; yet they are also under pressure due to the rapid onset of ecological anxieties. A new kind of 'sea story' is urgently needed to resolve this problem. The second part of the discussion seeks to establish the specifics of such a future narrative, led by the principle of entanglement. This concept is briefly explored with reference to the work of four key authors: Stacy Alaimo, Donna Haraway, Bruno Latour, and Anna L. Tsing. More in-depth discussion of their ideas is temporarily curtailed in order to discuss a common foundation, namely philosopher-physicist Karen Barad's theory of agential realism. This framework is discussed at some length in order to come to an understanding of the world-shaping powers of storytelling. The chapter ends with a reading of Sam Taylor's *The Island at the End of the World*, a work that demonstrates the role stories can play – for better or worse – in intra-active marine world-making.

Chapter III discusses ecofeminist modes of living with the sea in the contemporary moment. It begins by explaining what ecofeminism is and by elucidating some of the concerns that must be addressed when its two parent fields, ecocriticism and feminist theory converge. The emphasis in the rest of the discussion lies in discovering how humans, non-humans, and more-than-humans can (learn to) live together harmoniously in tomorrow's multispecies marine societies. Further expanding on the idea of entanglement and its foundation in Barad's philosophy-physics, the chapter first traces Latour's argument for ways in which society may come 'back down' to Earth, or in this case the sea. It then joins Haraway in discovering the practice of 'sympoiesis', or making-with, and encounters Alaimo's idea of transcorporeality, or the dissolution of (human and other) bodies. It finally considers Tsing's concept of the feral, which refers to anthropogenically kick-started, but now autonomous non-human beings and behaviours that play a significant part in the configuration of cross-species patterns of interaction. Looking towards possible future entanglements, the idea of marine cyborgism is considered as a productive mode of 'co-constitutive' (or fundamentally entangled) existence. The cyborg is then juxtaposed with the 'symperson', an idea that is tentatively explored by Haraway in some of her more recent work. The tension between these two concepts is made particularly clear through application

to Lithuanian visual artist Emilija Škarnulytė's multi-screen installation *Sirenomelia* (2017), which purports to communicate the experience-of-being of a mermaid swimming in a decommissioned naval base in the Arctic Circle. The text concludes by examining Amy Sackville's *Orkney* (2014), a novel that explores the boundaries and consequences of ecological attunement through prosthetic entanglement with the marine environment.

Chapter IV turns its attention to marine species and seascapes that are endangered or have gone extinct due to anthropogenic climate change or other skewed cross-species interactions, and asks how one might engage with such aggravations. It is demonstrated that the mourning of individuals, species, and environments can be approached in a multitude of ways. One of these is 'Speaking for the Dead', a concept developed by Donna Haraway that ties together past, present, and future coexistences of participants in multispecies society. The main strength of Speakers is shown to lie in *not*-becoming the other, instead remaining acutely aware of the histories of violence and suppression that characterise past relationships between different species and individuals. The work of Ursula K. Heise is drawn upon to demonstrate that all acts of mourning are also political-cultural acts, and that it is imperative to develop a critical view on the work of remembrance: whose agenda does it serve? The chapter enhances its perspective on mourning by taking recourse to Haraway's guises of 'SF', a series of paradigms that help productively navigate the interests at stake when acknowledging loss. Afterwards, the concept of *listening* is explored in detail: when, and how, can humans stop talking and become attuned to the myriad voices of new, non-human citizens? Good listening practice in turn can scale up to become a political model for multispecies society, the 'Parliament of Things'. The chapter concludes with a reading of Ben Smith's *Doggerland* (2019a), a novel that explores the value of past identities when charting a future course of coexistence for humans, non-humans, and more-than-humans alike.

Chapter V considers the viability of the model for multispecies marine existence by testing it against the stark realities of unbridled resource extraction, ongoing habitat destruction, increasing carbon emissions, and other environmentally damaging human behaviours. This is done through a brief foray into the field of petroculture studies. The discussion begins by analysing the pervasive influence of oil on modern society, both in terms of its material and physical expressions and by means of the lifestyle it promotes. It is found that the world has become so reliant on oil that systemic change is today hard to imagine, let alone achieve. This inertia places contemporary petro-reality squarely in line with Mark Fisher's paradigm of capitalist realism, which literally posits that *there is no longer an alternative mode of human existence*. The chapter explains that capitalist realism

relies on a shifting, hidden 'Real' to stay afloat; a murky foundation that, if exposed as inconsistent, spells the end of the ideology. It is proposed that the desperate reliance of capital on oil (and vice versa) in fact unmasks one such 'Real'; petroleum is the low-cost energy input that keeps free market capitalism in business. This means that the eventual moment of 'peak oil' – when petroleum exploitation hits an all-time high before it drops back to zero – will herald complete financial and market collapse. The chapter imagines four possible responses to the end of the marriage of convenience between oil and capital: denial, resistance, submission, and paradigm change. A detailed analysis of each attitude and associated behaviours reveals that only the final option can be successfully pursued in any given situation. The proposed paradigm change is, of course, the model for multispecies marine reality that the thesis has so painstakingly described. Having thus proven the viability of this framework, the chapter concludes with a reading of Kim Stanley Robinson's novel *New York 2140* (2018). Set in the flooded Big Apple, this work demonstrates the tenacity of capital in the face of environmental and systemic collapse, while also pointing at the promise of multispecies configurations for society.

The **conclusion** of the thesis calls for humans to allow for the surprises of multispecies and multiphenomenal collaboration in the making of today's and tomorrow's marine lifeworlds. It draws inspiration from an unexpected non-human claim of agency that occurred near the Port of Rotterdam in late 2020, and leverages this event to revaluate a number of key aspects of the model for multispecies marine society. The conclusion further illustrates its recommendation for receptivity towards non-human others by reimagining end-of-life-interventions for a number of human marine capital structures: ships, oil rigs, and wind turbines. This example helps demonstrate that the new marine reality is by no means as stratified as its present counterpart; instead, it is a paradigm of risk and opportunity, of forming new alliances and abandoning old ones, and of being surprised by the agency of the other. In this way, the thesis ends with a pragmatic view of the eventual disappearance of familiar seascapes: in their place comes a multispecies ferment of possibility.

Chapter I – Untangling Marine Threads

Towards a Methodology for Engaging with the Contemporary Sea

The game of cat's cradle allows players to create images together by weaving a piece of string between their fingers and coordinating its manipulation. It can be played alone, in pairs, or in a group. As the number of participants grows, the difficulty level increases almost exponentially: working in tandem, a larger group of individuals needs to make a greater amount of decisions to achieve meaningful results. Because cat's cradle revolves so much around connection and interaction, it has become a very popular analogy to describe complex processes in fields like ecology, mathematics, and sociology (cf. Haraway 2016; Vandendriessche 2015).[2] The trope also applies well in the context of contemporary marine environments, whose different beings, histories, phenomena, and practices interact in myriad ways to form an image of the sea in the twenty-first century. Some of these engagements are profoundly destructive: marine cat's cradle can evoke visions of plastic entrapment and suffocation, with different animals tied together against their will by and with mass-produced disposable goods or instruments of production (e.g. fishing lines, nets, and snares). Less direful imagery emerges as well, for example individuals and communities connected across great distances by messages in bottles or chipped migratory wildlife.

Regardless of its outcome, marine cat's cradle is a tricky game. Any participant must be extremely careful not to get caught up in the vast plurality of interactions and lose their bearings. This is illustrated by the appearance of the whale in the Princess Amalia wind farm, which highlights the uncertainty of existence in contemporary marine environments, not least for those individuals and species that were long considered fixtures of the space. The reactions to the 'Russian army whale' incident, meanwhile, show that it is easy to jump to conclusions: to distil from the tangle of relations an image of the contemporary sea that is not necessarily representative of reality. Despite posing a considerable risk, this aspect of cat's cradle – messing up, misinterpreting, dropping the pattern in a complete jumble of threads – has received little attention from many of the theorists working with the trope. The only way to avoid such chaos is to embed it in a methodology that is able to shift easily between the perspectives of 'player' and 'picture'. To achieve this, the framework must be able to explain *how* and *to what extent* single beings can influence the (greater) tangle of marine relations; and conversely, account for the ways in which macro-level changes in the

[2] Donna Haraway's discussion of cat's cradle (or 'making string figures') in *Staying with the Trouble* (2016) is the inspiration for the analogy made here. Her work will be discussed in more detail in later chapters of this thesis.

constitution of saltwater environments resonate on the individual level. One might add that examining the *real value* of a metaphor like cat's cradle in this way is exactly what a 'poetics' aims to achieve, namely to demonstrate how a given description resonates with a real-world state of affairs.

This first chapter sets out to identify a methodology that can underpin the project's poetics. It begins by resolving a key piece of confusion that has long marked human engagement with non- and more-than-human environments: the idea of species exceptionalism. The chapter investigates the distinction between human culture and non-human nature, which allows humanity to claim categorical difference from and precedence over other species. It is found that this 'Nature/Culture' dichotomy is at direct odds with the reality of contemporary marine cat's cradle, in which a large host of players from different backgrounds – human, non-human, and more-than-human – equally take part. Collapsing the dichotomy is shown to open up space for a different, more inclusive type of society, in which the idea of the 'social' does not necessarily limit itself to human affairs. A number of theories are then reviewed that seek to account for the way in which human beings can engage with other members of this 'new' society. The first of these, Object-Oriented Ontology (OOO) is found to be fundamentally unable to account for the non-human aspect of marine realities. It does prove possible to 'decouple' at least one of its concepts from its legacy: the 'hyperobject'. A more feasible alternative to OOO is found in Actor-Network Theory (ANT), which revolves entirely around the idea of interagential (or interactorial) relations and the way these can be situated in a network configuration. To conclude the chapter, the ANT framework is employed to perform a 'reading' of Lucien Castaing-Taylor and Véréna Paravel's recent documentary *Leviathan* (2013). This is done both to prove the value of the methodology and to demonstrate the rich plurality of life and relations in contemporary marine environments.

New Types of Society

Before any game can begin, all players must be identified. In the case of marine cat's cradle, it might come as a shock to human participants that some of their counterparts are of a different species or kind altogether. They might be dolphins, mackerel, or whales. Or they might not be sentient at all: water temperatures and pH levels play significant roles in the constitution of marine environments. Ships, wind farms, and wave energy converters must not be overlooked. This causes confusion because, as writer and former activist Paul Kingsnorth puts it, '[w]e tell stories about 'nature' all the time' (2019: 122), the chief one being '*that there is something* called 'nature' Out There, beyond the human, beyond

'civilisation', which is another story' (2019: 122; emphasis added). As historian Dipesh Chakrabarty explains in a seminal essay on this very topic, developing separate storylines for human civilisation and 'the rest' made it possible to set enlightened humanity apart from other species and phenomena (2009: 201-203; see also Latour 2017: 14-15). Some justified this with reference to the idea that the natural environment was stable and unchanging, whereas human affairs were constantly in turmoil; the artificial division between 'Nature' and 'Culture' allowed human beings to compose their own local, national, and global histories against the static backdrop of their non-human surroundings (Chakrabarty 2009: 204-205; see also Latour 2017: 73-74). However, this divide has now become untenable. Many have argued that the domains of Nature and Culture have collapsed into one another, especially under the pressures of the Anthropocene (cf. Chakrabarty 2009), while others insist that they were never separate realms to begin with (Latour 1993; 2017). For one, humanity's assumption of geophysical agency is proof that there is no such thing as exclusively 'cultural' activity: instead, every action has a physical, world-shaping impact. Nature, too, has always-already been a cultural force: it participates fully in determining the social fabric, and more often than not steers human and non-human lived realities in unexpected new directions. This is evident from the way the natural environment provides the physical and resource foundations for human life on earth, while also frequently performing (untimely) interventions like earthquakes, pandemics, and tsunamis.

The discovery that the natural environment is in fact part of society calls for a redefinition of what constitutes the 'social'. This project was taken up by Bruno Latour in his 2007 work *Reassembling the Social.* He seeks to do away with the common understanding of the term of the social as a sort of ingredient that '[designates] a stabilized state of affairs, a bundle of ties that, later, may be mobilized to account for some other phenomenon' (2007: 1). The new definition, Latour argues, 'does not take for granted the basic tenet of the first. It claims that there is nothing specific to social order; that there is no social dimension of any sort, no "social context", no distinct domain of reality to which the label "social" or "society" could be attributed' (2007: 4). This is because 'we should not limit in advance the sort of beings populating the social world' (2007: 16), instead allowing ourselves to be surprised by who (or what) we might meet when (marine) cat's cradling or otherwise engaging in the business of being alive. Latour's own understanding of what constitutes a 'social being', or (fellow) member of society, can be seen to evolve throughout his body of work, to ultimately designate the entire sentient and non-sentient world and its phenomena, ranging from minute physical particles, to single-cell organisms, to whales, and even weather systems (cf. 2017).

Following the above redefinition of the social, it becomes possible to understand society as *multispecies* and *multiphenomenal,* rather than revolving around the 'sun' of the human species. Some examples of recalibrations of modern reality that follow this logic are Latour's own adaptation of the Gaia-hypothesis (2017) and Donna Haraway's work on Chthulu and the idea of 'staying with the trouble' (2016). These and other accounts of (human) life in a more-than-human world will be discussed in far greater detail at a later stage in this thesis.

Flat Ontologies

The idea of multispecies society requires humans to relate to non- and more-than-human others (and vice versa) on a level playing field, meaning that every social being must be able to partake in interactions equally and of its own accord. This raises a number of questions. How might animals express themselves? And what about non-sentient objects, such as the sea? One framework seeking to resolve these issues was developed by the philosophical movement of speculative realism, and has become known as Object-Oriented Ontology (commonly abbreviated OOO and colloquially referred to as 'Triple O'). OOO approaches the problem by attempting to establish a 'flat' ontology. This means that it engages in reflection on the interaction between human beings, animals, and objects without granting precedence to any of them. The movement has gained particular traction over the last decade, and is championed by a loose collective of thinkers including Levi Bryant, Iain Hamilton Grant, Graham Harman, Quentin Meillasoux, and Timothy Morton. Differences in view exist between these authors, but their fundamental assumptions are largely the same. A brief account of OOO now follows that is based on the arguments provided by Graham Harman in his eponymously titled 2018 book, daringly subtitled 'A New Theory of Everything'.

Some of the most important work that has been carried out in the context of OOO is concerned with discrediting the notion of anthropocentrism. Instead of relying on a human focus and scope, proponents of Object-Oriented Ontology argue that 'philosophy must *begin* by casting the widest possible net in aspiring to talk about everything' (Harman 2018: 256; emphasis in original). The movement achieves this by pointing at the *independence of being* of all entities and phenomena (captured by the umbrella term 'object'), that is to say it acknowledges the veracity of the existence of non- and more-than-human others regardless of human perception of that quality. Harman explains this with reference to a quartet of dimensions, in which objects and their qualities can be said to exist. These are the real object (RO); the sensual object (SO); real qualities (RQ); and sensual qualities (SQ) (Harman 2018: 80). The two dimensions dubbed 'sensual' are accessible to the human senses, while the two dubbed 'real' remain hidden (Harman 2018: 84). The latter occurs because '*[o]bjects*

withhold themselves (...) from human access (...) [and] from each other' (Harman 2018: 258; emphasis in original). This in itself is a problem, because it is precisely the 'real' being and/or quality of any object that prove(s) its independent existence in the world. If these properties are not accessible to a human interlocutor, how can the object be known or proven to exist? Harman resolves the paradox by introducing the concepts of 'metaphor' and 'theatricality' (2018: 81-89). He suggests that for the human subject – which is really also an 'object', since it takes no precedence over the non-human entities it engages with – to investigate not only sensual (i.e. accessible) objects and their qualities, but also their real (inaccessible) counterparts, it can substitute itself in place of the object (Harman 2018: 84). He explains his position using the example of the Homeric sea:

> By assigning improbable but not impossible new sensual qualities to the sensual objects – such as the metaphorical 'wine-dark sea' rather than the literal 'dark blue sea' – the sensual object 'sea' is cancelled (…) being unable to uphold such unusual qualities. A mysterious real object is needed to do the job. But since sea as *real* object withdraws inaccessibly from the scene (…) the sensual qualities of the metaphor are supported instead by the only [real object] that is not withdrawn from the situation: I myself, a real experiencer of the metaphor. (Harman 2018: 84; emphasis in original)

In a similar, though slightly more complex manner, real qualities can be substituted with the qualities of the self to result in the production of knowledge (Harman 2018: 184). The problem with this intervention is that Harman ignores what it really means to substitute the human subject for the inaccessible ('always withdrawn or veiled', 2018: 38) real object or its qualities. How can this operation constitute anything but a return to the human viewpoint? This outcome is especially ironic when recalling Harman and other OOO thinkers' zeal in collapsing the anthropocentric circle. The fallacy of OOO's reasoning becomes more evident yet when applied to an entity or object with distinct tangible (i.e. sensual) qualities. Stacy Alaimo, one of the authors whose work features at length in later chapters of this thesis, suggests an animal other that pushes the limits of human perception and understanding: the jellyfish (2011: 283). She notes that the jellyfish 'seems barely to exist as a creature, not only because it is a body without organs but because it is nearly indistinguishable from its watery world' (Alaimo 2011: 283). It also proliferates in some of the most damaged marine environments, 'provoking fear of a clear planet in which jellies over-populate the degraded oceans, causing harm to fisheries, mining operations, ships, and desalination plans' (Alaimo 2011: 283; see also Pauly 2009). As a result of this radical difference – even antagonism – the jellyfish cannot be easily situated in 'bridging' or familiarising theories on human-animal relations, such as the idea of companion species or parallel evolution (cf. Haraway 2008). A far more radically inclusive ontology is required to overcome the gaping rift of experience

that exists between the human species and jellyfish. The full extent of the difficulties that must be overcome is captured by Marianne Moore in her poem 'A Jelly-Fish':

> Visible, invisible,
> A fluctuating charm,
> An amber-colored amethyst
> Inhabits it; your arm
> Approaches, and
> It opens and
> It closes;
> You have meant
> To catch it,
> And it shrivels;
> You abandon
> Your intent–
> It opens, and it
> Closes and you
> Reach for it–
> The blue
> Surrounding it
> Grows cloudy, and
> It floats away
> From you.
> (2015; orig. 1909)

Moore's poem describes an undulation between two independent objects. The interaction has been initiated by a human 'you', which reaches out expectantly only for the jellyfish to dart away. Soon after, another chance presents itself. The 'you' tries again, but the jellyfish departs for good. The physical reality of this interaction can be read as an analogy for the attempt to bridge the ontological rift – of species- or object-otherness – gaping between two distinct entities. The question is whether this rift can be crossed, for instance by employing Object-Oriented Ontology's methods of metaphor and theatricality. Can the human sub/object substitute their own experience for that of a jellyfish, yet come to know it? It appears that Thomas Nagel's argument (from his seminal 1974 essay 'What is it like to be a bat?') continues to apply in this situation: the human subject is unable to capture or otherwise appreciate other species' sensory or neural experience of life and will therefore forever fail to grasp *what it means* to be a jellyfish. A profoundly human 'actor' (in the theatrical sense) has no means to cross the divide of species- or object-otherness and 'play' accurately the metaphor of being a jellyfish. This means that Object-Oriented Ontology's modus operandi proves to be its very undoing. Harman and colleagues repeatedly claim to depart from anthropocentrism when they assume the role of spokesperson for objects small and large,

but they are playing the part without knowing the lines. Alaimo accurately points out the error in their approach when she observes that

> the method of philosophical speculation seems terribly ill equipped for the task of accessing objects, as it places the human mind squarely in the "center of the analysis." (…) Although OOO intends to level various entities, putting the human on the same ontological plane as other "objects," *the human voice* is the only thing we hear. (2016: 181-182; emphasis added)

It is evident that OOO cannot pierce the 'Visible, invisible (…) fluctuating charm' of the jellyfish using metaphor and theatricality. Its attempt to provide independent agency to the animal other, the jellyfish, results in disowning it of that very agency. Species and object experience proves to be an unbridgeable gap even for this much-lauded new approach to ontology. The implications for the even more foreign ontological substance of non-human, non-sentient phenomena like coral reefs, sediment deposits, or even the sea itself are clear: Object-Oriented Ontology is not the right methodology for this inquiry. Before discarding this framework altogether, however, it must be noted that some very worthwhile work has been carried out under the banner of OOO. Timothy Morton in particular has identified a number of concepts that can be of great value to the study of the representation of the sea, and that might therefore be worth borrowing from the discipline. Chief among these is the 'hyperobject', which is discussed briefly in the section that now follows, and which will be employed in the remainder of the thesis following the assumption that one can do so without accepting outright all of OOO's other premises.

Borrowing. The Hyperobject as Standalone Concept

Regardless of the ontological context in which it is read, characteristics such as the size, omnipresence, and (often) inaccessibility of the sea can pose significant obstacles when attempting to describe this space accurately. As Moore writes in a different poem, 'A Grave', the usual rules do not apply here:

> it is human
> nature to stand
> in the middle
> of a thing,
> but you cannot
> stand in the middle
> of this;
> (in Connery 2006: 508)

The lack of a distinct vantage point makes it difficult to appropriate the sea from any particular angle (Connery 2006: 508). For one, there is no guarantee of objectivity if the

observer is forever enclosed by the space they are trying to describe. They also cannot presume to offer a view from the inside, or centre, looking out: as Moore rightfully observes, it is impossible to find the 'middle' of the sea. Her remarks stand in stark contrast with Robert T. Tally Jr's observation that 'we are always in the middle', and that '[e]ver bound to a particular situation – that is, at a site within a cognizable spatial assemblage or formation – we define our position in relation to others, establishing limits, boundaries, borders, or other such markers to help determine our sense of place amid the expansive, perhaps unrepresentable extension of space' (in Downey et al. 2016: ix). It appears that the sea does not allow one to identify 'limits, boundaries, borders, or other such markers', instead eluding traditional conventions of 'space' and 'place' entirely (Connery 2006). This means that in order to study marine environments, researchers must renounce the desire to stand 'outside the box' of their object of study. Only by accepting the pervasive presence of the sea – in its physical form, but also through its influence on art, economy, society, and much more – can one begin to describe it (see Fig. 1).

Fig. 1: Seas and oceans literally and figuratively enclose the world.
(Source: Dealberto 2018. Reproduced with permission)

Timothy Morton's concept of the hyperobject does justice to all these concerns, making it an indispensable instrument for the inquiry at hand. Hyperobjects, Morton argues, have various qualities that set them apart from regular objects. Chief among these is the fact they

are ‘things that are massively distributed in time and space relative to humans’ (Morton 2013: 1). Furthermore, they are

> *viscous*, which means that they “stick” to beings that are involved with them. They are *nonlocal*; in other words, any “local manifestation” of a hyperobject is not directly the hyperobject. They involve *profoundly different temporalities* than the human-scale ones we are used to. (…) Hyperobjects *occupy a high-dimensional phase space* that results in their being invisible to humans for stretches of time. And they exhibit their effects *interobjectively*; that is, they can be detected in a space that consists of interrelationships between aesthetic properties of objects. (Morton 2013: 1; some emphasis added)

The sea displays all of these qualities. It wraps itself around the planet, making it one of the largest ‘objects’ known to humanity. Furthermore, it exercises a greater or lesser degree of influence on almost all other entities in the world: viscosity. The ‘middle’ of the sea cannot be found because any particular locale or otherwise geographically situated/able expression is not the object in its totality: non-locality. The sea occupies both geophysical and human timescales; Morton calls this ‘temporal undulation’ (2013: 55ff). Meanwhile, the sea manifests itself in a plurality of dimensions, not all of which are accessible to human beings: ‘phasing’ (Morton 2013: 69ff). Finally, the sea only exists through the confluence of other objects, such as vast amounts of water, the proximity of the moon, and numerous ecosystem-specific flora and fauna. In other words, it is interobjective. Conceptualising the sea as hyperobject in this way provides an excellent means to think through its pervasive influence on virtually every aspect of life on Earth, while also remaining acutely aware of the limitations that exist on interrogating both the sea-as-sea and its effect on other entities. For the time being, however, the concept of the hyperobject itself remains to be embedded in a wider methodology: one that allows the sea and marine animal and object others a measure of independent agency without the constant need for human interposition.

Actors and Networks

Any human researcher seeking to describe the sea-as-sea must be conscious of their own dual role as observer-cum-participant in the process of marine ‘being’: as noted before, they are as much a ‘player’ in this game of cat’s cradle as any of the entities and phenomena they seek to describe. Awareness of this fact makes it possible to ‘[think] as the stuff of the world’ (Alaimo 2016: 178): to be profoundly aware of the human viewpoint, yet equipped with the knowledge that – not unlike the sea – the human subject is always-already embedded in, enmeshed with, and exposed to the world around it, and vice versa. This idea of embeddedness is central to a methodology that might prove a feasible alternative to OOO, namely Actor-Network Theory (ANT). Developed by Bruno Latour as a logical next step in

the process of 'reassembling the social' (2007), ANT views its object of study, newly constituted society, as a network of individual actors. By extension, sociology itself becomes 'the tracing of new associations and (…) the designing of their assemblages' (2007: 7). Since ANT does not consider any single actor more important than its peers, it allows the researcher to interrogate relationships between various objects and phenomena using the same flat ontology insisted on by OOO, though without purporting to know what it is like to 'be' the other. Instead, it acknowledges the limits to its project and accepts that it cannot resolve the gap between different species' and entities' experiences of existence.

The central premise of Actor-Network Theory is (inter)action. Actors act and are in turn acted upon, which creates a network of associations or relations (Latour 2007: 46-50, 106). Being acted upon may cause an actor to change: every action in a network is therefore a *mediating* one, and the 'network' itself can be read with particular stress on its *work* element (Latour 2007: 39, 132, 143). This also means that an actor can never be a mere placeholder or intermediary (cf. Latour 2007: 153-154). Actors must act; because if an actor remains withdrawn from perception to the point where none of its actions seem to matter, it cannot be said to exist (Latour 2007: 130). It is here that OOO and ANT critically diverge from one another. While the former insists that withdrawn objects retain a measure of inaccessible essence, the latter refuses outright to credit that which cannot be proven to exist. One result of this rigidity is that unlike many other sociological theories, ANT does not allow room for intangibles such as 'capitalism' or 'modernity', unless an active configuration (or network) of constituent elements (actors) can be identified by that name.

Employing ANT as a methodology consists of tracing influences (Latour 2007: 193-196). How does one actor influence another actor? And how is the first actor changed in turn? Since relations in the network constantly shift, any ANT inquiry starts and ends 'in medias res' (Latour 2007: 196). It might be possible to map the tangle of interactions at any given moment, but one should not expect things to remain unchanged after the mapping has been concluded: networks have to be traced again and again in order to remain accurate (Latour 2007: 5-6, 132, 136-139). This means that the dynamic of Latour's networks of actors resonates a lot more with the not-quite-grasping-but-forever-trying-anew engagement between jellyfish and human subject encountered earlier in Marianne Moore's 'A Jelly-Fish'. 'You abandon/ Your intent –' (2015), Moore writes, but then 'It opens, and it/ Closes' (2015) and it becomes impossible for the 'you' to resist the urge to 'Reach for it –' (2015). Alas, once again 'It floats away/ From you' (Moore 2015). In a Latourian reading, Moore's poem is a testament to the constant negotiation of relationships between individual nodes in a network: actors that change each other and themselves as they (attempt to) interact.

The value of the ANT inquiry lies in its particular approach to disentanglement: it identifies individual nodes in the network *while also* explicating their reciprocal interactions. Furthermore, ANT refuses to fill in the blanks in a network: it is descriptive rather than prescriptive. These characteristics make the ANT approach extremely suitable for the study of the contemporary sea: it takes note of the many facets of the subject and is not prejudiced by historical precedent or existing notions on what can or should be included in the discussion. It can smooth out the wrinkles in the great crumple of realities and relations formed by marine flora and fauna, non-sentient objects, weather phenomena, human construction and interventions, and more. Through the inquiry, a unique and acutely present collection, or indeed a hyperobject, of mediating actors and relations becomes visible: the sea. In this way, ANT speaks directly to the idea of contemporary marine environments as an extensive game of cat's cradle, but without even dropping the thread.

More can yet be said about the mechanisms described by Actor-Network Theory. The key concept of mediation in particular can be expanded on further by investigating underlying ontological and epistemological assumptions. For example, is it possible to identify the locus of one actor's agency, i.e. their 'being'? And is this agential core potentially also subject to foreign influences? Where does one actor's 'self' begin and that of another end? What is the greatest possible influence one actor can exercise over another? These and other questions will be answered as the thesis investigates the many engagements between human, non-human, and more-than-human actors in marine environments ever closer. For the moment, however, the discussion will seek to demonstrate the practical value of this particular methodology to the project of the thesis. This is done using a case study.

Leviathan. A Story of Dipping, Skidding, and Tilting

Lucien Castaing-Taylor and Véréna Paravel's 2013 documentary *Leviathan* takes place off the coast of New Bedford, Massachusetts, in and around the fishing vessel *Athena*. The film has no scripted text or dialogue, and explicitly emphasises non-anthropocentric viewpoints through its camera placement (or rather, non-placement). Some of the cameras used to shoot the scenes were scattered on the ship at random; others were dangled off the side of the vessel using long poles, or velcroed to fishermen's overalls. As a result, the imagery presented to the viewer is frequently upside down or tilted at other strange angles, causing the crew, equipment, fish, flocks of birds, the sea, and sky to collapse into a blur of disconnected visuals. Owing to its unique presentation, *Leviathan* has been variously described as a 'horror documentary with sea legs' (IDFA) or a 'poem of images and sound' (Frodon 2013: 6). Alternatively, one could argue that Castaing-Taylor and Paravel have

managed to capture a network with no discernible central node whatsoever; a true mess of interagential relationships. In this reading, the directors of *Leviathan* come as close to presenting an image of the sea-as-sea as might ever be possible. Even if numerous choices were still made by the film crew – which camera and setting to use; where to scatter the devices; when to turn them on or off; and most importantly, which scenes to include in the final product – these issues of representation are continuously foregrounded, questioned, and inverted. For instance, the list of actors in the credits includes humans and non-humans alike, emphasising that all species come to 'play a part' when caught on camera. Names such as that of Captain Brian Janelle appear alongside 'asterias vulgaris', or the common starfish, 'callinectes sapidus', or the Atlantic blue crab, and 'fulmarus glacialis', or the northern fulmar (Castaing-Taylor and Paravel 2013). In this way, *Leviathan* remains committed to exploring all forms of existence without differentiation, even if this is seemingly already precluded by the very act of capturing the world on film.

The sections that now follow draw on Actor-Network Theory to explore a number of aspects of *Leviathan*. The discussion begins with a closer examination of the documentary's non-anthropocentric scene-setting, explicating along the way the relationship between this decentralised viewpoint and the mess of interactions the film seeks to capture. This is followed by an analysis of the different types of interactorial relationship that feature in *Leviathan*: symbiosis, individual and species negotiation, and cacophony. Finally, all of these observations are situated in the context of the marine game of cat's cradle, and in particular the idea of 'meeting the other players'.

Viewpoints

The first scene of *Leviathan* is a single shot lasting more than ten minutes. At first, all is pitch black. Only after a while does a red light become visible, accompanied by the sounds of a rough sea. The shot pans, but seemingly without goal. A buoy comes into view. Then the sea, shot from above. As the lens travels, a rattling noise can be heard and what seems to be a moving chain appears on the left. The right side of the image, meanwhile, shows the surface of the sea. A hand appears, then disappears. The camera does not follow. Suddenly everything becomes clearer. The camera is attached to the chest of someone standing on the deck of a ship, and they are making a grab for a chain. The view changes and a cage appears amid the waves. A man in a yellow anorak is carrying out some unclear task while the camera bearer looks on. Then both start working quickly, attaching and detaching various chains. Some larger ones, disappearing under the surface of the sea, are slowly being reeled in. A third fisherman, in a red anorak, receives instructions from the camera-bearer but struggles

to carry out the task. When he finally succeeds, all stand back and wait for the catch to appear. The sea and sky behind the vessel are briefly brought into view; a flock of fulmars has materialised. A few minutes later, the scene ends with a deck full of fish. The net is made ready for casting again (Castaing-Taylor and Paravel 2013).

Up to this point, the documentary seems to be an amateur's poor attempt at creating something akin to the long-running television series *Deadliest Catch*. However, as soon as one starts to interrogate this and other scenes more closely it becomes clear that *Leviathan* is in fact the antithesis to Discovery Channel's hit programme. It deconstructs their assumptions of narrativity, species exceptionalism, and the associated camera focus, and replaces them by a non-centralised, diffuse approach to the totality of the (marine) world it seeks to capture. Rather than limit itself to a representation of human hardship and the potential economic gains of night trawling, the film opts for a 'diffraction of gazes that allows no slackening of the point of view, but on the contrary questions everyone's legitimacy while putting into play the multiple ways in which this particular "here and now" (…) could be perceived' (Frodon 2013: 7). Every subject and every gaze counts in this image of a deepwater bio-eco-socio-sphere. For example, the documentary includes long shots of fish flopping on the deck and washing through the scuppers. Some of them look directly at the camera, causing the viewer to come 'face to face' with the dying animal. These scenes are twinned with footage of a sleep-deprived Captain Janelle; but even though he is a human being (and the commander-in-chief on this vessel) he receives no special camera treatment. In many ways, Janelle is stripped of his captaincy: the angle and presentation are the same in each instance, with both fish and human presented as curiosity among curiosities rather than individual beings on different rungs of a natural hierarchy. A third confusion of viewpoints occurs in a scene where the camera has been placed just above or below a television set, capturing whatever (or whoever) is looking at the screen in a strange reversal of gazes. The same question applies to each situation: *who is watching who*? The renunciation of a fixed viewpoint is further emphasised by the many scenes in which the viewer is pushed into a dizzying sequence of light and dark, water and air; when it is impossible to determine *where on the ship* (or off it) the camera is, and whether it is upside down or not (Castaing-Taylor and Paravel 2013).

Leviathan's filming approach deprioritises human activity, including the commercial fisheries. There certainly are parts of the documentary that give an idea of the labour involved in night trawling, but these glimpses are accidental and unfocused; the viewer might well be watching a close-up of the pores in a deckhand's neck or their tattoo of a voluptuous mermaid, rather than their scallop-shucking hands. Even the scenes that come

closest to paralleling some of the material from *Deadliest Catch* refuse to focus on the actual fishing operation. Instead, the camera maintains its tendency to latch on to (parts of) individual actors, thus failing to track economic activity aboard the *Athena* in any meaningful way. For example, when Captain Janelle operates the automated net hoist, the slightly skewed view is of his face; as before, what stands out is the sheer organicity of his being – drooping eyelids, beads of sweat rolling down his forehead, idiosyncratic chain-smoking – rather than the economic process he is involved in. Meanwhile, the influence of non-human actors on the quality of the shot is almost limitless: water splashes the lens, waves disturb any notion of stability, and the sweep of a dying fish's tail sends the camera skittering across the deck just when one might expect some semblance of a snapshot of industry in action.

The documentary ultimately emphasises that the *Athena* cannot be divided into an 'inside' and 'outside', or for that matter into distinct human-cultural and natural-environmental territories. The sea washes in through the scuppers as readily as it exits them; it crosses the deck and enters the hold at will. The cloud-streaked skies envelop the scene as much as the ship's interior ever could. Add to this the confusion effected by the dislocated camera and one can rest assured that the view never radiates outwards from a central point in the vessel. Every individual being in this mess of existences is its own key node in the network of actors. The title of the work captures this sentiment well: the viewer is, indeed, faced with a veritable Leviathan of concurrent activity, a monster emerging from the deep unknown of the North Atlantic that confronts them with the reality of being among-beings in the world. As a rule, human-centred scenes – if that is what they really are – seem to come directly before or after some of the most confounding, upside-down, (semi-)submarine imagery; a flurry (or, again, Leviathan) of non- and more-than-human activity bursting through to upset the gaze. Jean-Michel Frodon confirms that the film was designed to generate such a mess:

> [I]f Leviathan is an exceptional visual – or rather sensorial – splendour, it is also, and within the same trajectory, *a manifestation of a conception of the world as world.* Meaning the world as a whole that contains in their distinct places a multiplicity of relationships to the world, which usually ignore or exclude each other. A "pluriverse" (…) rather than a universe. (2013: 7; emphasis added)

The conjecture that these actors and/or relationships 'usually ignore or exclude each other' is inaccurate, however: it is precisely the engagement between actors that 'makes' this pluriverse and allows it to proliferate. This means that the totality of this world is best captured by focusing on the quality and extent of distinct interagential relationships; in other words, by performing a more in-depth ANT inquiry. This is done in the sections that now

follow, which in sequence trace something akin to a deterioration of intentionality and causality: the discussion begins with the notion of symbiosis, and ultimately ends with cacophony or utter chaos.

Symbioses

It is already evident at this stage that the relationship between human and non-human actors in *Leviathan* is far more complicated than a unilateral act of resource extraction. The fishermen may catch fish to make a living, but their activity and even their very presence in the marine environment also play a crucial role in the constitution of a variety of non-human modes-of-being, most of which have no bearing whatsoever on human economic affairs. Castaing-Taylor and Paravel's documentary provides visual evidence of at least two different types of cross-species symbiosis: commensalism and parasitism. Take for example the relationship between the fishermen and the flocks of seabirds (mostly fulmars) flying in the wake of the vessel. The birds know that soon after the net is reeled in, a plethora of food – fish heads, organs, other bits and pieces – will spill through the *Athena*'s scuppers, providing them with a free meal. Since their presence does not in any way affect human activity aboard the ship, this is an excellent example of commensalism. Meanwhile, the relationship between humans and different species of (shell)fish and crustaceans is more parasitic in nature. Rampant resource extraction provides the fishermen with a relatively stable income, and the wider population with a source of nutrition; however, the industrial activity of the *Athena* and other trawlers also leads to fish stock depletion and even the possibility of total population collapse (Bähr 2017: 30-31). The technique used to carry out the work, bottom trawling, is known for copious amounts of bycatch and has proven to be deeply destructive to otherwise uninvolved seafloor habitats (cf. Roberts 2012). The effect of this kind of fishing expedition, then, is the daily curtailment – both intentional and unintentional – of the agency of countless (shell)fish, crustaceans, and other flora and fauna. A very different kind of parasitic relationship comes into view when the camera repeatedly dips below water and reveals the state of the *Athena*'s hull. Barnacle growth and other biofouling has run rampant; simply by existing in the marine environment, the vessel has promoted the growth of a variety of micro-bio-spheres. The presence of these non-human others has a detrimental effect on both the *Athena* itself and its human proprietors. They slow the ship down, raise fuel consumption, and can lead to structural damage, all of which reduce the economic prospects of the fishermen.

The relationships described above are exemplary of the way in which actors exercise modifying influence on other actors in the same network. Not all effects of interagential

mediation are immediately visible, however. For example, the fulmars that feed on ship scraps have clearly altered their behavioural patterns to benefit from the free food made available to them. But what does this changed diet mean for the birds' digestive systems? And what (scavenging) behaviours do they teach their offspring? What would happen if this bounty of free food came to a halt? Similarly, while the fishermen's work benefits them economically, it also forces them to suffer numerous hardships. Captain Janelle is living proof that the crew are severely sleep-deprived and depend on substances like coffee and tobacco to get through their shifts. Meanwhile, the barnacles and other micro-organisms on the *Athena*'s hull eventually become victims of their own success: periodic cleaning in the dry-dock is carried out precisely to combat their excessive proliferation. These last examples demonstrate that ripples of mediating influence can run unexpectedly far and wide through the network, affecting actors in unique (and often unseen) ways.

Negotiations

Castaing-Taylor and Paravel's documentary also features numerous complex relationships in which no clear benefit or detriment can be identified for any involved party. Instead, these relationships appear to revolve around the assertion of agency against a tide of other, often conflicting claims-of-being. Such interagential negotiations occur between humans and animals, but also between humans and objects, animals and animals, animals and objects, and even objects and objects. Examples are countless. The fisherman grappling with the chain in the opening scene of *Leviathan* is acting on the object in an attempt to achieve his own agenda: hauling in the net. When the chain resists this motion, it asserts a type of agency *both for itself* and *against another actor*. Similarly, water, wind, and the *Athena* engage in a constant jostle to dominate physical space, the effect of which is a perennial shifting of presence that implicates virtually all other, 'smaller' actors in the network. Even the cameras used by the film crew must stake their own territory. In an interview given around the time the documentary premiered, Véréna Paravel relates that the crew started out 'using big cameras, EX3, EX1 (…) with the idea of dispersing other small GoPro cameras between the fishermen and us (…) [but we] lost all of our bigger cameras at sea,' meaning that 'at [sic] the end, those small cheap cameras that we used were the most interesting tools for us to be able to work with the fishermen and to go even beyond that, to share and spread the perspective also to the catch and the elements…' (Cook 2012). The loss of valuable equipment in the first stage of shooting the documentary proves that there was no guaranteed vantage point for the camera in the mess of interagential relationships; the 'view' into this world itself had to be laboriously staked out. The unceasing nature of this process is revealed

in the final product when a net is dropped onto the camera in the middle of a scene, blocking all view and sound and making it unclear whether the action has shifted (Castaing-Taylor and Paravel 2013). Similarly, the directors' refusal to employ a gimbal to improve image stability indicates their strong commitment to the idea of having the camera negotiate its participation in the *Athena*'s bio-eco-socio-sphere. Related to this is Castaing-Taylor and Paravel's own place in the network. Seemingly holding on to a last vestige of the illusion of unmediated representation, the directors never feature on camera; and yet Paravel readily admits the toll of the project on both of them, describing the experience of being on the ship as involving '[a] lot of fear (…) [a] lot of physical pain' (Cook 2012). Elsewhere, they admit that 'Lucien [got so] violently seasick [that he was] more or less knocked out for the first 24 to 48 hours of every voyage' (Hoare 2013). Situations like these prove the inclusion of all actors in the network – irrespective of their role in the resulting documentary – as well as their need to negotiate and maintain these positions on an ongoing basis.

Cacophony

Concurrent and contradictory expressions of agency can lead to bizarre situations, many examples of which feature in *Leviathan.* A lengthy shot of fish flopping on the deck reveals that one of the larger specimens is in the process of gobbling up another; both will soon be dead, but this does not stop the first fish from exercising mediating agency in the network of relations. In a similar vein, new actors are 'born' from the violent events depicted by the documentary: innards spill from gutted fish and reveal themselves to be actors in their own right, with the fisherman's knife serving as unexpected catalyst in the process. A rusted can of lager emerges as bycatch: what is it doing here? If anything, the piece of scrap metal issues a stark reminder of the marine network's hyperobjectivity; there are no bounds to the number and types of actors it encompasses. Not long after the can tumbles out of view, a seemingly invalid seabird is shown as it grapples with a low metal barrier. It is either hunting for scraps of food or unable to cross the blockade; eventually it turns around, walks towards the open scupper and splashes into the sea. Whether this means the creature has chosen to die remains unclear; in fact, the entire episode seems utterly devoid of meaning or intention.

Combined with the chaotic soundscapes that characterise the documentary – a disharmonic chorus of voices, wind, cables, waves, slurs of human speech, unidentifiable splashes, squawks, and squelches – the viewer of *Leviathan* is frequently confronted with nothing less than cacophony: the pluriverse of actors regresses into a messy totality of what one might call 'omnidirectional' (or every-which-way) agency. Life, death, economy, and (human) intention are beside the point in this network that serves no purpose but its own

existence: it simply *is* through a never-ending process of *becoming*, and the same holds for its constituent elements. Every agent seeks to stake its own claim of existence, either with, despite, or against similar activity carried out by its peers and nemeses. It is for precisely this reason that *Leviathan* could only ever be an assemblage of jittery visuals and frenzied activity tending to near-meaninglessness; such is the world it set out to capture.

Meeting (Some of) the Other Players

Leviathan has proven to be the perfect point of departure for an inquiry into the poetics of the contemporary sea. It manages to de-centralise the human subject, offering up the totality of the network of its actors for the viewer to explore. The setting is, indeed, a fishing expedition on the North Atlantic, but it implicates a vast pluriverse of peoples, animals, and objects that, each in their own way, engage fully in the different processes of being. In an insightful analysis of *Leviathan* that touches closely on some of the issues that were raised in the current chapter, Stevenson and Kohn observe that through its dizzying approach, this 'ethnographic dream' allows one to 'gain, perhaps, the possibility for a sort of sympathetic resonance with all of the beings, strange and familiar, that this sea monster envelopes [sic]' (2015: 52). They add that '[a]llowing ourselves to dissolve as we trace (…) connections becomes, then, a form of ethical, or even political, practice in a world that spans beyond the human' (Stevenson and Kohn 2015: 52). The result, they suggest, is that '[we develop] an ethnographic attunement to the voices that haunt our world' (Stevenson and Kohn 2015: 52). The preceding pages add to this by showing the value of Actor-Network Theory – never mentioned by Stevenson and Kohn, or for that matter most other scholarship on *Leviathan* – in both describing and effecting that kind of attunement to the non- and more-than-human world. In other words, they demonstrated that Actor-Network Theory can help humans 'meet' the other players in the complicated game of marine cat's cradle. Even so, this chapter's discussion has only scratched the surface of that multispecies reality. Attention has yet to be paid to a large array of other participants in the network, including fisheries laws and regulators; industries such as tobacco, manufacturing, and food processing; healthcare; family life; seasonal variations in fish stocks; the weather; currents; and more. As Latour observes in his treatise on ANT: the act of mapping the network continues indefinitely (2006: 136-139).

It must be noted that Castaing-Taylor and Paravel's documentary is in many respects unique. *Leviathan* dares provide an imaginative response to the sea-as-sea that many authors and filmmakers shy away from, precisely because it foregoes control of the narrative by staying speechless (cf. Stevenson and Kohn 2015: 50). The need to remain in charge

permeates contemporary creative expression, and speaks volumes to a wider societal reluctance to accept non-human agency and meaning. It is for this same reason that many of the fictions and films discussed in subsequent chapters of the thesis are only marginally successful at letting the sea and marine biosphere speak for themselves. In that apparent failure, however, they are revelatory. They highlight the problematic nature of contemporary human-sea relationships and their concurrent representations, while – much like *Leviathan* – continuously hinting at the *possibility* of alternative modes of engagement between human beings and other species and phenomena.

Conclusion

Contemporary marine environments exist in a tangle of relations that resemble a complex kind of cat's cradle. Numerous players of different kinds and species are involved in dictating the outcome of the game, and there is a real risk that individual participants – including human researchers – get stuck in the process of untangling the threads. To mitigate this problem, they must be able to reckon with a multitude of scales and avoid discriminating between the types of entities that can partake in the making of marine realities. Building on these two principles, this first chapter set out to identify a methodology that could underpin the project's poetics of the twenty-first century sea. The discussion began with an investigation of the tension between human society ('Culture') and the natural environment ('Nature'). It was demonstrated that the divide between these two spheres is artificial and rapidly losing credibility under the pressures of life in the Anthropocene. This necessitates a complete reconceptualisation of the terms 'social' and 'society'. Building on the 'new' social, which takes an open view to the type of beings that can form a society, the chapter then discussed how a number of different ontological theories might be able to account equitably and without prejudice for the way in which different entities can interact. The first of these theories is known as Object-Oriented Ontology (OOO). Proponents of OOO suggest that different instruments for subject-object substitution ('theatricality' and 'metaphor') may be employed by human interlocutors to gain access to the elusive 'real' essence of non-human animals and objects. However, OOO was found wanting when its methods were applied to the case of a jellyfish, with the method of substitution turning out to be nothing less than a return to the human viewpoint. It did prove possible, meanwhile, to salvage a central abstraction from OOO theory and employ it on a stand-alone basis. This is the hyperobject, a concept that describes accurately a number of the unique traits possessed by marine environments, including its plurispatial and -temporal distribution and its near-limitless influence on other entities in the world. A more robust overarching methodology

was found in Bruno Latour's Actor-Network Theory (ANT), which reads society as a network configuration in which actors exercise mediating influence on one another. This particular framework allows human researchers to engage with non- and more-than-human others on a level playing field, but without overstepping the boundaries of their own perspective and claiming knowledge of the experience-of-being of other entities.

The value of Actor-Network Theory was demonstrated through application to Lucien Castaing-Taylor and Véréna Paravel's 2013 documentary film *Leviathan*, a diffracted, non-anthropocentric account of interlocking lives and realities in, on, and near the vessel *Athena* during a fishing expedition off the coast of New Bedford, Massachusetts. The discussion started by highlighting the various viewpoints offered in the documentary and the way these are equally distributed between humans, non-humans, and more-than-humans. This was followed by an appraisal of the different kinds of relationships between actors that feature in *Leviathan*: symbiotic ones such as commensalism and parasitism, but also practices of negotiation and even utter cacophony. Particular attention was paid to the extensive mediation occurring in marine multispecies society, which helped establish a sense of attunement to life in a more-than-human world. The chapter that now follows builds on this rudimentary understanding of saltwater entanglement to discuss the various ways in which human narratives about marine environments can influence their real-world constitution and vice versa. This heralds an increasingly physical-epistemological turn in the analysis, with subsequent chapters explaining in ever more detail how human, non-human, and more-than-human fates are inexorably intertwined in the making of today and tomorrow's marine lifeworlds.

Chapter II – Sea Change

Telling Stories About the Sea in a Time of Ecological Disaster

The Netherlands is commonly known as one of the lowest-lying countries in the world. Its most populated areas are situated well below sea level, which places them under constant threat of flooding (cf. AHN 2019). In this context, many people still remember or have heard of the 1953 North Sea Flood, which killed 1836 Dutch citizens as well as 307 Englishmen and women, 224 seafarers, and 25 Belgians (cf. Watersnoodmuseum 2018). Such disasters have cultivated in the Dutch collective consciousness an attitude towards the sea that blends vigilance and pragmatism. This became particularly evident when in 2014, Rijkswaterstaat (the Office for Water Management) launched the website overstroomik.nl, which loosely translates to: 'Will my house flood?' Even though the mission of this government body is to keep Dutch feet dry – thus sidestepping the question altogether – they argue that 'nature is unpredictable' and that coastal defence structures might be overwhelmed one day (Rijkswaterstaat 2014a). The website is meant to help prepare the public for such an eventuality.

Overstroomik.nl allows its users to enter their address or postal code, after which they are provided with matter-of-fact details on the level of flooding to be expected in the area if major marine or fluvial catastrophe hits. Users are also provided with practical advice for survival. Tips include the number of stairs to climb to reach safety in a particular area; what to bring when going up those stairs (including a radio, batteries, torch, and one's passport); and ways to prepare the house when flooding is imminent (e.g. manually clogging the toilet to avoid sewage upwelling). Besides risk assessments and tips, the website features interviews with North Sea Flood survivors, which serve to emphasise the seriousness of flooding and the risk to life it can pose. For all its helpful advice, however, the website fails to answer one key question: besides an unlucky dyke break, what might be a likely cause of catastrophic flooding in the Netherlands? The puzzlement of the little figure that features in the website's imagery (see Fig. 2) speaks volumes to the lack of explanation regarding the threat of flooding: they simply do not understand why the wave is bearing down on them.

Rijkswaterstaat's refusal to situate future flooding events in the context of anthropogenic climate change creates an unsatisfactory vacuum of meaning, leaving the signature stick figure confused and directionless when faced with sudden environmental upheaval. The chapter that follows will argue that this is precisely the position occupied by contemporary societies when confronted with the degraded state of marine environments. Beset by a

Fig. 2: The constant threat of sea flooding demands a comprehensive narrative.
(Source: Rijkswaterstaat 2014b. Image in the public domain)

barrage of natural-scientific 'information dumps', the modern public has been pushed into what has been variously explained as a pre- or post-traumatic state of paralysis: they are aware that something is terribly amiss, but unable to act on that information due to the lack of a comprehensive narrative. It is argued that only stories can provide a way out; they have always given meaning to the relationship between humanity and the sea, and will continue to do so in the current period of climatic upheaval. The chapter demonstrates that present human engagement with marine environments is informed by past accounts of exploration, trade, and travel, but also that these stories are now irrevocably altered – and found wanting – by ecological anxieties. This signals the need for a radically different kind of narrative. Building on the theoretical framework developed in Chapter I, it is suggested that future storytelling practices must follow the principle of displacing the human species from its central position in the marine network of actors. This can be achieved by remaining acutely aware of the mediating influence exercised by *all participants* in the multispecies, multiphenomenal tangle of existences. The work of philosopher-physicist Karen Barad is drawn upon to demonstrate that such influence is also exercised during narrative interventions. This means that it now matters *ethically, ontologically,* and *epistemologically* what humans say when describing their (desired) relationship to the marine environment. Stories do not just represent a given state of affairs: they actively co-create the world and its constituent elements.

The chapter concludes with an analysis of Sam Taylor's 2010 novel *The Island at the End of the World*. This work demonstrates the considerable power of storytelling in shaping and reshaping not only human lives, but also the existence(s) of non- and more-than-human others. By superimposing his own narrative on the reality of life in the Anthropocene, one of the protagonists is able – at least temporarily – to tweak the story of ecological collapse and construe a prelapsarian world for himself and his children. The foundations of this new world start to crumble, however, when other narratives seep through the cracks and challenge the status quo. Along the way, the sea is cast in very different lights. In accordance with the then-prevailing narrative in the story, it is alternately enlisted as antagonist, barrier, edge of the world, or space of possibility.

Information Overload

The United Nations' Intergovernmental Panel on Climate Change (IPCC) issues five-to-six-yearly reports that point without exception to the ongoing environmental damage caused by human industrial activity. Their publications include detailed analyses of the (degraded) state of contemporary marine environments, among other things quantifying the dangers posed by resource overexploitation (e.g. industrial fishing), pollution (including fertiliser runoff, the growing presence of (micro)plastics, oil spills, and the illegal discharge of chemicals, heavy metals, and other waste products), and the changing bio-geo-physical conditions of the sea itself (such as rising sea levels and the occurrence of water acidification due to CO_2 absorption) (Pörtner et al. 2019). These IPCC reports in particular – but also those by other NGOs and (international) government bodies (cf. Bähr 2017) – receive considerable media attention, with the preferred mode of delivery being what Timothy Morton has described as 'dumping massive platefuls of facts on to us' (2018: 9). Such frequent coverage of the climate change crisis is one of the contributing factors to the earlier-mentioned increase in ecological consciousness of the contemporary public. However, rather than spurring citizens to action, the 'information overload' approach has thus far yielded adverse effects, with many people struggling to make practical sense of the problems presented to them on a near-daily basis. They see the numbers but fail to translate those into individual or collective action. Horrified by a single image of a turtle trapped in a six-pack ring or a graph of accelerating species extinction, they find themselves unable to extend that sense of disaster to the millions of other animals living and dying a similar fate, or to the deteriorating health of the seas themselves.

Morton argues that the above situation – human lack of imagination and the associated inability to act – is a symptom of 'ecological PTSD': people are experiencing a trauma while

still undergoing it (2018: 13-23). Furthermore, the everyday experience of life in a time of climate change does not necessarily emphasise its seriousness, especially in the affluent West. Even if people's lives contribute to the continuous unfolding of ecological disaster in numerous ways, many of these impacts remain immeasurable and have no immediate consequences. As a result, the data provided fails to transform people's lives simply because they cannot relate to it properly (Morton 2018: 19-24). They are stuck in the viscous, non-local hyperobject: aware that they are part of its vast network, but not sure in what way. A similar argument (though perhaps slightly more accurate in terms of its selected chronology) is made by E. Ann Kaplan, who argues that humanity might collectively be suffering from 'PreTSS', or Pretraumatic Stress Syndrome (2015: xix, 1-2). She explains that whereas PTSD 'is a condition triggered in the present by past events,' in the case of PreTSS 'people unconsciously suffer from an immobilising anticipatory anxiety about the future' (Kaplan 2015: xix). PreTSS is a condition commonly found in soldiers about to be deployed to a war- or conflict zone (Kaplan 2015: 2). In Kaplan's analysis, however, it becomes a global condition directly related to anthropogenic climate change. Different kinds of apocalyptic narrative that have been fed to society through a variety of media, along with the damning reports by the IPCC and other climate change research institutes, have led to 'a pretraumatized population, living with a sense of an uncertain future and an unreliable environment' (Kaplan 2015: xix). As a result of PreTSS, people throw up psychological barriers that prevent them from even contemplating their own role in the oncoming trauma (Kaplan 2015: xviii-xix).

Another obstacle to productive engagement with scientific data dumps is that the value of information is short-lived. Walter Benjamin famously argued that information 'does not survive the moment in which it was new' (1968: 90); it soon becomes dated and inaccurate or is replaced by a different piece of more recent data. According to him, '[*a*] *story is different.* It does not expend itself. It preserves and concentrates its strength and is capable of releasing it even after a long time' (Benjamin 1968: 90; emphasis added). For this reason, stories are able to not only provide people with a sense of place in the greater narrative, but also with a lasting sense of direction and the promise of guidance along the way. The only way out of ecological PTSD, PreTSS, and short-lived information sequences, then, is to listen to and tell stories for the present and future of humanity in a climate change-ridden world. Such stories are radically different from the IPCC reports: they do not speak of tipping points or planetary boundaries, nor are their lessons expressed in parts-per-million or biochemical flow patterns. Real stories can only be informed by lived experience, which Benjamin observes is the 'source from which all storytellers have drawn' (1968: 84). This

means that contemporary narratives about the sea are best understood in the context of their predecessors: the various sentiments that have informed interactions between humanity and the marine environment over the course of history. The following section will provide an overview of some of these attitudes by drawing on a number of recent studies, including but not limited to the German Historical Museum's comprehensive review of European marine history (Blume et al. 2018), Michael Pye's (2015) account of North Sea uses, and the more global work carried out by Philip Steinberg (2001).

Past and Present Stories About the Sea

Human engagements with the sea were characterised for a long time by a trade-off between adversity and possibility. This tension dates back as far as the ancient civilisations dotted around the Mediterranean, for whom 'the various meanings and interpretations of the sea were essentially dialectical in nature – the sea was an elementary threat and a controllable space, divisive and connective, a risk and a chance, a prison and an open, free space, and communication-enhancing and communication-inhibiting (due to pirates, foreign powers and other dangers)' (Baltrusch 2018: 17). The sea provided sustenance through fishing and fostered trade and intercultural exchange by connecting coastal cities to one another. At the same time, it was a place of danger: rough weather imperilled fishermen's lives and the threat of attack loomed ever close. The result of this ambivalence was that '[d]epending on their perspective, people either turned away from the sea and surrendered to their fate or turned towards it and ambitiously seized the opportunities' (Baltrusch 2018: 17). Those who turned away were quick to highlight the negative influence of the sea, with some even wishing for its complete annihilation (cf. Baltrusch 2018: 16-17, 20; Connery 2006). Examples of this desire to render void the marine environment are found as early as the Book of Revelation, whose author '[describes] in his vision of the new heaven and the new earth at the end of time [that] "there was no more sea"' (Auden 1985: 17). Many non-Western religious texts display a similar ambivalence when it comes to human-sea relationships (cf. Connery 2006).

The tensions described above were still prevalent in Western European coastal civilisations in the Middle Ages. For example, Michael Pye points out that it used to be significantly easier for Europeans living on the coast of the North Sea to cross the water and reach a port city in a foreign country than it was to travel someplace overland within their own national borders (2015: 38-39). This naturally led to the establishment of extensive coastal trading networks, including the famous Hanseatic League (Pye 2015: 220-241). Yet

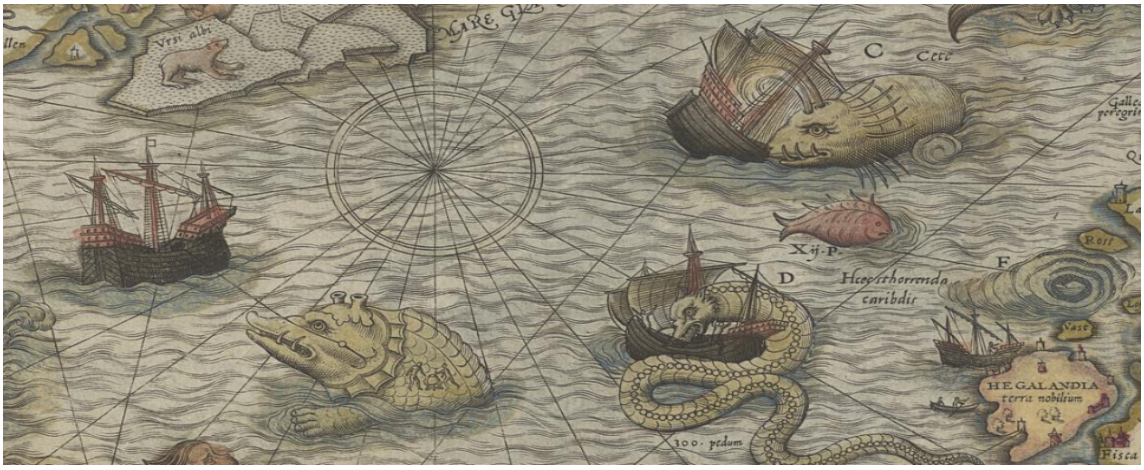

Fig. 3: Detail of monsters and maelstroms on Olaus Magnus' mid-sixteenth century *Carte Marina.* (Source: Magnus 1572; orig. 1539. Image in the public domain.)

a lack of precise knowledge about the nature of the marine environment, as well as the persistent threats of drowning, coastal flooding and storms, and foreign (military) invasions perpetuated fears that already plagued the ancients, meaning the sea retained an aspect of chaos and danger in the public imagination. Olaus Magnus' sixteenth-century map of the Scandinavian seas, the *Carte Marina*, provides great visual evidence of these anxieties through its inclusion of monsters and maelstroms (see Fig. 3). Antithetical readings of the sea later also featured in Romantic works on sublime nature (cf. Wolff-Thomsen 2018: 155-159); though in those cases the sea's otherness was as much cause for awe and celebration as it was for fear.

Around the fifteenth century, capitalising on recent improvements in shipbuilding and navigation, European nations started to extend the boundaries of their world (Rinke 2018: 44). They had already been voyaging eastwards in the preceding period, but the push West (or the quicker route East, as the explorers believed) had yet to happen. The 'age of exploration' that followed Columbus' 1492 arrival in America spawned new perceptions of the marine environment: it became known both as a transitory space and as a realm of possibility and discovery (Rinke 2018: 44-52). However, while European nations dreamed of amassing wealth and spreading their culture, indigenous peoples in the Americas and elsewhere saw their way of life severely threatened and more often than not completely destroyed (cf. Rinke 2018: 50-52). For one, developing the new colonies required vast amounts of labour, which were provided for by a booming transatlantic slave trade. This makes the year 1492 a global historical turning point, marking not just the start of a rapid expansion of the 'known' (i.e. European) world but also 'the beginning of one of the greatest demographic disasters in human history' (Rinke 2018: 52). The age of imperialism and suppression would last centuries – arguably continuing to the present day – and easily

outpaced the dream of discovery, which many believe foundered as modern technologies gathered pace in the late nineteenth and early twentieth century (cf. Conrad 2014: 46-47). In particular the steam vessel made intercontinental travel more commonplace: it was now up to individual citizens (rather than nation-states) to broaden their horizons, with millions of Europeans eventually taking the leap and attempting to build themselves a life on new shores (cf. Kube 2018: 100-109).

A fashion of visiting the sea for holiday purposes developed in Western Europe from the mid-eighteenth century onwards. Visits to the seaside were first prescribed in Great Britain to combat a range of diseases, following the logic that 'sea water cleanses the body and the mind of any "decay"; therefore people should bathe in the sea, drink sea water and eat food that comes from the sea' (Breymayer, Miller, and von Hegel 2018: 388). Over time, 'the medical aspect faded into the background, and the beach became a place for relaxed socialising in loose clothing, seemingly free of the constraints of civilisation' (Breymayer, Miller, and von Hegel 2018: 386). The result of this was that '[n]ew spheres of "intimate anonymity" emerged' (Breymayer, Miller, and von Hegel 2018: 386). From the mid-nineteenth century, a number of seaside resorts also started catering to lower-income holidaymakers (Breymayer, Miller, and von Hegel 2018: 397). When eventually leisure time became a given for the many rather than the few, the type of holiday on offer diversified in order to provide for different budgets and preferences. All-inclusive resorts, package deals, last-minute trips, and luxury cruises were introduced and remain popular to this day (cf. Breymayer, Miller, and von Hegel 2018: 407ff; Bähr 2017: 38-39). The recent Covid-19 pandemic has only highlighted the importance of the tourism industry to the global economy. Meanwhile, media coverage of the spread of the virus aboard cruise ships like the *Diamond Princess* reiterated the central place of saltwater environments in the configuration of modern-day tourism (cf. Ratcliffe and Fonbuena 2020).

Historical engagements between humanity and the sea are further characterised by constant, near-exponential increases in global shipping volumes and data exchange (cf. Steinberg 2001). These developments are characterised by yet another drive to annihilate the marine environment. In this reading, people, goods, and information must be able to travel around the world as quickly as possible, and preferably with a minimum of effort, almost as if the sea were a void to pass over (Steinberg 2001: 164-169). The marine environment here constitutes a natural barrier to the optimal process flows of an increasingly connected global capitalist society. At the same time, the *complete* annihilation of marine environments would never be in the interest of capital: as Steinberg observes, 'the ability to shift capital between "different" places provides a crucial mechanism for capital accumulation (…) and the

intervening distance of ocean-space amplifies difference' (2001: 167-168). In other words: it is precisely the spatial intervention posed by marine environments that makes it possible to accrue value through transportation, by catering to different local markets' balances of supply and demand (Steinberg 2001: 168). A side effect of the drive to (almost) render void marine environments has been that seas and edge zones, such as industrial ports, disappear from view. This means that '[t]he imagination of maritime life is [today] restricted to consumption sites glorifying mercantilist pasts, and these sites rarely contain any cues to assist the tourist in connecting historic memories with functioning ports' (Steinberg 2001: 165). Such detachment from marine and maritime history may well have been a decisive factor in the emergence of hydrophasia during the latter half of the twentieth century.

The contemporary moment presents a strange amalgamation of virtually all previous types of human-sea engagement. Now more than ever, marine environments are used as spaces of hyperconnection, resource exploitation (most notably by the fisheries and fossil fuel giants), and international trade. Colonial legacies and liberal capitalism enforce a continued division between the affluent global North and the developing South, primarily by creating spatially (and economically) distinct sites of production and distribution (cf. Steinberg 2001: 159ff). Many coasts have become established spaces of leisure, in easy reach for (European) citizens through holiday flights, luxury cruises, or the autoroute du Soleil (Bähr 2017: 38; Breymayer, Miller, and von Hegel 2018: 417-418). Yet these accounts of what the sea is or should be are jeopardised by the recurrence of old anxieties. A multitude of scientific and media reports as well as documentaries, films, novels, and other sources issue stark warnings about the impacts of anthropogenic climate change on marine environments. They provide reminders that the physical sea is far from annihilated; instead, this viscous hyperobject exercises almost unlimited influence on human societies and might one day come to pose a real, physical threat to their continued existence. In this way, the various social histories of engaging with the sea converge upon one another in the contemporary moment, but the resulting image is disfigured by the constant and growing threat of ecological crisis.

Human Modesty. Towards a New Kind of Narrative

One result of mounting pressures on contemporary accounts of human-sea engagements is that a number of their constituent elements – in particular appropriations of the marine environment as cornucopia or void – are rapidly losing credibility. This suggests that a recalibration of the relationship between humanity and the sea is now a matter of urgency. Morton, Kaplan, and Benjamin already made it clear that if paralysis and trauma are to be

avoided, such a reorientation should occur in narrative form. Meanwhile, Latour's redefinition of the 'social' indicates that future accounts of human-sea relationships needs to steer clear of the anthropocentric viewpoint. Humanity, as a loose collection of individual actors among many others, must adopt a more modest frame of mind: it should seek to effect co-habitation with the non- and more-than-human rather than attempt further instrumentalisation. The remainder of this chapter will lay the groundwork for this new kind of narrative.

The first step in the reorientation process is to take a closer look at the qualities of mediation, primarily by investigating the extent of the influence of non- and more-than-human existences on human ways of life. The previous chapter's analysis of the network of actors surrounding the fishing vessel in *Leviathan* already suggested that human beings have surprisingly little control over (or knowledge of) the different agencies that surround them on a daily basis. This has led many authors in the Environmental Humanities to criticise the concept of the 'Anthropocene' for confusing the figure of human impact with that of intentionality and associated autonomy (cf. Latour 2017: 62). For them, adherence to the current term suggests that humanity is a group of rational actors in full control of their interventions in the geosphere, rather than one player (or group of players) among many others engaged in the messy business of existence (Latour 2017: 62-63, 68-69). In other words, the term 'Anthropocene' not only puts the human being central – thus perpetuating a detrimental kind of species exceptionalism – but also hints at a non-existent level of influence over the actions of other actors, or even the ability to place oneself outside the tangle of interactorial relations. Adopters of the term are at risk of occupying a position that Latour has called the 'view from Sirius' or the 'vantage point of the universe – "the view from nowhere" – (…) the new common sense to which the terms "rational" and even "scientific" find themselves durably attached' (2018: 68). That the Anthropocene lends itself to such readings is odd considering the very reason for its invention was to acknowledge the often unintentional impact of human ways of life on natural environments. Too strict adherence to the term effectively constitutes an attempt to distance human beings from their own actions: human activity is surrendered to the sphere of Nature, but an attempt is made to keep its effecting agent inside Culture. A more radical shift in attitude must occur in order to arrive at a new kind of 'sea story'. Humanity must begin to admit total, inescapable, and (often) unimaginable entanglement with the marine environment.

As Latour skilfully shows in the opening pages of *Facing Gaia*, it can be scary to admit the entanglement of one's own being with that of other actors. Building on Walter Benjamin's motif of the Angel of History (cf. 1968: 257-258), he describes a dancer

retreating step by step from some unseen horror, only to swivel and realise there is even greater danger looming behind her (Latour 2017: 1-2).[3] The dancer is facing Gaia, the 'profane' (Latour 2017: 87) 'muddle' (Latour 2017: 100) of agents, actions, reactions, histories, thoughts, and interdependencies that share this earth (cf. Latour 2017: 98). It is as if the dancer is confronted by a compound entity comprised of all the networks of actors in the universe, while also realising she is part of it/them. What she sees is unimaginable, not to say impossible. Standing naked in n/Nature, the illusion of c/Culture stripped away, she realises that this has been the reality of human life on earth all along. It is certainly not the kind of story that makes one think they can still exercise mastery over an external environment.

Latour's observations are echoed by Donna Haraway, who refers to the network of relations simply as 'trouble' and compiled an entire volume of essays on how to live in the earlier-mentioned 'Chthulucene', an alternative to the Anthropocene that insists that species exist on a damaged earth, and in a tangle of-, with-, as-, and alongside each other rather than in nicely demarcated zones (2016). Their colleague Stacy Alaimo advocates the idea of transcorporeality, which 'suggests that humans are interconnected not only with one another but also with the material interchanges between body, substance, and place' (2016: 77). In this context, she has thought about what it means to be human in relation to the sea; if, for instance, *humans are* the microbes in their guts, or whether their blood is salty because of some past stage of (marine) evolution (Alaimo 2016: 111-141). The work of a fourth author, Anna Tsing, has long displayed great sensitivity to the autonomy of non-human others and the ways in which their interactions cross and remake human lives (cf. 2017). She recently launched an online repository documenting stories about 'feral' beings, which are non and more-than-human others displaying anthropogenically enabled behaviours that now elude human control (Tsing et al. 2020). These authors are all named here because their work helps develop a more robust understanding of what it means to live with others in a network configuration. By extension, they provide insight into the kind of narrative that might be employed to describe these multispecies relationships.

Agency is Intra-Action

The key to understanding the depth of entanglement in a network configuration is provided by Karen Barad in her work *Meeting the Universe Halfway* (2007). Since Alaimo, Haraway, Latour, and Tsing all build on Barad's work either directly or indirectly, the discussion of

[3] Latour also commissioned a video recording of the dance (originally as 'Stephanie Ganachaud Joue l'Ange de la Geohistoire'). This can be viewed online at https://vimeo.com/475926338.

their work is momentarily curtailed in order to focus on this common foundation. Barad's 'philosophy-physics' (cf. 2007: 24) is best approached through the phenomenon of diffraction. This idea was already encountered in the previous chapter's discussion of the camera placement in *Leviathan*, where it was understood as a manifold splitting of gazes that leads to the loss of the anthropocentric viewpoint. In the context of Barad's work, one must read diffraction first and foremost as a physical phenomenon that describes 'the way waves combine when they overlap and the apparent bending and spreading of waves that occurs when waves encounter an obstruction' (2007: 74). One can then continue to its quantum understanding, in which matter exhibits wave-like properties (and vice versa) based on its entanglement with the measuring apparatus (Barad 2007: 81-84). The quantum understanding is vital to Barad's use of diffraction, namely as a term that highlights the way one's knowledge practices are part of the phenomena one seeks to describe (2007: 91). This observation has profound implications for the (understanding of the) state of 'being entangled'.

In Barad's theory of *agential realism*, she argues that existence does not precede interaction; instead, actors can only ever 'become' themselves through entanglement (2007: ix). Entanglement in the network is all-encompassing, meaning that no agent can think oneself outside of it, as self-constituted or -constituting unit of intention (2007: ix, 136). As Barad puts it, 'individuals emerge through and as part of their entangled intra-relating' (2007: ix). This kind of intra-relating (or intra-action) has a clear function: 'It is through specific agential intra-actions that the boundaries and properties of the components of phenomena become determinate and that particular concepts (that is, particular material articulations of the world) become meaningful' (Barad 2007: 139). In the configuration of intra-action, Barad adds, 'the primary ontological unit is not independent objects [or actors] with inherent boundaries and properties but rather *phenomena* (…) [which are] *the ontological inseparability/entanglement of intra-acting "agencies"*' (2007: 139; emphasis in original). It is not individual actors that matter, nor is it the network alone. Rather, it is the specific layout and interrelationality of actors and networks that together constitutes the phenomenon and therewith the meaningful unit. Together, '[p]henomena are constitutive of reality. Reality is composed not of things-in-themselves or things-behind-phenomena but of things-in-phenomena' (Barad 2007: 140). This means that 'the world is a dynamic process of intra-activity and materialization in the enactment of determinate causal structures with determinate boundaries, properties, meanings, and pattern marks on bodies' (Barad 2007: 140).

Barad explicitly notes that her theory does not 'denigrate separateness as mere illusion' (2007: 136). Instead, she insists on the specificity and causality of individual intra-actions, or the performance of the 'agential cut', through which '*a differential sense of being* is enacted in the ongoing ebb and flow of agency' (2007: 140; emphasis added). In other words: distinct intra-actions cause the emergence of different beings within the phenomenon. This way, Barad is able to save the subject/object distinction despite collapsing the idea of an interior and exterior (2007: 140). Even though no human being is 'on the outside looking in', from Latour's Sirius, one can distinguish oneself within the tangle of relations by considering the effects of specific intra-actions, through which the self and other nodes in the network simultaneously come into being ('mutual constitution', cf. Barad 2007: 33).

The theory of agential realism forces human beings to consider the links between their own actions and those of non- and more-than-human others. Through their own existence, every human individual is already irrevocably immersed in the constitution of other actors, and vice versa. No single being pre-exists its relations. This means that the sea-as-hyperobject is in fact so viscous that it co-constitutes human existences alongside its own. Mediation is not just a matter of interest in examining the impact of agency; redefined as intra-action, *it becomes the definition of being* (Barad 2007: 141). It is worth noting in this respect that mediation is a term that Barad herself generally takes issue with, for instance for '[h]olding nature at bay, beyond our grasp, generating and regenerating the philosophical problem of the possibility of human knowledge out of this metaphysical quarantining of the object world' (2007: 375). However, this is mediation understood as intermediary, in a representationalist reading where language communicates between dual realms of mind and matter. Revisiting Latour, there is no suggestion whatsoever that he understands mediating agency in the same way. He explains it instead as the modifying influence of actions between physical bodies, which is a line of argument that closely resembles Barad's conceptualisation of intra-action. It can therefore be said that these two authors fundamentally agree with – and in many senses expand on – one another's hypotheses. Further discussions of the work of Alaimo, Haraway, and Tsing will reveal that they, too, pursue convergent systems of thought when it comes to the topic of interactorial relations in multispecies lifeworlds.

Stories That Tell Stories

Perhaps the most important lesson that can be drawn from Barad's work is related to the power of narrative. Entanglement to the point of complete coexistence and -production means that language – and therefore, meaning – has become a parallel part of the process of constituent 'becoming' rather than a channel of communication (cf. Barad 2007: 46ff, 133).

In other words, the very act of 'storying' the world is now the equivalent of a physical intervention: fictions imposed on reality can and will affect the very being of the objects and spaces their narrator is entangled with, resulting in the unfolding of a new reality for all actors involved. With regard to this, Haraway has argued that '[i]t matters what thoughts think thoughts. It matters what knowledges know knowledges. It matters what relations relate relations. It matters what worlds world worlds. It matters what stories tell stories' (2016: 35). By the same dictum, it matters whether one is arrogant or humble in crafting a new kind of 'sea story'. It matters whether humanity seeks to capitalise on its powers as world-maker in the Anthropocene by subjugating non-human environments in the relentless pursuit of comfort and profit; or whether it takes a step back and reconsiders its position in the multispecies network of actors. Following the logic of agential realism, it has never mattered more how human beings situate themselves among their non- and more-than-human kin in contemporary marine environments.

Barad insists that her theory rewrites not only the rules of ontology, but also those of epistemology: physical existence directly impacts the production of knowledge, meaning the two realms can no longer be kept separate but merge into one another (2007: 185). As one's actions *matter to others*, this onto-epistemology also acquires an ethical dimension (Barad 2007: 185). In this way, it can be argued that both Barad and Haraway help prepare their readers ethico-onto-epistem-ically (cf. Barad 2007: 185, 381) for the massive project of telling the stories of future human-sea interactions. To demonstrate the validity of this statement, a recent work of not-so-humble cli-fi is now taken up for analysis: Sam Taylor's *The Island at the End of the World* (2010), a novel that explores the impact narrative can have on the tangle of relations that constitute both one's own and the world's being.

Narrative and Terraforming in *The Island at the End of the World*

Taylor's novel plunges the reader straight into a post-apocalyptic landscape that is described alternately in diary entries by eight-year-old Finn, his father Ben (or 'Pa'), and his thirteen-year-old sister Alice. The family is completed by youngest sister and daughter Daisy, who appears to be about five years old. They live together on an island and, according to the (heavily religious) stories Ben tells his children, are likely the only survivors of a great deluge that flooded the world and poisoned the seas. 'Pa' has cast himself as a modern Noah, who barely managed to save his family from this 'Flood' by building an ark – the house they currently live in, on the island – in their backyard in Los Angeles (Taylor 2010: 96-98). They originally set out on the journey together with their mother, Mary, but she tragically passed away when saving Daisy during a great storm (Taylor 2010: 98, 169-170). In their years on

the island, the little family has managed to build itself a life of plenty by tilling the soil and keeping livestock (cf. Taylor 2010: 7-9). Pa has even been able to brew his own wine in a number of hand-built kegs behind the ark (Taylor 2010: 137).

As the narrative unfolds it becomes clear that all might not be as it seems. Ben's diary entries suggest that he is not telling his children the whole truth about their life on the island, the state of the world, and the fate of their mother (cf. Taylor 2010: 29-36, 169-171). Meanwhile, the two elder children – especially Alice – start developing their own doubts (Taylor 2010: 28, 63). Certain aspects of the stories their father tells them are not adding up. Why does the sea not have waves? And why does Alice have recurring memories of her mother being on the island if she is supposed to have died on the journey? Soon enough Alice and Finn discover a supply shack in the woods that their father has been hiding from them. Not long after, a familiar stranger arrives on the island from the world beyond. It is cousin Will, who the children fail to recognise but whose renewed acquaintance sends the already easily enraged Pa into a frenzy of aggression and anxiety. He worries that his children might hear a different story from Will, a counter-narrative that will severely undermine Ben's own version of events.

Eventually the reader finds out that *almost everything* Pa has told his children is a lie. Through a combination of physical interventions in the landscape, as well as a laboriously spun narrative describing the state of affairs in the world beyond the island, he has created a whole new reality for himself and his children to inhabit. But this fiction is now unravelling. It is slowly revealed that the family does not live on an island at the end of the world, but rather on a few acres of high ground in a manually flooded valley. The world beyond – albeit deeply scarred by the excesses of capital and associated climate catastrophe – continues to exist. Mary is alive and well and lives in Los Angeles; in fact, she was the one who sent Will to the island to check on her children and tell them about her existence. The only characters not in the know are Alice, Finn, and Daisy. When eventually Alice finds out that she has been misled all these years, she does not get a chance to act on this knowledge. Instead, Will and herself are brutally murdered by Ben to keep the narrative alive for the rest of the family.

The Island at the End of the World can be read as a detailed exploration of the role of narrative in reappropriating physical reality. The novel also homes in on humanity's geophysical agency in the Anthropocene, in particular when it assesses Ben's world-building abilities in the period when he first created the island. In this way, Taylor's work follows Barad's theory of agential realism as well as Haraway's premises that *it matters what stories are used to tell stories* and *what worlds make worlds*. The following sections will address in

turn the novel's descriptions of the power of narrative in (re)shaping lifeworlds, and the possibility for human physical intervention in existing landscapes.

Reinventing Reality through Narrative

Barad and Haraway both insist that to tell a story is to design a world and participate in its actualisation. Taylor's novel proves this dictum by providing an excellent example of the far-reaching consequences narrative can have on one's conception of the world. Alice, Finn, Daisy, and even Pa himself wholeheartedly believe in the 'Flood' narrative and act accordingly. Theirs is not an experiment in off-the-grid living; it is a life lived in the firm belief that they are the only people left on the planet. Granted, Pa is aware that a different narrative exists and in his more honest moments he admits that he has been lying to his children for years. However, he is also frequently sufficiently deluded to disappear into his own stories and forget about the 'other' narrative. For instance, he remarks to himself: 'Often (...) it is better to forget what you KNOW, and to believe only what you can SEE with your own two eyes. The sky, the sea, the empty horizon' (Taylor 2010: 36).

Among other things, Pa's confabulations make it possible for him to physically lock the family into their existence on the island. Narrative reinvention of the sea plays a particularly important role in this process, allowing Ben to ensure that every association with this space is now dominated by a sense of anxiety. Many previous conceptions of marine environments are turned on their head along the way. Rather than inviting the possibility of intercultural exchange, the sea is an abyss into which the rest of the world has disappeared; and instead of opening up the world for exploration, the poisonous waters keep travel aspirations and other dreams of personal development at bay (cf. Taylor 2010: 92). That the children believe their father's claims is evident from several remarks by Finn, for instance when he warns his sister not to touch the water (Taylor 2010: 22), and when he shows concern about Will's physical wellbeing after the latter's raft journey to the island (Taylor 2010: 92). At the same time, Alice has long harboured the suspicion that the reason their father never taught them how to swim is not so much that it is a useless skill – the water being poisonous anyways – but because he did not want them to leave the island (Taylor 2010: 73-74).

Pa did not spin his narrative out of thin air. Instead, he draws heavily and rather liberally from a range of Biblical stories to situate events in the recent past and present on a timeline that stretches all the way back to the myth of original sin. For instance, he frequently refers to the island as 'paradise' (Taylor 2010: 6) or 'Eden' (Taylor 2010: 30) and compares his daughter Alice to Eve, both because of her descent (or ascension) into a state of knowledge (Taylor 2010: 53-54, 200-201) and because of her developing sexual relationship with Will

(Taylor 2010: 112-113). The island even comes replete with its own version of the Tree of Knowledge (or 'Knowing Tree', Taylor 2010: 5) and it should not come as a surprise that it is immediately after climbing this tree that Alice and Will are killed. In Ben's own paraphrase of the Book of Genesis: 'But of the Tree which is in the midst of the garden, I have said, Ye shall not climb it, neither shall ye look from it, lest ye DIE' (Taylor 2010: 201). Pa also draws inspiration from the story of the Tower of Babel, for instance when explaining people's consumerism and arrogance in the face of the 'divine punishment' of climate change (cf. Taylor 2010: 17, 97-98, 164). 'Babylon' provides him with the means of constructing an antagonist, a city of evil and despair, to their own prelapsarian world (Taylor 2010: 3). Yet another Biblical episode helps Ben explain how the family managed to escape from the 'contaminated' world (cf. Taylor 2010: 3, 78-79). In a loose modern adaptation of Noah's antediluvian preparations and subsequent journey, he claims that he

> stopped turning up for work because I knew money would soon lose its value, would mean nothing, and (…) stayed at home in the garden, sawing and measuring and hammering and sanding and varnishing for four hundred days and four hundred nights until finally the ark was ready (…) and on the night when the storm began and the heavens opened Mary believed me then O yes and she followed me and the children and animals into the ark and we sealed up the door as the rains fell upon the earth and the waters rose and the thunder roared and the lightning flashed brighter than the sun illuminating horrors (…) [and] we sailed for many days (Taylor 2010: 97-98)

Finally, Ben frequently (mis)quotes the lesser prophets of the Old Testament (e.g. Micah and Ezekiel, cf. Taylor 2010: 52, 133) as well as the Book of Revelation (cf. Taylor 2010: 16, 33). He does this to help situate the world at large as well as himself and his family in the apocalyptic endgame of Scripture, even if this completely unhinges his other assertion that they have settled in a prelapsarian Eden. More redemptive parts of the New Testament – the birth of Jesus; his death on the cross; the delivery from sin – never feature in Ben's story of the island at the end of the world, presumably because they would require him to extend a measure of compassion and forgiveness to the world he condemned so harshly.

Cobbling together his own narrative in this way helps Ben justify his decision to take the children to the island and keep them there. Moreover, it legitimises his emotionally, physically, and possibly sexually abusive behaviour, even if only to himself.[4] His particular selection of foundational myths proves that Ben has a drive to annihilate the world – and by

[4] Depriving the children of the knowledge that their mother is still alive is one example of Ben's emotional abuse (cf. Taylor 2010: 196-197). At several points in the novel, he flies into a rage and physically assaults both Alice and Will (cf. Taylor 2010: 52-53, 179-181). Though it is not directly clear whether he is sexually abusive, his drunken stupors (cf. Taylor 2010: 53-60), frequent sharing of the bed with Daisy (cf. Taylor 2010: 41-42, 67), and references to the story of Lot sleeping with his daughters (Taylor 2010: 135-136) suggest this might be the case.

altering its very nature, the sea – even if it still exists in order to sustain his life on the island. There are particular benefits to his own ego to be gained in the process of imagining the world 'out there' out of existence. Perusing the backstory of Ben's flight to the island, it becomes clear to the reader that he was previously let go from his high-grossing job because of a 'so-called nervous breakdown' (Taylor 2010: 90) and ended up digging pools in the sweltering California sun for clients including his denigrating brother-in-law (Taylor 2010: 90-91, 163). The new narrative – of a flight from doom, and Ben's remarkable foresight in the matter – turns all this on its head, making Ben into an upright, dependable family man and rendering everyone else a fool. His story of the family's departure in the ark, for instance, includes Ben's account of 'trees and hills crawling with people all of them pushing and crushing the weakest to save themselves the cowards but IN VAIN for the waters were rising ever higher and the naysayers knew in their hearts that I had been right after all' (Taylor 2010: 98).

Pa's religious fanaticism in the upbringing of his children has had considerable influence on their perception of the world and the language they use. The result is that both Alice and Finn employ a kind of newspeak that resembles the English language but is inflected by their father's vocabulary, their lack of formal schooling, and their limited access to books (the Grimm brothers' *Fairy Tales*, the Bible, and the collected works of Shakespeare comprising their entire collection, cf. Taylor 2010: 45). Finn's opening lines in the novel provide an excellent example of this newspeak, while immediately demonstrating the extent to which his knowledge of the world is dominated by his father's lies:

> Soon as I breath in I no. (…) I no shure as I no my names Finn an Ive got a hunerd an four moons. *Shure as I no I live on an I-land an my Ma died wen I were lil*. Shure as the suns the sun *an the seas the sea* I no winters finely over. (Taylor 2010: 7; emphasis added)

Finn's sister Alice, being older, has spent more time reading the Bible and internalising its language. As a result of this – and her budding sexuality – she often speaks in verse, most of it taken almost straight from the Song of Solomon. This leads Will to remark to her that 'the way you talk sometimes it's (…) I don't know, like a poem or something. I've never heard anyone talk like that before' (Taylor 2010: 146). A sample of Alice's writing, capturing her fantasies about Will, is the following:

> *his eyes as the eyes of doves by the rivers of waters washed with milk his cheeks as a bed of spices as sweetflowers his lips like lilies dropping sweet-swelling myrrh* (Taylor 2010: 128; emphasis in original)

There is a particularly striking episode near the end of the novel when, in the midst of a passionate encounter, Alice asks Will to '[c]ome in unto me' (Taylor 2010: 187). This throws Will completely. When he asks her what she means by that, an embarrassed Alice replies: 'It's what they say in the Bible (…) I don't know how else to say it' (Taylor 2010: 187). Though not highlighted as such in the narrative, the linguistic confusion between the two is in fact a key moment in Alice's developing consciousness of not only an alternative truth to the stories her father has been telling her, but a whole different register of language that has been hidden to her all her life.

Alice's search for knowledge and construction of a counter-narrative (aided, but not necessarily initiated by Will) is driven by her sense of feeling wronged. She expresses her agitation clearly: 'I feel as if something precious has been stolen from my life. And I can't even remember what it is!' (Taylor 2010: 125). When she makes this statement, she is still unable to understand that what has been stolen from her is *her story*; that she has literally been told an untrue version of events over and over again, until the new narrative overlay the old one to such staggering degree that she became unable to distinguish between what was true and what false (Taylor 2010: 197). Yet her indignation at being wronged leads her to probe and query until she discovers what the world is really like; until, standing atop the Knowing Tree, she catches a glimpse of the world around her that 'changes everything. My whole life. The whole world. The sea is not a sea. The island is not an island' (Taylor 2010: 205). Climbing the tree and gaining access to this view is an act through which Alice can 'steal (…) back' (Taylor 2010: 204) her story.

This pivotal moment unfortunately also marks the end of Alice's journey of discovery: any further exploration is cut short by her death at the hands of her father. The violent conclusion to Alice's self-told story provides an apt example of the aggressive way in which Ben seeks to impose his own version of events on his children, both now and before. Despite her father's murderous act, however, the reader still learns an important lesson from Alice when it comes to the construction of narrative and the possible clashes between incompatible accounts of history, the natural environment, society, meaning, and more. Alice's attempt at world-making demonstrates that past, present, and future continue to interact and play important roles in constituting lived reality. For example, Alice's memories of her mother living on the island discredit her father's claims about her untimely end during a raging storm, creating a space for doubt and self-discovery for her to explore. Furthermore, Will's ability to cross the border between Los Angeles' modern society and the family's hideaway casts serious doubt on the validity of Ben's prelapsarian dream, if only because he quickly convinces Alice to cast off the religious burden of her upbringing and explore her sexuality.

Time and memory are not the only entities that intervene in the narrative. Animals, objects, and phenomena also influence different characters' conceptions of reality, often quite independently of the human protagonists' world-making efforts. For instance, the lack of fish in the island's lake due to drought proves that climate change continues to affect local ecosystems, despite Ben's attempt to leave behind the mess of the 'contaminated' world altogether. In fact, early on in the novel Ben is worried that his island dream may be coming to a premature end because of dropping water levels in the valley: slowly but surely, he finds that 'the horizon looks too thick, like a gap's opened up between the water and the sky' (Taylor 2010: 67). Meanwhile, numerous boxes of supplies in Ben's hidden shack show his continued reliance on mass-produced consumer goods and undermine his façade of self-sufficiency. Finally, one of the reasons Alice starts to doubt the nature of the island and in particular the supposedly endless and poisonous sea surrounding it is her encounter with different seas in the few books she has read. She compares her own experience of the sea with that of the characters in Shakespeare's *The Tempest,* where the sea is 'always moving (…) waves and tides and tempests and (…) it has a special smell, it makes a special sound,' and concludes that the sea she knows from experience does not 'make sense' (Taylor 2010: 142).

Following Barad, those agents that intervene also experience intervention themselves. It is not only *in Alice's mind* that the sea becomes a newly constituted space; to all intents and purposes, its very character is continuously changed *by others for itself*. As new meanings are pasted onto its surface, the sea becomes part of new types of engagement previously unthought. This also reiterates the fact that distinguishing between narrative and other types of world-making is a conceptual mistake, led by an adherence to the classical account of physics explicitly discredited in Barad's work. Narrative world-making shapes realities as much as (or even more than) physical interventions in the landscape ever could. It not only changes the lifeworlds of human agents, but also alters the lived and embodied experience of non- and more-than-human others. At the same time, it must be acknowledged that there is a clear physical aspect to the construction of this island at the world: it came into being following Ben's laborious redesign of a valley some few hundred kilometres from Los Angeles (Taylor 2010: 196). The section that now follows will focus exclusively on this more tangible approach to terraforming.[5]

[5] This kind of physical intervention in the natural environment is addressed in even more detail in Chapter V; it constitutes a meso-level example of the practice known as 'geoengineering'.

Physical World-Making in The Island at the End of the World

The story of the genesis of the island is revealed in detail when Alice and Will discover Pa's secret diary near the end of the novel. Ben writes how after driving aimlessly through a California mountain landscape for several days, he found the 'most gloriously empty valley. Not a single habitation or vehicle or human being anywhere to be seen, only forests and lakes and meadows, wild goats and circling hawks...' (Taylor 2010: 164). Soon enough he is drafting a list of industrial equipment (including a mini-digger and cement mixer) and supplies needed to bring his dream of total isolation to fruition (Taylor 2010: 165). After saying goodbye to their life in LA in sufficiently dramatic manner (leaving in the dead of night, supposedly for Mexico; and pushing their vehicle off the side of a mountain, Taylor 2010: 166, 193), Ben's work can begin. This is where his reports become a little hazy. He claims he spends months digging a moat and lining it with tarpaulin (Taylor 2010: 194-195), but it is not made clear whether the family settles in the valley or on a nearby mountain. Given the elevation of this mountain over the rest of the landscape, both would be somewhat problematic. Either the family would be able to see for miles, undermining the illusion of living on an island, or else the supposedly featureless horizon would be forever blemished by a nearby peak. Since this issue is never raised anywhere else in the novel, it can only be presumed that Ben has found a solution to both problems, one that might well be narrative in character.

Having spent a considerable period excavating the valley, Pa is eventually blessed with a months-long torrential downpour that completes the project by flooding the plastic-lined basin. When, much like Noah on Mount Ararat, Ben walks out of the ark on his first dry day, he is overwhelmed by what he sees:

> Then I walked over to where I dumped all that sand, and… Found myself looking out across an apparent infinity of water, reflecting and meeting the sky in an invisible line. The HORIZON. I stared at it in disbelief and euphoria for like an hour. Even now the thought of it makes me laugh with triumph. I've done it! I've built an ocean! An island at the end of the… (Taylor 2010: 196)

Taylor's characterisation of Ben in this moment is striking for a multitude of reasons. His assumption of (temporary) mastery over the natural environment is a testament to his ingrained belief in the Nature/Culture divide and the possibility of reshaping the world according to his wishes. Despite previous floods, droughts, and earthquakes striking a number of U.S. states (cf. 2010: 17, 163), Ben truly believes he can escape future climate catastrophe by retreating to this artificial island in the mountains. Moreover, he happily disregards the fact that half of the 'work' involved in creating the island was actually carried

out by non-human others: the elements. Before the downpour started, Ben had been writing increasingly despairing notes in his diary:

> … is killing me I swear! Still no rain. The sun's been out all day, so the snow's melted and at least Mary and Alice have cheered up a bit (…) but FUCKING HELL how did I fuck up the calculations on how much water I'd need so TOTALLY? I've diverted the streamwater and shovelled all the goddamn snow into it but it's still not even half full. It looks so sad, so fucking ridiculous – just a gigantic damp ditch! I want to cry. Tho Finn made me laugh this evening when he started playing in it like it was a paddling pool. I had to tell him to come out because I was afraid he'd rip the liner. Oh please God let it rain tomorrow… (Taylor 2010: 195)

When the rain abates, however, Ben thanks neither God nor the elements for the successful flooding of the valley. As evident from the earlier excerpt, he is happy to take all the credit for the project himself. Other faults in his scheme are similarly ignored; for one, the family remains heavily reliant on the numerous supplies stored in the shack in the woods, including solar panels, weapons, ammunition, books, a computer, alcohol, music, crates of clothing, and shoes (Taylor 2010: 29-39, 156-158). Pa's dreams of self-sufficient living are clearly based on a lie: the family continues to live in an ecologically degraded world, on the edge of – but definitely reliant on – capitalism. They just do not realise it; or in the case of Ben, they actively deny it.

Alternative Readings

One of the most extensive critical discussions of Taylor's novel to date is found in Astrid Bracke's recent analysis of the Anglophone body of climate fictions, *Climate Crisis and the 21st-Century British Novel* (2018). Much like this chapter – and the thesis as a whole – Bracke's collection of essays is an attempt to '[engage] with ecocritical and environmental humanities' debates about the importance of storytelling in a time of climate crisis' (2018: 24). However, even though Bracke acknowledges that 'stories help us make sense of the world' (2018: 37), she refuses to conceive of Taylor's work as a testament to the way narrative can actively reconstitute reality. Instead, she reads the events in the novel as proof that 'stories and characters (…) *distort reality or otherwise mislead* the reader' (Bracke 2018: 37; emphasis added). In Bracke's analysis, 'the destabilization of the collapse narrative in this novel foregrounds the extent to which climate discourse relies on narrativity in order to bring across a message of environmental crisis. Narratives, the novel suggests, might always be corrupted, or severely coloured' (2018: 40). She also suggests that '*The Island at the End of the World* foreground[s] confusion and dissolution by breaking up language, the very thing that the textual world is made up of, and the only thing that gives

the reader access to it' (Bracke 2018: 46). This, Bracke argues, is the novel's great contribution to the body of climate fiction and the debate within the Environmental Humanities: it uses the 'most definite end [it] can depict – the end of the very language and narrative novels are made of – as a powerful representation of environmental collapse and even the end of humanity' (2018: 42).

What makes Bracke's analysis problematic is that it operates on the assumption that there is an objective reality to be found in the world beyond the island. Ben's stories might twist his children's conception of the world beyond recognition, but there remains a baseline truth 'out there', for instance in his diary (cf. Bracke 2018: 43) or back in Los Angeles. Bracke assumes the structuralist position that the world of the reader is *not textual*; that it has a real and objectively *truthful* foundation. Yet the analysis offered in this chapter has proven something else entirely. Taylor's novel demonstrates that lived, embodied, and/or (co)constituted realities continuously engage in both narrative and physical world-making. This is not a poststructuralist reproach of Bracke's analysis: language is not *the only* constituent part of the world-making process. Instead, it simply means that it is not the project of *The Island at the End of the World* to push language and narrative to breaking point in order to play out ideas of destruction, social entropy, and deception in the context of environmental collapse (cf. Bracke 2018: 42, 46, 38-40). Rather, the novel celebrates various guises of terraforming, regardless of whether they are used for good or for bad. Bracke's analysis fails to appreciate how valuable an addition narrative can be – or indeed is – to this range of world-making interventions.

Conclusion

Despite frequent and widely publicised reports highlighting the effects of anthropogenic climate change on marine environments, a majority of the general public struggles to engage with the present situation of ecological crisis. The preferred mode of delivery for information meant to convey the urgency of the climate crisis – the 'data dump' – has been blamed by many as leading cause of inaction: rather than inspiring modern citizens to pursue individual or systemic change, it has left them in a state of paralysis. The only way out of this inertia is through narrative, which can provide both meaning and direction in the current period of upheaval. Humanity has always relied on stories to determine its own position vis-à-vis the marine environment, and the present narrative is effectively a patchwork of many previous accounts of human-sea relationships. However, the contemporary collection of 'sea stories' suffers heavily under the burden of ecological anxieties, meaning a new kind of narrative is now urgently required. Bearing in mind the earlier reconstitution of the 'social', this chapter

has suggested that *modesty* should play a defining role in future engagements with the sea. Like all other beings, human individuals must find their place as single actor-among-many in a marine network of relations that obliterates illusions of species exceptionalism. Following this logic, a number of authors – Stacy Alaimo, Donna Haraway, Bruno Latour, and Anna L. Tsing – have suggested ways of recalibrating human relationships with the non- and more-than-human that put central the existence of the network itself. They all build on the work of philosopher-physicist Karen Barad, which examines in detail the extent of mediation – or rather, entanglement – in actor-networks. Blurring the line between natural-scientific inquiry and the quest for meaning, Barad shows that interacting actors have mediating effects on one another to a far greater extent than previously imagined: they literally co-constitute each other and their jointly inhabited realities. As Haraway has argued, this means that *it matters* greatly what stories humans tell about tomorrow's seas.

The various inquiries of this chapter culminated in an analysis of Sam Taylor's novel *The Island at the End of the World* (2010). One of the protagonists, Ben, makes clever use of both narrative and physical world-making to craft a new reality for himself and his family to inhabit. Through his actions (and the increasingly adversarial reactions of his eldest daughter, Alice) it becomes clear that to spin a narrative is to create and sustain its lived reality, in precisely the way described by Karen Barad. Narrative in Taylor's novel was shown to have world-defining impacts not only on human beings, but also on their non- and more-than-human kin. Of all these altered lives and existences, the sea in particular was found to suffer a near-complete reconstitution of being. *The Island at the End of the World* thus provides further evidence that it matters what stories human beings tell about life in, with, or despite their marine environments, both for their own sake and for that of the sea.

The first two chapters of this thesis have helped develop a robust understanding of multispecies marine networks, among other things by establishing the depth of influence exercised by individual actors in complex configurations. The next chapter will describe more precisely the role of the human actor in the constitution of more-than-human lifeworlds by drawing on foundational ecofeminist theory as well as the work of Alaimo, Haraway, Latour, and Tsing. The newly developed 'sea story' of co-constitutive cross-species marine living eventually proves itself to be a feasible alternative to today's fraught human-sea relationships.

Chapter III – Body Become Sea, Sea Become Body

Ecofeminist Lessons for the Marine Multispecies Society

In Disney's *Moana* (2016), the members of a Polynesian tribe are dominated by thallasophobia, a crippling fear of the sea that prevents them from crossing the reef surrounding their island. However, the ecosystem on the island itself has become prone to lack and disease, and the tribe's livelihood is under threat. Executed in Disney's typical song-and-dance fashion, the film tracks the journey of young Moana as she defies the orders of her father, the chief of the tribe, and journeys past the reef in a small boat, determined to battle the collapse of her world. On her adventure, Moana meets spirits (in the form of demigod Maui), crosses into the marine underworld, and frequently interacts with the sea itself. She ultimately manages to reverse environmental collapse by restoring the heart of Te Fiti, an anthropomorphised iteration of the Earth System. This also releases her people from their fear, upon which they revert to their past ways of roaming the Pacific Ocean and adjacent seas in search of bounty and happiness.

Moana is hardly a perfect representation of island life or indigenous cultures. The vast plurality of Polynesian customs is simplified and represented using a one-size-fits-all format: the islanders are made out to be hula skirt-clad coconut-eaters with a penchant for dancing and singing. Meanwhile, the decision to present Te Fiti as personification of the Gaia hypothesis is at odds with a number of principles described by key authors of the framework, including Bruno Latour and James Lovelock. It should therefore come as no surprise that Disney's motives in selecting the eco-Polynesian theme have been called into question. Do they amount to much more than 'trafficking on indigenous cultural heritage' (Vicente Diaz in Joseph 2016) or a timely attempt to ride the wave of growing ecological consciousness? At the same time, *Moana* marks a significant departure from many previous Disney productions. This is one of the company's first ever films featuring a female lead *without* a male love interest (Joseph 2016), putting it at odds with classics (and their recent live-action remakes) such as *Beauty and the Beast* (1993; 2017) and *Cinderella* (1988; 2015). Furthermore, the directors of *Moana* claim to have made at least *some attempt* to acquaint themselves with indigenous knowledges during the pre-production phase of the film, including through consultation with experts from a variety of Polynesian cultures (Joseph 2016). Most importantly, however, the film marks a shift in the company's depictions of the natural environment by exploring the idea of a more-than-human society, exposing along the way the reliance of prevalent societal configurations on the suppression of women, animals, and nature.

The Walt Disney Company is not known for breaking new ground, and its attempts to include non-Western narratives evidently remain marred by conceptual mistakes and easy shortcuts (Joseph 2016). However, Disney does possess an ability to recognise new types of discourse as they emerge in society, and subsequently making these available to a wider public through their thematic inclusion in box office hits. Following this logic, *Moana* can be understood as a way to introduce younger audiences – very possibly along with their older siblings, parents, teachers, and grandparents – into a new ecological consciousness, inspired by indigenous knowledge practices and with clear implications for Western audiences and their ingrained lifestyles. The film shines a critical light on a wide range of behaviours, including overconsumption, resource exploitation, and the blind adherence to hierarchies between human individuals, animals, and the natural environment. It performs this work by hinting at the possibility of alternative modes-of-being: co-constitutive living practices that are non-binary, non-violent, and non-instrumentalising.

The chapter that now follows draws inspiration from Disney's box office hit as it seeks to establish a number of core principles for the model for multispecies marine society. It achieves this by (re)situating observations from previous chapters in the wider framework of ecofeminism, a field of study that has emerged at the junction of ecocriticism and feminist studies. The discussion begins with a more in-depth analysis of the lessons offered in *Moana*. This is followed by an overview of the main arguments found in ecofeminist thinking, drawing on the foundational work carried out by authors like Val Plumwood and Mary Mellor in the 1990s. Along the way, a number of issues in the transition from the two 'parent' fields to this blended critical framework will be addressed: for instance, it is shown that not all feminist theory is ecologically attuned, or vice versa. Nevertheless, a balanced integration of the two fields can result in a mode of inquiry that fits seamlessly with Karen Barad's theory of agential realism. This brings the discussion back to the work of Stacy Alaimo, Donna Haraway, Bruno Latour, and Anna L. Tsing. Each of these authors has put forth suggestions for co-constitutive living that can be said to move within (or even define) recent ecofeminist paradigms. Haraway and Latour have theorised negotiation, multispecies entanglement, and co-creation, while Alaimo addresses the dissolution of the human body in her concept of transcorporeality. Tsing moves beyond the (fading) borders of the human realm and traces lingering influences using the concept of the feral other. The chapter also looks towards the future, asking what kind of expressions of marine multispecies entanglement are to be expected as humans, non-humans, and more-than-humans journey further into the Anthropocene. The idea of the cyborg proves to be of particular use in this regard, and can be contrasted with Donna Haraway's concept of the 'symperson'. The

difference between these terms is demonstrated by application to the mermaid figure in Lithuanian filmmaker Emilija Škarnulytė's *Sirenomelia* (2017). A critical reading of ecologically attuned cyborgism in Amy Sackville's *Orkney* (2014; orig. 2013) forms the conclusion to this chapter. Steeped in Orcadian lore and keenly aware of a number of key principles of ecofeminist theory, this work blurs the boundaries between human agency and the natural-marine other by describing a body become sea and a sea become body.

Moana and the Farewell to Dichotomies

Although not explicitly stated in the film itself – possibly due to the average age of its viewers – the reason for environmental collapse on Moana's home island is not so much a supernatural battle between forces of nature, but rather the tribe's complete reliance on the coconut crop for almost all of its wants and needs. When this monoculture is eventually beset by disease, the wellbeing of the tribe is put at immediate risk. The only other food source available to Moana's people is fish, but due to the strict limit imposed by the reef, the lagoon immediately surrounding the island soon runs out of stock. The tribe is a classic example of a people living without due regard for the natural environment, drawing from the island's various ecosystems without balance until all available resources have become depleted. This attitude is aptly captured in a remark by one of the elder villagers, who suggests that Moana kill and roast her chicken Hei-Hei because 'he seems to lack the basic intelligence required for pretty much… everything' (2016). Moana refuses: on an island struggling with a serious protein shortage, she does not assess Hei-Hei as natural resource but respects his agency. She sees the need for a complete recalibration of relations between humans, non-humans, and more-than-humans; in other words, she realises that the time has come for a new kind of narrative.

Moana's different attitude to the natural environment first becomes clear when, as an infant, she encounters a sentient sea and interacts with that entity without question. It is a testament to the filmmakers that the sea is never anthropomorphised, but is nevertheless a well-rounded character with its own decision-making powers. It has shape, but not a human one, and it does not require language to express itself. Despite her name (meaning 'ocean', Joseph 2016) Moana and the sea are not cut from the same cloth and they do not purport to be. Instead, they accept difference as an integral part of their newly forged alliance. Moana's journey is a story of deepening this relationship through the continuous acknowledgement of agency and mutual dependency. She frequently speaks to the sea and resigns herself to its capricious ways, such as the tousling (and drenching) of her hair. She draws courage from the sea's presence and consults it on issues of navigation. Meanwhile, the sea trusts Moana

to do what she can to restore the heart of Te Fiti. A key role in the story is also played by Moana's grandmother, Tala, who indicates to her the value of indigenous myths and lore and is the only villager to support her during the preparations for her journey. Although she passes away soon after Moana sets off, Tala visits her granddaughter several times in the guise of a ray-shaped spirit. Her appearances offer Moana guidance and hope, and help cement her conviction that indigenous knowledges and the non-human world are intricately linked.

Moana's partner on the quest, demigod Maui has a completely different attitude to the natural environment. Not only was he the one who stole Te Fiti's heart in an attempt to bequeath it to humanity, he also refuses to accept the agency of the sea or, for that matter, any other non-human or non-anthropomorphised entities.[6] Tellingly, it is Moana who realises that the evil force Te Kā – blocking the two heroes from reaching the dormant Te Fiti – is in fact a different face of Te Fiti herself, and that Te Kā's efforts to reclaim the heart gem carried by Moana are simply attempts to reinstall her own agency. While Maui continues to fight Te Kā, Moana relents and offers up the stone as soon as she becomes aware of their mistake. The ensuing instant blossoming of the environment – cancelling all disease on the home island, replenishing the sea with marine life, and reverting Te Kā to the beautiful, emerald Te Fiti – is hardly realistic or satisfactory, but this may be seen as an inevitable symptom of the 'Disneyfication' of ecocritical discourse.

Moana depicts an alternative reality of living with (rather than depleting) the natural environment, and along the way it connects the exploitation and subjugation of non-human and more-than-human others to similar forms of oppression carried out against women and minorities. The film draws positively on Moana's female identity, casting it as a productive mode of being in a plurispecies, pluriphenomenal society that eschews male/female and nature/culture binarisms.[7] It makes a case for the value of indigenous knowledges in the process of forging alliances with the non- and more-than-human world, without losing sight of the fact that indigenous societies, too, can subjugate women. The young Moana's strength

[6] See also *Gone Fishing*, a Disney short included with the film in which the different attitudes of Moana and Maui towards the natural environment are explored in tongue-in-cheek style (2016).

[7] The particular adaptation of the Maui / Te Fiti myth employed in *Moana* is exemplary of this shift in attitudes. Maori folklore suggests that Maui's last heroic feat is an attempt at immortality through a 'reverse birth' (Harrington 2017). This entails entering the body of Hine-nui-te-pō (goddess of night and part-model for Te Fiti) through her vagina while she is asleep, and exiting again via her mouth. Unfortunately, the goddess wakes up and crushes the demigod to death using the obsidian teeth in her vulva (Grace 1991: 58ff). This type of myth is known as *vagina dentata* and interpretations can range from a battle of the sexes (attempted rape and subsequent castration) to misogyny (the 'evil woman') and greed (Rees 2013: 52-56); all of which rely on the binarisms that *Moana* sidesteps by suggesting an alternative outcome that leaves the possibility of reconciliation.

lies in her critical assessment of past and present narratives of coexistence and her willingness to break barriers where necessary. This is aptly caught at the very end of the film, when she places a conch on the pile of stones that signifies the succession of tribal chiefs. Rather than breaking tradition, she shifts it in a new, more balanced direction that sidesteps polar opposites. In this way, the attitude of chief Moana is representative of key work that is being carried out in the field of ecofeminism, a relatively new area of study that aims to upset the numerous dichotomies currently underpinning the relationship between humanity and the natural environment. The section that follows will explore this new discipline in more detail.

Defining Ecofeminism

A key premise of the Nature/Culture dualism is that the epitome of being-human is to stand outside of the natural environment; in other words, to define oneself as categorically different from mute and brute nature. This not only leads to human arrogance in the face of impending natural catastrophe, but also to the extreme instrumentalisation and exploitation of (fragile) ecosystems. Many authors have argued that the domination of nature is no exception to the many other forms of suppression and exclusion that manifest in (human) society, such as that of women and ethnic or social minorities. In fact, these various exclusions are enacted in a similar framework of hierarchy and dualism: the Nature/Culture distinction is part of a wider array of dichotomies that include mind/body, reason/nature, and man/woman. With regard to this, Val Plumwood has argued that it is 'exclusion from the master category of reason which in liberation provides and explains the conceptual links between different categories of domination, and links the domination of humans to the domination of nature' (1993: 4). It is in this manner that two fields of critical theory converge and join forces in unpicking the paradoxes of domination: ecocriticism and feminism. The resulting discipline of 'ecofeminism' aims to upset existing dualisms, unmask hegemonies, and move towards an ethic of care that does not rely on exclusion and suppression.

In her seminal work *Feminism and the Mastery of Nature*, Plumwood demonstrates that the above dichotomies already found expression in the works of Plato and Aristotle (1993: 46-47, 69ff); and that they were further developed by such thinkers as Descartes (with his work on mind/body dualism, 1993: 140ff) and Locke (1993: 117-119). She explains that the current default or 'master' model of human-ness is based on an assumption of exclusive rationality, a characteristic that not only sets humanity apart from the natural world but also makes it categorically better. Humans place themselves squarely at the top of the hierarchy of relations (Plumwood 1993: 23ff). Coincidentally, the faculty of reason is associated with

masculinity and is contrasted with lesser traits such as femininity, emotion, the body, and the private sphere (Plumwood 1993: 26). In this way, women come to occupy a similar (and in many cases the same) position as nature. The only possible resolution to this problem is a complete re-evaluation of what it means to be human (Plumwood 1993: 22). The basis of such a recalibration should not be to rejig existing dualisms, but rather collapse them altogether: to respect difference instead of placing non-homogeneous elements in hierarchical relationships (Plumwood 1993: 60).

New conceptions of the human condition must avoid both hyperseparation and complete assimilation (Plumwood 1993: 125, 158-159). The former would reinstate a situation in which humanity as a whole defines itself in opposition to the natural environment, for instance through an instrumentalising approach (Plumwood 1993: 141-154). The latter would blur all difference between human, non-human, and more-than-human individuals and phenomena until everything disappears into a 'cosmic whole' (Plumwood 1993: 126), meaning humans really only care for non-human others because they refuse to acknowledge heterogeneity. A particularly problematic iteration of this position is pantheism, in which the natural environment is imbued with spiritual, and coincidentally fully human, qualities (Plumwood 1993: 127). Since the characteristic of independent agency is relocated to a spiritual externality or non-entity, this ultimately means that non-human others are still denied autonomy of being (Plumwood 1993: 127). Such joint denial of difference and agential independence can never be the basis for a healthy relationship between humans and non-humans (Plumwood 1993: 125-127). Recalling Disney's *Moana*, one might argue that the filmmakers risk promoting a form of pantheism through their representation of the Earth System as the goddess Te Fiti. However, they are at least partially redeemed by their treatment of the marine environment as a separate actor. Even if deeply attuned to other natural entities and processes (including Te Fiti herself), the sea in *Moana* can never be said to suffer a loss of individuality.

The convergence of ecocriticism and feminism is hardly a fait accompli. For instance, a number of feminist scholarships and traditions actively undermine ecocritical positions. Plumwood gives the example of first wave feminism, which 'attempted to fit women uncritically into a masculine pattern of life and a masculine model of humanity and culture which was presented as gender-neutral' (1993: 27). This kind of reasoning keeps the dichotomy between reason/nature (or Culture/Nature) alive, while women are relocated to a position of power in a fundamentally unchanged patriarchal society. In much the same way, second wave or liberal feminism seeks to break open 'a sphere marked out for elite males and (…) dominant institutions which are themselves viewed critically only to the extent that

they exclude women (and elite women especially)' (1993: 27). Again, the suppression of nature is allowed to persist, with women now actively seeking to join the ranks of the suppressor (Plumwood 1993: 27-28; Mellor 1997: 6). Hyperseparation remains in situ, leading ecofeminists to wonder out loud: 'What is the point of partaking equally in a system that is killing us all?' (King in Mellor 1997: 6). Moana adopts a similar stance when her father starts preparing her to be the next chief of the tribe. What is the point of being elected the tribe's leader if she has to continue to adhere to the narrow-minded, environmentally destructive rules laid out by her father?

Radical feminists pursuing an agenda of uncritical reversal – in which masculinity and reason are disavowed and replaced by ideals of femininity, emotion and the body (Plumwood 1993: 31ff) – equally fail to overcome dichotomies. Their approach might challenge patriarchal hegemonies, but remains problematic because it continues to normalise domination: one sphere is placed higher in the hierarchy than another (Plumwood 1993: 32-34). Highlighting the constructed nature of gender does not necessarily resolve this problem: as Barad has pointed out, such social constructivist positions tend to lose sight of the materiality of the body (2007: 150ff). Meanwhile, a return towards the material self has often resulted in a strict focus on the *human body,* leaving the non-human other victim to ongoing oppression (cf. Barad 2007: 150-153). This approach would render the feminist project incomplete: Plumwood insists that it is absolutely vital to fully '[integrate] nature as a fourth category of analysis into the framework of an extended feminist theory which employs a race, class and gender analysis' (1993: 2).

The field of ecocriticism introduces similar obstacles in its fusion with feminist theory. Deep ecologists, for instance, have employed a strong male bias when defining values and drawing up projections for ecosystems wellbeing (Mellor 1997: 139). Though deep ecology has always criticised anthropocentrism, it has failed to notice or disavow this associated force of androcentrism (Mellor 1997: 140). Both early work in the movement, for instance by Aldo Leopold, and later writing by authors like Arne Næss (inventor of the term 'deep ecology') and Warwick Fox has sought to do away with anthropocentrism by extending the scope of moral concern to encompass all of nature (Plumwood 1993: 170). However, Plumwood observes that '[o]n such a view (…) the particular, the affective and the bodily are viewed as the enemy of the rational, being seen as corrupting, capricious and self-interested' (1993: 170). In this way, deep ecological thinking confirms rather than disavows dualist thinking: its supposedly 'universal' approach to recalibrating the relationship between humans and the environment in fact undermines the position of women and emphasises the inferiority of nature (Plumwood 1993: 171).

Seeking kinship while acknowledging difference evidently makes for a narrow road to walk. Plumwood offers a tentative step in the right direction when she writes:

> We need to understand and affirm both otherness and our community in the earth. (…) We can encounter the earth other as a potential intentional subject, as one who can alter us as well as we it, and thus can begin to conceive a potential for a mutual and sustaining interchange with nature. Earth others can be seen not as objects for manipulation but as 'other nations' of roots or wings or legs, nations we must meet on their own terms as well as ours. (1993: 137)

She also insists on a relational account of the self, meaning 'the development of self as taking place through involvement and interaction with the other' (Plumwood 1993: 153). This reflects earlier calls by such writers as Donna Haraway to embed feminist science and knowledge practices in one's physical and social background (cf. 1988), and of course foreshadows Karen Barad's work on agential realism some fifteen years later.[8] As demonstrated in the previous chapter, Barad's work is a material-discursive one that manages to avoid both hyperseparation and complete assimilation by acknowledging complete entanglement yet identifying a boundary between self and other (the 'agential cut') that becomes evident only in intra-action (2007: 175-179). The latter point is vital: it means that human, more-than-human, and non-human agency and ethics are irretrievably enmeshed through their co-constitutive existences.

Present Faces of Entanglement

Following Barad's contention that existence cannot precede intra-action, the process of creating-together becomes unavoidable, and living-with a given rather than a goal. Inevitably, the means of creation are one's own physicality: the human body, limited in capacity yet always-already engaged in interaction with numerous non-human others and environments. That the body tells a story through myriad co-constitutions is a premise held by the four authors encountered in the previous chapter: Alaimo, Haraway, Latour, and Tsing. Their work will now be discussed in turn, starting at the human and slowly working outward, past diffuse boundaries into the essence of multispecies marine being.

At the heart of Latour's suggestions for being-human in the multispecies, multiphenomenal jumble of action and reaction that is Gaia lies a call to 'return to earth' (cf. 2017: 243-244, 288-289; 2018). By this he refers not only to the collapse of Nature/Culture distinctions and scales of being, space, and time (Latour 2017: 106-110), but also to humanity's *terrestriality* in general: he goes as far as to suggest that '[we] stop speaking

[8] Haraway's call for a revision of feminist science paradigms can be read as an ecofeminist iteration of Latour's criticism on the 'view from Sirius' (2018: 68) that has dominated positivist science and knowledge practices.

about humans and (…) refer instead to *terrestrials* (the Earthbound), thus insisting on *humus* and, yes, the *compost* included in the etymology of the word "human." ("Terrestrial" has the advantage of not specifying the species.)' (Latour 2018: 86; emphasis in original). The effect of this is admitting to being-embedded and starting to determine one's own place in that tangle of existences (Latour 2018: 87). Despite his acute awareness of the depth of human entanglement with non-human others and environments, however, Latour mostly restricts his suggestions for ways of coming 'down to earth' to speech acts, or negotiation (2018: 94ff). One reason for this limitation is Latour's strong focus on risk, conflict, and encroachment, a central premise of his revised Gaia-theory being that previous human and non-human territories have come adrift after the collapse of the artificial Nature/Culture distinction (2018: 94-95). Territories can be recharted through extensive negotiation, but success is not guaranteed. Different parties have different interests and it is therefore likely that conflict will arise.

Like Latour, Donna Haraway works with the concept of 'humus', rich heterogeneous soil, to literally *ground* human existence; but she also opens it up to 'ongoing risky infection, (…) epidemics of promising trouble (…) [and] permaculture' (2016: 11). This (re)definition of humus helps Haraway further develop the idea of negotiation by shifting attention to the 'more modest possibilities of partial recuperation and getting on together' (2016: 10). She suggests that the very nature of the dialectic process changes drastically if it proves impossible to consistently identify individual actors as distinct physical entities. The result of not always being able to tell self and other apart means that an element of risky cohabitation is introduced to the multispecies negotiation table (Haraway 2016: 10). To explore the nature of these new cohabitations, Haraway draws liberally from interactions between humans and companion species, who are '*cum panis,* with bread, at table together – not "posthuman" but "com-post"' (2016: 11; emphasis in original). Companion species are non-human others that encroach in friendly and unfriendly ways on human lives, as those humans also engage in multispecies worlding whether they want to or not (Haraway 2016: 12-13). The result is co-creation, or 'sympoiesis'[9] (Haraway 2016: 58), which brings her back to the game of cat's cradle:

> Companion species play string figure games where who is/are to be in/of the world is constituted in intra- and interaction. The partners do not precede the knotting; species of all kinds are consequent upon worldly subject- and object-shaping entanglements. In human-animal worlds, companion species are ordinary beings-in-encounter in the house, lab, field, zoo, park, truck, office, prison, ranch, arena, village, human hospital, forest, slaughterhouse, estuary, vet clinic,

[9] The term 'sympoiesis' will be used several times in this thesis as a shortcut to the rest of Haraway's theoretical framework, particularly as described in *Staying with the Trouble* (2016).

> lake, stadium, barn, wildlife preserve, farm, ocean canyon, city streets, factory, and more. (2016: 13)

In such encounters, human individuals retain intentionality but the achievement of goals set for themselves is no longer guaranteed; other individuals, species, or phenomena might intervene and subvert whatever was aimed for. Hence Haraway's equating of humus with 'epidemics of promising trouble' and of cat's cradle with a 'game of response-ability' (2016: 11). It is also the reason that Haraway seeks to move beyond the Gaia visualisation and proposes instead Medusa and the Gorgons (2016: 51ff). These mythical figures are not of the sky but rather of the soil (Haraway 2016: 11), 'Earthbound' as it were (2016: 53); they 'erupt more than emerge; they are intruders in a sense akin to (...) Gaia' (2016: 54) but more "tentacular" (2016: 52), with a wider reach; they are a 'buzzing, stinging, sucking swarm now, and human beings are not in a separate compost pile' (2016: 55). Latour still situates his Gaia-hypothesis in the wider context of the Anthropocene, but Haraway renounces the term altogether. She proposes instead the earlier-mentioned Chthulucene, 'a kind of timeplace for learning to stay with the trouble of living and dying in response-ability on a damaged earth' (Haraway 2016: 2).

Haraway expands productively on Latour's vision of negotiation between individuals and species in the chaotic environment that is Gaia (or Chthulu), but a key problem remains. Concepts like terrestriality and humus are inherently hydrophasic, pointing towards a readjustment of human relationships with the land and the soil rather than the marine environment. Indeed, most examples given by Latour and Haraway pertain to *land-based* multispecies patterns of interaction rather than marine ones. Even though Latour's various works engage at length with a host of geophysical entities, almost all of the more extensively developed examples are concerned with terrestrial spaces such as rivers and valleys (cf. 2016: 51-54, 272ff). The sea is only mentioned in passing, and the discussion does not describe what it means for humans to cohabitate with such an entity (cf. Latour 2016: 255ff). Meanwhile, Haraway's many examples of companion species include pigeons, sheep, dogs, horses, acacias, bacteria, and mushrooms, but no whales, whirlpools, or algae (2016). The handful of examples that do refer to marine contexts (e.g. the analysis of the lives of symbiont squid, Haraway 2016: 66) lack close analysis of the *place of the human* in marine co-constitutive existence.

Not all ecofeminist theory falls short in this respect. Like Latour and Haraway, Stacy Alaimo has explored the depth of entanglement of the human self in multispecies, multiphenomenal society. Her argument revolves around the concept of 'transcorporeality', which is 'a new materialist and posthumanist sense of the human as perpetually

interconnected with the flows of substances and the agencies of environments' (Alaimo 2016: 112). She explores in great detail the collapse of the borders of the physical body, which challenges traditional notions of what constitutes the human subject (2016: 112). Most importantly, however, she subverts the hydrophasicity of other inquiries into embodied world-making by focusing on the idea of *dissolution* (Alaimo 2016: 111ff). This makes the marine environment the case study par excellence rather than a forgotten space.

Alaimo's seminal work *Exposed* explores the kinship between human and non-human actors in marine environments through a number of lenses. She draws on histories of evolution to point out the saltwater origins of homo sapiens and to prove that in fact, 'the sea [still] surges through the bodies *of all terrestrial animals*, including humans – in our blood, skeletons, and cellular protoplasm' (Alaimo 2016: 118; emphasis added). She is careful to avoid some of the traps that lie in wait for ecofeminist theory in this area of inquiry. Of particular relevance is the risk of total assimilation posed by such concepts as the 'Hypersea', in which '[t]he sea seems to be everywhere, within us, around us, regardless of how arid our terrestrial habitat may be' (Alaimo 2016: 123) and which therefore 'blankets nearly everything in the same aqueous composition' (Alaimo 2016: 123). Alaimo also discusses contemporary realities of marine entanglement, such as the physical entrapment of sea life by discarded plastics (2016: 135-138), and possible future trajectories of the collapse of difference between humans and the sea, self and other, and even cause and effect through the ingestion of these same materials (2016: 135-137). Finally, she queries whether such pasts, presents, and futures may converge and accelerate under the influence of human diffidence to pollution, the intensifying exploitation of marine natural resources, and technological innovation (Alaimo 2016: 140-141). All of these observations serve Alaimo to tentatively put forth a premise that is central to the project of this thesis: 'To begin to glimpse the seas, *one must descend, rather than transcend,* be immersed in *highly mediated environments* that suggest the *entanglement of knowledge, science, economics, and power*' (2016: 161; emphasis added). This means 'dwelling in the dissolve, a dangerous pleasure, a paradoxical ecodelic expansion and dissolution of the human, an aesthetic *incitement to extend and connect* with vulnerable creaturely life and with the inhuman, unfathomable expanses of the seas' (Alaimo 2016: 168; emphasis added).

A significant part of these connections between human and non-human are not directly or intentionally initiated by either party, yet still made possible by their conjunctive behaviours. For instance, Alaimo follows the argument of Captain Jason Moore (who first discovered the Great Pacific Garbage Patch) that single-use plastic wrappers and cups can be read as a type of anthropogenically enabled predator (2016: 138), wreaking havoc by

intervening in the marine food chain in unexpected and generally undesirable ways. Such 'everyday objects gone wild, contradicting the presumption that human intentionality directs and confines material things' (Alaimo 2016: 136) are the very definition of what Anna L. Tsing, in her work on lingering (and unexpected) influences of human behaviours in non-human environments, calls the 'feral' (cf. Tsing et al 2020). Her conceptualisation of anthropogenically kick-started, but now autonomous (or rogue) non-human behaviours is an important step in acknowledging multispecies agency. It also points at the fact that such non-human existences have the potential to be harmful to human individuals and societies.

Tsing's latest project-in-the-making, *Feral Atlas* is an ambitious attempt to describe as many expressions of feral behaviour as possible as they emerge in a wide variety of ecologies, markets, nations, and timescales (Tsing et al. 2020). Many of the examples and incidents described in earlier parts of the thesis would qualify as entries for this project. Take the 'Russian army whale' from the introduction, which is the very definition of an anthropogenically enabled entity run amok. Similarly, Marianne Moore's elusive jellyfish thrives in desolate Anthropocene seas, spawning fears of a 'clear planet in which jellies over-populate the degraded oceans, causing harm to fisheries, mining operations, ships, and desalination plants' (Alaimo 2011: 283, see also Pauly 2009). Even rising sea levels can be read as feral entities: enabled by greenhouse gas emissions from heavy industries, they are now well beyond humanity's control and pose a direct threat to millions of lives and livelihoods. Despite the harm that feral beings can cause to human beings and installations, however, their behaviours can also create new spaces of possibility. This becomes clear when the term is read in conjunction with Tsing's suggestion that cross-species interactions are defined by precarity *as well as* promise (2017: 19-25, 282). Using examples from life on the fringes of society, capitalism, and environmental degradation, she has shown many times over that there can be great joy and prosperity for humans and non-humans both *precisely because of* their many unregulated behaviours. Her study of the international matsutake mushroom trade, for instance, demonstrated that the vitality of this ragtag industry is entirely due to the unpredictable, non-scalable character of the fungi themselves, as well as their preference for ecologically degraded environments (Tsing 2017).

Theorising Future Entanglement

The previous section demonstrated that within the agential realist paradigm described by Karen Barad, human bodies are negotiation partners at the same table as the sea *as well as* 'sympoietic' creators with it. Entangled existences were traced back to humans' evolutionary origins in proto-marine environments, and shown to persist through the epistemological and

ontological immersion of contemporary bodies in their concurrent seas. It also became evident that anthropogenic interventions in the marine environment can lead to a 'feral' sea; a hyperobject that has effectively gone wild. However, following Barad, Haraway, and Latour's insistence on science as embodied, personal practice – in which the scientist becomes co-constituting participant in the unfolding of their own experiment – a further step can be taken in this inquiry into the physical engagements between human and non-human actors. In this scenario, bodies are read as 'cyborg' through organic, prosthetic, and virtual extensions to their environments, often with world-defining impacts (cf. Haraway 2017: 104).

In her seminal *Cyborg Manifesto,* Haraway argues that by the late twentieth century all human beings had become cyborgs (2006: 118) due to the loss of a 'fundamental ontological separation in our formal knowledge of machine and organism, of technical and organic' (2006: 144). In the intra-active, co-constitutive cyborg world it is no longer 'clear who makes and who is made in the relation between human and machine' (Haraway 2006: 143), the effect of which is that 'our sense of connection to our tools is heightened' (Haraway 2006: 144). This understanding moves beyond (though does not completely disavow) strictly physical conceptions of the cyborg, and refers instead to a wide array of historically situated, non-dualist, partial-and-prone-to-faults real and virtual connections between humans, non-humans, and more-than-humans (Haraway 2006: 117-118, 122, 143). In this way, the cyborg allows one to come to a more informed understanding of (potentially) problematic conjunctions of different bodies in marine environments, and explore the meaning and impact of such confused coexistences.

Haraway's cyborg paradigm is of particular value because of its politicisation of Barad's intra-active 'becoming'. Not only does she leverage the concept to defeat hegemonic dualities in much the same way as Plumwood did, she also points out the ways in which a 'cyborg world might be about lived social and bodily realities in which people *are not afraid of their joint kinship with animals and machines*, not afraid *of permanently partial identities and contradictory standpoints*' (2006: 122; emphasis added). Furthermore – and despite the original date of publication of the *Cyborg Manifesto*, more than thirty years ago – Haraway places particular emphasis on the key role of digital and virtual planes of being that have world-altering impacts on lived realities (2006: 131-132, 144). In this way the cyborg gives new meaning to Latour's 'network' and its configuration and moves beyond the lingering traces of the exclusively physical in Barad's agential realism. Multispecies marine worlds are (re-)made in physical engagements as much as they are through virtual interactions (cf. Haraway 2016: 76-81). These include encounters with the various texts (novels,

documentaries, films) that are discussed in this thesis, all perfectly capable of inscribing new marine realities without the need for physical interaction between writer, reader, and sea.

Overabundant Terminology and Disingenuous Engagements

Attempting to move beyond the concept of sympoiesis, Haraway draws inspiration from evolutionary biologist Lynn Margulis' work on symbiogenesis, the cooperative intimacy at the microbial level that allows different types of cells to co-evolve (Haraway 2016: 58ff). This represents a scalar shift in Haraway's exploration of companion species (from organism to cell genetics) but with continuing implications for all levels of life and existence: changes following from the '"intimacy of strangers"' (Margulis in Haraway 2016: 60) at the level of the cell reverberate through the network of entanglements. However, even though both symbiogenesis and its associated actor, the symbiont, are well-established concepts in the field of evolutionary biology, their usefulness as conceptual tools in ecocriticism is limited. One reason is that these concepts add little to the already-established understanding of multispecies entanglement captured by the term sympoiesis. More problematically yet, Haraway appears to (mis)interpret the multiscalar impact of symbiogenesis when she develops a vision of future entanglement (the 'symperson') that effectively assimilates the other into the self, leading to the annulment of both individual and interspecies difference.

The final section of Haraway's *Staying with the Trouble* is called the 'Camille Stories' and describes a future society comprised of sympeople: a kind of hybrid human for whom '[b]odily modifications are normal (…) at birth a few genes and a few microorganisms from [an] animal symbiont are added to the symchild's bodily heritage, so that sensitivity and response to the world as experienced by the animal critter can be more vivid and precise for the human member of the team' (2016: 140-141). The aim of this exercise in multispecies interaction – and the design of the 'communities of compost' in which it takes place – is to 'recraft conditions of living and dying to enable flourishing in the present and in times to come' (Haraway 2016: 137), for both human and non-human participants. However, all choices in these scenarios for co-habitation are made by humans according to their view of what constitutes good life and healthy coexistence in the multispecies society. One might therefore ask whether the symperson truly represents a departure from anthropocentrism and/or human politics, or whether it is yet another way to reinforce hierarchies while claiming to eschew dualities. Rather than teaching ways to 'live and die well' (cf. Haraway 2016: 140) in Anthropocene times, Haraway's Camille Stories seem to be a bold world-making exercise that mythologises the perspective of human beings while claiming they are humble and receptive co-creators.

A second problem with the Camille Stories pertains to freedom of choice for sympeople themselves. Though Haraway is quick to point out that genetic modification is not exercised on the bodies of animal others (2016: 141, 147), this only begs the question why (post-)human individuals are not also allowed their say in this matter of deepening entanglement. For instance, five generations of 'Camille' find themselves born into a body that has been co-constituted by the DNA of a monarch butterfly (Haraway 2016: 142-143). Haraway believes this is a testament to the reproductive freedom of Camille 1's parents, 'choosing to bond the soon-to-be-born fetus with both the western and eastern currents of (…) [migratory monarch] butterfly motion' (Haraway 2016: 142). That choice is all the more valuable, she argues, because of the fact that '[the Camilles] would grow in knowledge and know-how committed to the ongoingness of these gorgeous and threatened insects and their human and nonhuman communities all along the pathways and nodes of their migrations and residencies in *these* places and corridors, not all the time everywhere' (Haraway 2016: 142-143; emphasis in original). But what if these individuals do not wish to have 'a suit of pattern-forming genes expressed on monarch surfaces over their transformations from caterpillar to winged adult' (Haraway 2016: 148), or 'gut and mouth microbiomes (…) enhanced to allow [them] to safely savor milkweed plants containing the toxic alkaloids that the monarchs accumulate in their flesh to deter predators' (Haraway 2016: 148)? None of that seems to matter: the Camilles are condemned to live and die as instruments in the body politic of other world-makers. Their individual existences, deeply marked by 'a complex subjectivity composed of loneliness, intense sociality, intimacy with nonhuman others, specialness, lack of choice, fullness of meaning, and sureness of future purposes' (Haraway 2016: 149) are wholly at the service of the society in which they are born.

Haraway presents her Camille Stories as a future vision in which multispecies society is tentatively charted along lines that do not ignore the presently damaged state of ecosystems, nor the many histories of colonialism, racism, exploitation, and social and economic inequality (Haraway 2016: 136, 138-139). Even though these aims are laudable, it is now evident that they will not be achieved by retooling the idea of symbiogenesis. Whereas the concept of the cyborg allows one to examine closely the troubled coexistences of individual agents, Haraway overshoots the mark when she employs the symperson to draw up *prescriptive* scenarios for future multispecies cohabitation. Terminological indeterminacy causes the line between the two concepts to become blurred very quickly, and as a result the inquiry into entanglement is at risk of acquiring a covert political and technoscientific hue. The real threat posed by this confusion of theoretical instruments becomes clear when

assessing the example of a marine cyborg/symperson in Lithuanian artist Emilija Škarnulytė's documentary film *Sirenomelia* (2017).

Ecocinematic Cyborgs/Sympeople

Škarnulytė's twelve-minute film-work explores human, non-human, and more-than-human entanglements through the figure of a mermaid swimming in a derelict Cold War installation in Norway. The mermaid is performed by Škarnulytė herself, who says she practised swimming in the costume for over six months before she was able to traverse the distances necessary to shoot the documentary (Brasiskis 2019: 2). Though there is no background narration, Škarnulytė has addressed the thematic underpinnings of her piece in a number of interviews. In one of these, she mentions that *Sirenomelia* is an exercise in '[feeling] out all kinds of non-human and post-human scales in the depths of space and time' (Samman 2018) and that in order to achieve this in the context of a NATO navy base, she required 'a mythological character as a guide through these endless infinity pools, tunnels and canals, and to see through her/their point of view' (Samman 2018). The mermaid, to her, was precisely that, a 'symbol and a counter-myth. She/they is like water in different states of matter, with molecules changing and expanding. She/they is mutilated. *She/they is a cyborg,* still linked to a human just merged with the fish, submarine, machine, and torpedo*'* (Samman 2018; emphasis added).

In a critical analysis of *Sirenomelia*, Lukas Brasiskis points out various ways in which Škarnulytė's ecocinema challenges anthropocentric viewpoints by "retraining" the audience's horizon of expectation (2019: 3-4). The perspective of the mermaid, rather than that of a human protagonist, is explored against the liminal backdrop of fragmented Cold War histories, resulting in the collapse of various dichotomies: man/woman, capitalism/communism, technology/nature, self/other, and most importantly, human/non-human (Brasiskis 2019: 7-10). Defeating these binarities is a key aspect of *Sirenomelia*'s successful 'ethnographic attunement' to non-human realities (also discussed by Stevenson and Kohn in the context of *Leviathan*, cf. Brasiskis 2019: 7 or the first chapter of this thesis). To Brasiskis, therefore, the mermaid in the documentary is much more than a challenge to the military-industrial complex: it is the epitome of intra-active 'becoming' through prosthetic entanglement with direct and (spatially and/or temporally) distant human and non-human environments (2019: 9ff). In other words, Škarnulytė-as-mermaid is the perfect cyborg.

True to the claims of both Škarnulytė and Brasiskis, *Sirenomelia* is highly successful in its exploration of Cold War histories of violence and oppression, and in the way it manages

to place these in dialogue with contemporary normative dichotomies that enact or uphold similar transgressions against women and queer minorities. What the documentary does not achieve, however, is including the category of the non-human in this conversation. Brasiskis might argue that '[n]o human characters appear on the screen throughout the entire film' (2019: 4), but there is little doubt that the human-artist-as-mermaid takes centre stage in the installation, at the expense of her damaged marine surroundings and its inhabitants. Some anemone growth and a single jellyfish drifting by in the periphery of the lens are all the non-human life that features in the documentary. No feral beings – whales with equipment belts, or perhaps more likely, arctic terns repurposing machinery to build their nests – appear at any stage. Even the supposedly derelict military radar systems continue to spin and beep at the behest of their human masters.

The mermaid costume allegedly transforms Škarnulytė into 'a woman-torpedo, or perhaps not necessarily a woman, perhaps transgender, but more a new species that have adapted to life in different conditions when there are possibly no people left (…) [who is] lonely and sensitive' (Saudaskaitė 2018), yet it is altogether unable to hide the fact that this documentary remains a testament to anthropocentrism. Škarnulytė mythologises her own (human) body in the union with the costume, and as such she eschews true sympoietic practice (cf. Haraway 2016: 58) in favour of human ingenuity. This becomes particularly evident when the artist claims to know *what it means to be a mermaid* simply because she acts it; a logic not unlike that found in Object-Oriented Ontology, where thinkers substitute their own experience of reality in place of that of the other.[10] Claiming knowledge of the experience of existence of the mermaid/cyborg in this way allows Škarnulytė to hint at a future in which the shape and meaning of co-creations is determined in advance by their human architects. This means that the mermaid in *Sirenomelia* is a political instrument in a project of post-humanism; it is a symperson after the fashion of Haraway, rather than a cyborg.

Not all authors and filmmakers allow their explorations of the cyborg trope to become a politically charged statement, nor do they all make the same mistake as Škarnulytė and remain inexplicably focused on the human experience. One ecologically attuned, non-instrumental, non-technoscientific cyborg can be found in Amy Sackville's *Orkney* (2014), in which a young girl is always-already entangled with her marine surroundings. At the heart

[10] It should come as no surprise that the description of *Sirenomelia* (in online video repository Vimeo) features a quote by OOO'er Timothy Morton: 'We are all mermaids already, we just don't know it yet' (in Škarnulytė 2017). The documentary was also part of a Texas exhibition curated by Morton, 'Hyperobjects' (Saudaskaitė 2018).

of the novel lies a clash between hegemonic masculinity and ecofeminism, one that lays bare the difference between rivalry and co-constitution and shows that to-be-cyborg means to encounter limitations, stake territories, and negotiate relationships.

Orkney. Struggling with (Marine) Entanglement

Sackville's novel explores the relationship between Richard, professor of English at an unspecified university, and his young bride, an unnamed girl who recently graduated from the course he teaches. Their wedding having only just concluded at the start of the novel, Richard asks his wife where she would like to travel for their honeymoon. When she expresses the wish to travel to the sea, he magnanimously offers her a wide choice of options including the Pacific and Indian Oceans, the Mediterranean, and the Dead Sea. To his surprise, the girl requests a different place altogether: she wants to go north, to an Orkney island selected at random (Sackville 2014: 1-3). Richard's bafflement is easily visible between the lines, though he attempts to cover it over with the grandiose gesture of 'a courtly kiss of her fingers' and a romantic reflection on that place '[w]here the waves rush in iron-grey and unforgiving, like the cavalry of old wars' (Sackville 2014: 2). This sets up the tension for the rest of the novel.

As the two lovers spend their first real time together, in isolation from society and away from the familiar halls of the university, misunderstanding reigns. Richard tries to get to know his wife more intimately, but she refuses to surrender any information regarding her family background, her past life, or her present engagements. Instead, she prefers to stand on the shore outside their rented cottage and watch the lapping waves for hours on end, displaying a warmth towards and affinity with the Orcadian environment that is almost entirely absent from the relationship with her husband. In response, Richard starts to fabricate myths surrounding her persona. He imagines the girl to be a human manifestation of the sea she likes to spend so much time gazing at; or else a come-to-life nymph from his subject of preference in English literature, the magical female creatures appearing in nineteenth-century Romantic and Victorian fiction and poetry. These flights of imagination help Richard situate his wife squarely in the familiar realm of Culture, while disarming any possible influence Nature might exercise over her existence. The result of the numerous pained attempts at communication, reconciliation, and projection that feature in the book is that the two lovers drift further away from each other rather than draw close. This ultimately manifests in the disappearance of the young girl, with Richard left behind in drunken, sleep-deprived, and above all desperate stupefaction.

The discussion that follows starts with an analysis of the marine or 'pelagic' writing employed by Sackville on a variety of levels, including sentence, paragraph, and chapter, as well as in descriptions of the landscape and characters. Following this, it will be argued that the main theme of *Orkney* is the clash between ecofeminism and hegemonic masculinity. This central tension finds expression in the physical and psychological entanglement of the girl, who is an ecologically attuned cyborg-with the sea rather than symperson-of; and the cultured 'distance' experienced by jealous narrator Richard, who tries to bridge the divide between himself and his wife using fiction and confabulation. The disparity between the two lovers also becomes evident when considering the issue of voice – or lack thereof – and its relationship in the novel to acts of reading, writing, and interpretation. The discussion concludes with a critical reading of two fables recounted by the girl, in which a poor crofter meets, respectively, a mermaid and a selkie. These episodes underscore the different approach to fiction and reality taken by the girl when compared to her husband: for her, the two realms exist on a continuous spectrum, with fiction informing reality and vice versa. The fables also serve to further establish the differences between ecofeminist and patriarchal attitudes to non-human others; in this sense, the girl's stories might well be a thinly veiled criticism of her husband's character.

Writing the Sea / the Sea Writing

In an interview given not long after the publication of *Orkney,* Sackville explains that for her, the novel hinges on rhythm and style much more than plot (Fiction Uncovered 2013). Drawing specifically on the image and motion of the sea surrounding the Orkney archipelago, she felt able, during the writing process, to embed 'particular rhythms and repetitions on the sentence level, [and] on the level of each individual chapter', adding that 'the way that the book is structured is in quite sort of short chunks, that are separated by space on the page, and as the book goes on that space on the page becomes increasingly significant' (Fiction Uncovered 2013). In this way, the sea infuses the very language in which the narrative is composed. Sackville's marine or – as it will be called here – 'pelagic' writing also reinforces other key aspects of the novel, some of which will be discussed shortly. These include voice and voicelessness, presence and absence, and agency (Fiction Uncovered 2013).

The pelagic composition of the novel means that *Orkney* does not only write (about) the sea. Rather, the sea has joined Richard as co-narrator, resulting in the collapse of a number of subject/object distinctions, most notably nature/culture and human/non-human. Richard is blissfully unaware of his shared authorship, continuing to develop his extensive fictions

without noticing that the very vocabulary he relies on has taken a nautical turn. It can thus be argued that the writing sea acts as the epitome of 'reading between the lines', intervening freely but covertly in word choice, sentence length, paragraph size, meaning, and silence:

> To work, for god's sake.
>
> The knight-at-arms is left to loiter palely on the cold hillside by his Belle Dame. But in what sense is she without mercy? Because she shows him a world that he cannot inhabit, where she cannot keep him? Wraps him in fantasy and then abandons him to waste and rot? Or simply because she makes him love her, and then leaves? What is the nature of this enchantment? Or is it only madness, or a dream, and if so, whose?
>
> Whose?
>
> This is hopeless.
>
> The sky is closed. No sign of the sun. The house is cold, the blankets damp, it's too dim to read, really. No; I won't let it go. I am unwilling to let her alone, this afternoon. How can I hope to get used to it? I will go out to her. Out on the beach, she
>
> she is gone.
> (Sackville 2014: 161)

Richard's writing in this excerpt resembles a kind of tidal Morse code. His sentences, the paragraphs, and even the line breaks are alternately short and long, mimicking the waves and the buffeting winds outside, as well as the reach - resist - retreat pattern that characterises his interactions with his wife. The parlance is infused by an array of moistures: mist, condensation, and rot have made their way not only into the cottage, but also Richard's mind. On the level of meaning, meanwhile, he continues to resist his loss of control. He reminds himself – rather forcefully – of the need to work on his notes, slips in a reflection on his own situation vis-à-vis high culture (by paraphrasing John Keats, cf. 1942), and eventually surrenders to the desire to seek out his wife in what is certain to be another doomed attempt at conciliation.

On the beach outside the cottage, girl and sea follow a similar tidal to-and-fro pattern, as they engage in wordless conversation to stake out their respective territories. Though the girl is initially hesitant to approach the water for fear of drowning, she finds there is something irresistible about its motions:

> She keeps a safe distance between herself and the water; but sometimes a wave will surprise her, *building* under the surface and *suddenly breaking tall* just as it comes to the beach and *making a*

> *grab* for her, and then *she leaps back* and stands a little further off. I cannot tell from here, from the angle of her head, if she is curious, amused, watchful, thoughtful, thoughtless. Not a thought in her head, perhaps, *just the sound of the sea, just the wash and glint of it.* (Sackville 2014: 6; emphasis added)

The 'dance' between girl and sea echoes the interaction in Marianne Moore's poem, 'A Jellyfish', but with a complete reversal of roles. The one reaching, the 'you', is a non-human other: the sea. Meanwhile, the elusive object of desire is a human being. But the gap of species or agential experience troubling Moore's 'you' is mostly absent in this novel. Already in its first chapter, the girl has a dream in which she finds herself surrounded by a whole 'fluther' of jellyfish that tickle her delightfully (Sackville 2014: 5). Rather than dart away, the jellyfish actively seek her out; and the girl in turn is delighted to engage with them, submitting to their antics with a giggle (Sackville 2014: 4). Richard is silently envious of these 'lunar interloper[s]' (Sackville 2014: 5), but again fails to notice – or is unable to resist – the eddying turns of his own language: he imagines the jellyfish '*slinking* over her unconscious skin' (Sackville 2014: 5; emphasis added) as well as '*[p]ulsing* and *falling* all about her, the silver *tendrils* of her hair *twining* with theirs' (Sackville 2014: 5; emphasis added).

Orkney is suffused with passages in which pelagic writing dictates, if not outright steers, the narrative. Meanwhile, the sea also plays an important physical role in the story: first as backdrop or landscape, and later increasingly as a key character in the plot. Always-already there outside the window of the cottage, it draws in the girl and Richard both; until ultimately, the girl disappears and Richard remains alone, convinced that this rival lover has taken away his young bride. The constant tension between, respectively, the entanglement of girl and sea and Richard's perceived rivalry with it is a key expression of the central theme of the novel: the clash between ecofeminism and hegemonic masculinity.

Marine Entanglement or Rivalry

A number of early indicators of the girl's entanglement with the marine environment can be found in her physical features. Richard very quickly notices that his wife's hands and feet are slightly webbed (Sackville 2014: 11, 40), and claims that her skin carries a whiff of salt (Sackville 2014: 14). She is uncannily pale (Sackville 2014: 53), and – despite her young age – has silvery grey hair (Sackville 2014: 41, 88). She likes to dress in baggy clothes in motley colours, almost disappearing (or drowning) in them altogether (cf. Sackville 2014: 66-67, 96, 121). Finally, wherever she goes she seems to drag with her some kind of token of the sea, be it sand or seashells, the bones of little critters living in the intertidal zone, or

those of the larger animals populating the hills of the island (cf. Sackville 2014: 70, 139, 171). The trail of memorabilia is logical given the girl's daily seaside vigil; but they also indicate an unwillingness on her part to let go at any time, even when necessity – sleep, food, or keeping her husband company – calls her away from her duties.

After her first dream of the sea (of the 'fluther' of jellyfish) the girl's always-already present and gradually increasing attunement to the Orcadian landscape continues to be explored in a nocturnal setting. The very first night on the island, the girl wakes up gasping, in a sweat, and tells Richard that

> she'd dreamt that she stood on a high cliff, and as she looked down she saw the water rushing back, and the shells and the jellyfish and the urchins and the skeletons, whales and ships and men, all bleached to bone, all exposed on the sandy seabed, the sea pulling back for miles and miles; and then gathering, mounting, as if some invisible giant had rolled it all back like a carpet, and then let go. She saw it rushing towards her, tumbling over and over itself, and pushing all the bones and waste and wreck before it, smashing against the cliff she stood on, and she felt the spray of it, she saw it rushing up the wall of rock, and just as it breached the edge, just as it hit her, she woke with that gasp, as if it had knocked the breath out of her. (Sackville 2014: 15)

This experience intensifies night after night. First the cliff splits underneath her, plummeting the girl into the yearning waters beneath; then she describes the sea was 'licking at me like a creature, wrapping itself around my legs, winding up me, and then I was pulled from the rock, something pulled me in, and under, and I couldn't… I let it take me, I couldn't fight' (Sackville 2014: 53-54); and later again she pre-empts the strike of the water by diving in headfirst, becoming 'silver, shining, scaly' (Sackville 2014: 100) much like Škarnulytė's mermaid, but still not entirely at ease with her marine surroundings since the weeds are still 'trailing on [her], and then something grabbed [her] and [she] tried to break free, but [she'd] lost her tail and [she] couldn't swim or breathe any more at all' (Sackville 2014: 100). Perhaps counterintuitively so, the sea's harrowing night-time invasions slowly but surely draw the girl in rather than repel her. She pursues her daytime beach vigils ever more stubbornly, no matter her husband's pleas or the weather (cf. Sackville 2014: 54); and she does so at increasingly close quarters, eventually sitting numbed in the lapping waves without regard for her personal safety and health (Sackville 2014: 179-183, 214-216, 225-230). The climax of the girl's surrender to the sea – at least on a psychological level – occurs relatively early on in the novel, when she takes a bath and asks Richard to push her under and hold her submerged (Sackville 2014: 135-137). Arguing she is unable to brave the task herself, yet desiring to overcome her fear of drowning once and for all, she pleads until her witless husband gives in:

> She took a great deep breath and pinched her nostrils and her eyes widened, huge, before she squeezed them shut, and I felt her tense under my hands, and so help me, if only to break that tension I pushed her under, forced those bony shoulders under before I knew what I did. And as soon as she was under her eyes flew open again, I watched her face through a frame of bubbles, and her body bucked, but her grip on my right wrist stayed firm so that she almost held herself there, with my hands. (…)
> And then, she went rigid and still, and even when I no longer held her, she stayed under, would not relinquish my wrist, and it seemed hours I spent there, watching her, in her grasp, wanting her, fearing her a little, until at last I could stand it no longer, I broke before she did and hauled her up, I gripped her shoulders harder and pulled her back into the world, and I think if I hadn't she might have stayed there. (Sackville 2014: 136-137)

From this point onwards, it is evident that the only possible conclusion to *Orkney* can be the girl's flight from the relationship with her overbearing husband, and her subsequent union with the sea. Richard's oppressive masculinity is rendered powerless precisely in a scene that emphasises so much his physical superiority over his wife; by keeping herself submerged against her husband's wishes, even employing his body to do so, the girl subverts his dominance, crosses the threshold of her own fear, and enters into ever deepening entanglement with the water. Even though Richard yanks her back up and forces her to breathe – while she protests: '"I didn't feel like I needed air at all!"' (Sackville 2014: 137) – his intervention proves only to briefly delay the inevitable.

Because of her silence, intangibility, and eventual disappearance, Sackville has suggested that the girl is 'an absence at the centre of the narration' (Fiction Uncovered 2013). This certainly agrees with Richard's experience, who struggles throughout the novel to come to terms with the extreme otherness of his wife and her affinity – her entanglement – with the Orcadian environment. Faced by a rival he cannot address, Richard seeks recourse to the realm of fiction to retain a grip on his wife and save her from the clutches of the sea. He casts her as a character from nineteenth-century Romantic and Victorian literature: Andromeda, Vivien, the faery queen, or Undine (Sackville 2014: 54, 74-75, 88, 140). These are the women he has loved in the past, and whom he understands through and through after years of devoted study; surely this should aid him in coming to terms with the mystery of his new wife? However, Richard's attempts at making the girl a nymph-come-to-life – the epitome of Culture, where human fancy supplants physical reality – fail miserably. She actively resists his fabrications; pointing out, for instance, the misogyny in Alfred Tennyson's depictions of Vivien and suggesting an alternative relationship between her and Merlin that is based on love rather than power (Sackville 2014: 74-75). The girl also invalidates her husband's confabulations of how they first met and fell in love, forcing him to adhere to reality rather than seek recourse to fiction (cf. Sackville 2014: 41-43). Perhaps her refusal to talk about her past should be read in a similar vein: the stories would only feed

the professor's already too-vivid imagination. In this way, the girl collapses dichotomies and shifts power balances, even while Richard seeks to enact them in a desperate attempt to sustain his sense of self and world.

The respective behaviours of *Orkney's* two protagonists establish them as focal counterpoints to one another. The girl is more naturally and at the same time more problematically cyborg than any of the examples discussed earlier in this chapter, such as Haraway's Camille or Škarnulytė's mermaid. No easy extensions – such as the bio-technological prosthesis of the symperson and its covert anthropocentrism – are found here, and Sackville takes pains to avoid the trap of complete assimilation of sea and human being. The girl's sense of self is nevertheless challenged as she tentatively draws closer to that marine other and begins to realise the inadequacy of such demarcations as human/non-human, you/me, and then/now. Rather than a culmination of her growing absence throughout the novel, then, the girl's disappearance should be understood as the final step in a process of interminable entanglement and non-technological hybridisation. She never did exist as a nicely demarcated unit of being, a cultured human self 'apart' from nature; instead her person is the epitome of Haraway and Alaimo's sympoietic or transcorporeal engagement, and *Orkney* only tells the story of her growing awareness of this fact. Meanwhile, Richard remains hampered by an inability to move beyond ego- and anthropocentric patterns of thought and continues to fictionalise both his wife's persona and her relationship to the Orcadian environment. Being so diametrically opposed in thought, action, and being, it is only a matter of time before the fragile entente cordiale between the two lovers breaks down and each repairs to their own reality. Richard is drunk, slumping in a chair, puzzled and forever lost in his confabulations; and the girl is gone, her body finally become sea.

Voice(lessness) and Interpretation

At frequent intervals in the novel, Richard self-importantly refers to his work as a literary critic and his long – though mostly unremarkable – career as lecturer, and later professor, at the university (cf. Sackville 2014: 20-21, 33-34, 114-115). He revels in his accomplishments and draws pleasure from the fact that he has been able to communicate some, if by far not all, of his knowledge and wisdom to his young wife. Early on, he tells the reader:

> I am writing a book of enchantment. Not, that is, a spell-book, a grimoire, not some leather-bound and gold-tooled tome with a creaking spine, but rather a work of academia – the culmination of a long career. (…) I tell her I hate to neglect her. She says she doesn't mind. There's the rest of the world to think of, she says, a sweet exaggeration. In fact she's delighted, can't wait to read it; she's read all my books, or so she says. I like to think of her with a stack of them, curled snugly in a carrel in some dim corner of the library, underlining. (Sackville 2014: 20-21)

The roles assumed by the two characters in this section are indicative for *Orkney* as a whole. Richard is an authoritative figure – instructor, literary critic, all-knowing writer, and generally the girl's senior in most aspects of life – while his wife hovers on the edges of the narrative, inaudible though not quite invisible. She is cast as the quintessential reader: attending Richard's lectures and furiously taking notes, perusing his books, and silently watching and interpreting the repetitive motion of the water as she keeps her vigil on the beach. The result of these different attitudes is a skewed power balance that the reader is often quite unable to make out. As Richard is the novel's sole narrator, his interpretation of events appears decisive; there is generally limited opportunity for the readership to determine the accuracy of his claims regarding any given situation. However, a number of misrepresentations of past events – highlighted in tête-à-têtes with his wife – ought to make the reader wary, if not outright sceptical of Richard's reliability. As mentioned earlier, he incorrectly recalls details from the couple's first meetings on more than one occasion, preferring his own fiction over reality:

> You came in last, I told her, and you took your seat away from me in a corner. You brought the cold in with you, the crisp of the first frost and the leaves already falling; they were tangled in your hair – 'They were not,' she said, with a little shove, 'I'm not a vagrant' – *but so I saw you, darling, an autumn sprite,* come in from the first chill. You wore a purple sweater, the colour of the heather on the heath…
> 'And I have never owned a purple sweater.' As if you'd just come down from a hilltop, *I insisted*, as if you'd just conjured yourself out of the north wind, dressed in heather, and your eyes all clouded… 'It was green. I've never had a purple one. I've had it for years, it's one of my favourites. I remember wearing it. Sometimes I think I could remember what I wore every Tuesday of that term, because I always chose carefully. For your seminar. For you.' (Sackville 2014: 41-42; emphasis added)

Lived experience does not suffice for Richard; in fact, it disturbs him. No matter the sweet words of his young wife – the promise of specially picked outfits for his seminar alone – he is upset that she so easily invalidates his fancy. He prefers to believe in his own version of events; to humour his own desire rather than the person who inspires it (cf. Sackville 2014: 36). It is a relief for Richard when, not long after their dispute over the colour of the sweater, his wife decides to take a bath and leaves him alone with his thoughts: '[I]t is such a pleasure to dwell on the tale alone,' he remarks, 'while she is in her bath, and not here to interject with her nonsense about wearing purple' (Sackville 2014: 46).

Richard's heavy editorial hand may well distort key events in the novel, not least the disappearance of his wife. What if the collapse of the fragile relationship between the two lovers did not result in the girl's utter and complete entanglement with the sea, but rather her

death at the hands of her husband? It is possible that authoritative Richard, who is quite aware of the many threats to his new-found love, has seen in the troubled honeymoon a clear sign that there is no future in this relationship; that, stubborn and utterly different as his wife is, he will never be able to bridge the divide between them. The island they are on is remote; there are frequent storms that blot out sight and sound (cf. Sackville 2014: 180-183); and they have previously discovered a deep crevasse in the rocks near their cottage (Sackville 2014: 92-93), into which a person could easily disappear. Richard's latent violent nature is evident from his unnecessary use of force in a few situations earlier in the novel, such as the bathtub scene, though he absolved himself of blame in these instances by protesting that the girl 'bruises easily' (Sackville 2014: 25). He also appears to have penetrated his wife during her sleep (Sackville 2014: 15-17). He even seems to have motive; he has lamented his wife's love for the sea and her contacts with other people, and has frequently expressed the wish to have her entirely to himself (cf. Sackville 2014: 123-126). It is quite possible that he has gone to extreme lengths to fulfil this desire, and has subsequently twisted his words to proclaim his innocence. This would constitute the ultimate victory of make-believe over physical reality, as well as the (temporary) triumph of hegemonic masculinity over a less dichotomous mode of being, namely the girl's ecofeminism.

Old Stories, New Meanings

There are only a few instances in *Orkney* where Richard does not dominate the conversation; where, instead, he sits back and listens as his wife introduces him to a number of key myths and creatures in Orcadian folklore. Remarking that 'they don't draw the same distinctions here, between histories, stories, and myths' (Sackville 2014: 186), the girl demonstrates particular affinity with the archipelago's fabled mermaids and selkies. She is able to situate her own persona in the space carved out for these characters: somewhere between the human and non-human, the mythical past and physical reality. Unfortunately, her husband is unable to think along such gradients, and as such he fails to appreciate his wife's cues for what they really are. Whenever the girl hints at the plurality of experience and the entanglement of stories and matter, Richard takes recourse to romance and mythology to situate the moment 'quite out of time' (Sackville 2014: 184). His dichotomous thinking patterns preclude the possibility of *really* seeing himself in the stories, and the stories in the world around him: he is unable to let myth and reality interact. Despite his continuous insistence on his wife being a nymph-come-to-life, he does not actually believe this to be the case. His confabulations are a pastime, a meaning-making exercise, but always a realm quite separate from the physical here-and-now. In this way, Richard is prevented from appreciating the true depth

of the couple's entanglement with the Orcadian environment. Luckily, his faithful transcription of his wife's stories allows the readership of *Orkney* to embark on this journey of understanding quite independently.[11]

Among the girl's tales are two that speak of a crofter living near the sea. Despite their shared protagonist, however, the outcomes of these stories are wildly different, with the direction of the narrative depending entirely on the attitude adopted by the crofter during the encounter with a non-human other. In the first story, the young man receives a name: Donald. As he descends to the shore one day to collect limpets for his dinner, he goes out further than normal and finds himself pulled into the water by two pale arms. When he wakes up, he is in a boat with a beautiful, naked lady, who has a mermaid's tail rather than legs. She kisses Donald and he falls deeply in love with her, forgetting about his previous life entirely. The mermaid takes Donald to the underwater city of Finfolkaheem where he discovers, to his surprise, that he no longer feels the need to breathe. He is warmly welcomed by the king and soon finds himself betrothed to his daughter, the mermaid who brought him there (Sackville 2014: 187-189). After this, Donald leads a happy life in Finfolkaheem, while on the land lie 'quite forgotten his croft, his farm, the gathered harvest and the new crops left unsown, the sheep growing shaggy, the hearth long since cold, and his bucket of limpets left on the shore' (Sackville 2014: 191). An alternative ending exists in which Donald is 'rescued' by a spae-wife, or witch, but this version is dismissed out of hand by both the girl and Richard. The girl considers it unfaithful to the original tale, while Richard refuses to believe that Donald would let others interfere with his pursuit of happiness (Sackville 2014: 191).

The second story is prefaced by an episode in which the girl holds her vigil on the beach flanked by a number of seals. Richard, acting light-hearted and mock-envious, but really inquisitive and quite perturbed by the mammals' proximity to his beloved wife, asks the girl why they would come so near her yet shy away from him. It is simple, she says: he smells of man and murder (Sackville 2014: 204). When Richard protests – 'I've no blood on my hands' (Sackville 2014: 204) – she reminds him of the history of seal hunting, mostly by men; and when he tries, romantically, to suggest that the seals take a liking to the girl because she 'smell[s] of the sea. Of deep water. And of biscuits' (Sackville 2014: 204), she maintains that things are probably more straightforward than that. She is a woman, someone who smells 'of kindness, not killing' (Sackville 2014: 204).

In the tale that follows, the girl introduces yet another crofter – this time unnamed – who goes out to the beach. Climbing the rocks to gather kelp, the young man sees in the distance

[11] The different tone of voice in these sections, as well as the nature of the ideas put forward, provide some reassurance that Richard has not taken liberties with his wife's words.

a group of three beautiful, naked women combing their hair and singing to each other. He falls in love with one of them instantly, but they are disturbed by the barking of his dog, turn into seals, and swim away. A wizened old man tells the crofter that he must steal the sealskin of the woman he loves, making her unable to return to her underwater home and forcing her to become his companion. The crofter, this time taking pains to leave his yelping dog at home, does exactly that. He remains deaf to the selkie's anguish and her pleas to return to her underwater home, and leads her into his house (Sackville 2014: 206-209). She becomes his wife and gradually adopts human behaviours:

> He gives her a name, because she won't reveal her own. She eats only raw fish, at first, with her hands. Having guests is awkward. But she learns to eat it boiled or smoked, with a fork, and becomes a good wife, and bakes his bread and milks the cow and cooks his porridge in the morning and his soup when he comes home from his labour, although she does not eat with him; she keeps the hearth burning, and a pot upon it, and is warm and smooth-skinned in the bed at night. (Sackville 2014: 209)

The couple have a number of children. One day, the youngest of these finds the selkie's skin hidden in a wall. When he shows it to his mother, she cries and laughs, instantly takes the skin to the shore and disappears into the water, never to return; though the crofter finds himself assured of a rich haul of fish whenever he takes out his boat afterwards (Sackville 2014: 209-210). Perhaps all this was only to be expected: as the old man had told the crofter, '"a wild creature will always go back to the wild"' (Sackville 2014: 210).

Richard dislikes the ending of the story, but his wife is more pragmatic. '"He got twenty years out of her",' she reminds her husband, adding with a smirk: '"And lots of fish"' (Sackville 2014: 210). Her remarks seem to indicate resignation at the fact that the crofter can force another being into subjugation: to make the selkie marry him and do his bidding, and to reap the rewards of his behaviour ever after. That this patriarchal attitude is considered acceptable practice – not just by society but clearly also by Richard – is cause for further dismay. It appears that to the girl, the earlier encounter with the seals, the tale she has told, and her own life are very much in dialogue, reaching across the realm of lived experience and the entangled production of the present. Judging by the ordeal of the selkie woman, she believes that the seals outside the cottage have good reason to be wary of men. Similarly, her husband's patriarchal attitude suggests that the girl herself is in a precarious position. Richard, meanwhile, remains utterly unable to connect the dots; it does not even occur to him to compare and contrast – as ought to be his professional wont – the attitudes of the two crofters. Despite being presented to him in the very same language and style as the tales of his research, the professor fails to gain any sort of insight into the disparity between

ecological-feminist modes of existence (exemplified by gentle Donald) and hegemonic masculinity (displayed by the second crofter, and himself). This is definitive proof, for both girl and reader, that he will never be able to transition to a less binary way of thinking. Some twenty-four hours later, the girl disappears. She leaves a final warning for Richard not to bury himself, and the memory of her, in his imagination. It is an underlined sentence in her discarded notebook: '"Best leave the paper blank'" (Sackville 2014: 253).

Conclusion

This chapter took inspiration from Disney's *Moana* to explore different ways in which ecocriticism and feminism converge, meet, and supplement each other in the study of subjugation, including that of women and minorities, children, animals, and the environment. This meeting of disciplines results in the birth of a new mode of inquiry, ecofeminism, which emphasises the search for kinship between humans, non-humans, and more-than-humans while acknowledging difference. Returning to Alaimo, Haraway, Latour, and Tsing, the chapter made it clear that the work of these four authors resonates strongly with key ecofeminist principles. Latour offers tentative answers to the question of 'returning to Earth', while Haraway discusses the meaning of human-as-humus and the risky reality of cohabitation. Alaimo wages battle against hydrophasia by exploring the dissolution of the human body in proto- and contemporary marine environments. Finally, Tsing uncovers the lives and actions of 'feral' beings, anthropogenically enabled entities that have assumed independent agency. In addition to this, Haraway has developed the idea of the cyborg, which successfully politicises the idea of intra-active 'becoming' by asking who gets to decide the direction of action in the present-day and future confusion of entangled existence. However, there is a risk of pushing into radical – and ultimately unproductive – territory when one goes beyond the partial-and-prone-to-faults prosthesis of the cyborg, and seeks to create truly hybrid human/non-humans using biotechnological augmentation. Drawing on Lithuanian artist Emilija Škarnulytė's multi-screen installation *Sirenomelia* (2017), it was shown that such interventions inevitably lead to a problematic cross-species body politic, in which the human architect of the new hybrid denies other species a voice in determining the outline of future coexistence.

An alternative manner of being-cyborg was found in Amy Sackville's *Orkney* (2014), in which an unnamed young girl gradually becomes aware of her deepening entanglement with the marine environment while honeymooning on a remote island with her ageing husband Richard. Diametrically opposed in their ways of relating to non- and more-than-human realities, the two lovers slowly drift apart and repair to their respective realities: the girl

grows more attuned to the sea during long vigils on the beach, while her husband endlessly fictionalises her existence in a doomed attempt to comprehend who she is. The central tension in the novel – a clash between ecofeminism and hegemonic masculinity – was explored with reference to a number of themes. These include the sea as co-author-cum-subject, the idea of entanglement versus rivalry, questions of voice(lessnesss) and interpretation, and the reappropriation of old stories and myths to comprehend the present reality of entanglement.

As this discussion of ecofeminist approaches to living with the sea in the twenty-first century comes to a close, we find ourselves in a better position to assess what it means to-be-human (or rather: to-be-Terrestrial, to-be-humus, *to-be-hydro*) in present realities of entangled existence with marine non- and more-than-human others. We are also able to chart a feasible course for emergent plurispecies societies by drawing on and distinguishing between a variety of models for shared flourishing. The next chapter will change the direction of the inquiry somewhat. Inverting the timeline, it looks at *what was* by examining those species and phenomena that have been lost in the present, and that might run the risk of being erased from memory in the not-so-distant future. It discusses ways of remembering past seas and their many lifeforms, and it queries the possibility of leveraging mourning as a political tool for multispecies presents and futures.

Chapter IV – We the Living and the Dead

Remembering the Lost and Extinct, and Querying the Politics of Representation

The seafront of Plymouth (UK) is best known for its 'Hoe', a charming but dated leisure space characterised by concrete walkways that criss-cross each other to create numerous semi-private nooks and crannies. At the heart of the Hoe lies a well-maintained 1930s art-deco lido with reasonable entry fees and generous opening hours. Even so, most outgoing Plymothians prefer to swim in one of the coves adjacent to the pool, where access to the sea is free and the waters are quieter, though not necessarily clean. The latter became painfully evident when in September 2019, the corpse of a common dolphin was discovered in a corner of the development known as the 'Lion's Den', or gentleman's bathing section (Dowrick 2019; see Fig. 4). By the time the mammal was found, decay of the body had long set in and a putrid smell dominated the area. The animal's tongue was hanging out at a macabre angle and crusted blood marked several cuts under the fins. Its skin, meanwhile, had turned a motley of browns and reds. The latter may have been caused by earlier bruising or an unlucky encounter with spilled oil, though Mr. Dan Downey – who first reported the appearance of the corpse – theorised that it could also have been the result of "someone [setting] fire to it" (Dowrick 2019).

Fig. 4: Decaying dolphin with traffic cone on Plymouth Hoe.
(Source: Buitendijk 2019)

The space in which this particular dolphin's corpse lay could have been many things: a site of tragedy or mourning, a demand to question man's impact on the natural environment, or a cruel reminder of transience in the web of life. It was very possible that this corner of the Lion's Den had witnessed a violent crime: how else would one explain the cuts and bruises on the body, or the fact that the corpse was found outside the local tidal range? However, all these scenarios were cast aside when a small yellow traffic cone bearing a do-not-park logo appeared next to the body in the days after Mr. Downey's report. The corpse had now been tagged: acknowledged as unwanted by the local authorities, logged in the system, and scheduled for (professional) removal. Once collected, the dolphin might have been investigated by a nearby zoology department to determine its exact cause of death, but little else would be done to tell the story of its demise. There would be no eulogies or funeral rites to mark the passing of this mammal; in the current paradigm of human-animal relations, such sentimentalities are only performed for pets and the occasional charismatic megafauna.[12]

Human failure to mourn dead and extinct non-human others – especially those that lost their lives as a result of anthropogenic climate change or other human interference – is a particularly aggravating expression of species exceptionalism, and an implicit reinforcement of many of the dichotomies encountered in the previous chapter. How can different species and individuals possibly co-determine feasible futures for the multispecies society if previous grievances and failed attempts at peaceful cohabitation are left unspoken? In fact, it is only by giving voice to those that were denied it in the past that a society equally comprised of humans, animals, objects, and phenomena can hope to emerge. The dolphin on Plymouth Hoe must be remembered, and the same goes for many of its kin: this includes the rapidly disappearing bluefin tuna population, the thousands of mammals killed during the (pre)industrial whale hunt, and the endangered Hawksbill turtle. And what of the latter's natural habitat, the coral reef? Whether or not it disappears in years to come, it is vital that this space is included in cross-species dialogues of remembrance, mourning, and responsibility.

The chapter that follows will explore these issues by drawing attention to past failures of cohabitation and representation, and by suggesting ways in which these shortcomings can be (at least partially) repaired. The discussion starts by revisiting Donna Haraway's 'Camille Stories' and analysing the role she envisions for 'Speakers of the Dead' in tying together

[12] This also explains the regular appearance of large cetaceans in newspapers and other popular media, and by extension this thesis. Unlike the vast majority of marine species (including minor cetaceans like the common dolphin), the category of mammals informally known as 'great' whales attract attention whenever they surface.

past, present, and future coexistences of humans, non-humans, and more-than-humans. Contrary to Haraway's insistence on installing a symperson as Speaker, however, it becomes evident that only by *not*-becoming the other can one mourn the losses of the past while also fuelling a spirit of multispecies community. Nor are all these eulogists necessarily human: it is demonstrated that unexpected Speakers are found among the living and the dead, including the tsunami stones dotting Japan's earthquake-prone coast and the whales recorded on a platinum-ranked 1970s LP. Following this discussion, the work of Ursula K. Heise is drawn upon to develop a more critical view on mourning. Whose agenda does remembrance serve, and what does it seek to effect? Haraway provides further insight by elaborating on some of the risks and opportunities of remembering, specifically through her idea of the "guises" of 'SF': what can be effected by taking recourse to *science fact*, by *speculatively fabulating*, or by creating *string figures* of mourning? This leads to a discussion on the nature of listening: how can human audiences become truly receptive to non- and more-than-human expressions of autonomous agency, without immediately adapting the other's speech to suit their own agendas? The answer lies in practising 'risky' science: allowing the non-human to challenge scientific beliefs and biases by issuing counterclaims of their own. It is shown that such listening practices can be elevated from the individual to the societal level by pursuing a Parliament of Things, an enhanced model for multispecies society that is open to unexpected political claims made by non- and more-than-human citizens. The chapter concludes with a discussion of Ben Smith's *Doggerland* (2019a). This novel demonstrates how a lack of understanding of the past and an inability to enter dialogue with the other can preclude futures of peaceful, or even productive, multispecies coexistence. Caught in a crippled present on a dilapidated wind farm somewhere in the North Sea, the human characters in the book eventually discover that there is only one way to move forward with their lives: they must become attuned to the non- and more-than-human voices clamouring for attention from the margins of the story.

Storytelling for the Dead and Extinct

The previous chapter took issue with Donna Haraway's 'Camille Stories', which comprise the final chapter of her most recent publication, *Staying with the Trouble* (2016). Particular criticism was lodged against the idea of the symperson, a bio-techno-hybrid of humans and animals that takes great liberties with gene-sharing as well as (individual) human and non-human agencies. However, this is not the only idea put forward by Haraway. The communities in which the five Camilles grow up all take a keen interest in the past, and in particular in the dead and extinct. Rather than looking exclusively forward in their quest to

(part-)recuperate on a damaged planet, they take into account histories of extinction, ruin, violence, and their concomitant species and individual losses (Haraway 2016: 166-167). They do this in order to avoid repeating previous mistakes, and to remind themselves and others continuously of the way in which past, present, and future mutually inform (or co-constitute) lived realities (Haraway 2016: 168).

The work of remembrance in these communities is chiefly performed by the 'Speakers for the Dead'.[13] These individuals are 'tasked with bringing critters who had been irretrievably lost into potent presence for giving knowledge and heart to all of those continuing to work for the still diverse earth's robust and partial recuperation' (Haraway 2016: 164). Their work is not just a practice of mourning through storytelling. It is also physical-active, making it inherently risky. Consider some of the performances of Haraway's envisioned role model for the Speakers for the Dead, Inuk throat singer Tanya Tagaq:

> In *Animism,* Tagaq and her partners (…) performed a musical argument for and about continuities, transformations, contradictions, and (…) visual and acoustic kinetic interconversions of human and animal beings in situated worlds. *Hunting, eating, living-with, dying-with, and moving-with in the turbulent folds and eddies of a situated earth*: these were the affirmations and controversies of Tagaq's singing and website texts and interviews. Tagaq *embraced oppositions and conflicts, not to purify them, but to live inside complexities of shared flesh, casting herself for some worlds and not others*. At her Polaris Music Prize performance in September 2014, *the names of murdered and missing Aboriginal women scrolled behind Tagaq*. The last track of *Animism* was titled *'Fracking'*; the first was *'Caribou'*. She wore *seal fur cuffs* during her Polaris performance; she affirmed the natural world and hunting by her people. Her risk-taking animism performed materialist worlds – gone, here, and to come. (2016: 165; emphasis added)

Tagaq's remembering of the dead – in music, dance, visual installations, and interviews – is confronting, but does not aim to settle scores. Nor does it spin the illusion of a future of peaceful co-habitation between humans, non-humans, and more-than-humans. Such attempts at reconciliation would not be the custom of her tribe – which engages in seal and caribou hunting to this day – nor would they do justice to the transience of individual elements in ecosystems. As Haraway remarks, the reality of coexistence is that actors live and die with each other, because of each other, or despite each other. By drawing attention to the totality of these disparate elements, Tagaq practices what Tsing calls the 'art of noticing' (2017: 17ff); she seeks to practice making 'common cause' (Tsing 2017: 254) with other living beings precisely by highlighting such vital questions as 'who eats whom and how' (Haraway 2016: 165; cf. Tsing 2017: 254-255). Though it may seem counterintuitive,

[13] The term comes from Orson Scott Card's novel of the same name (cf. Haraway 2016: 227-228).

Tagaq's practice of speaking for the dead thus involves putting on display the have-killed (seals, caribou) and been-killed (fellow Inuk women) in an attempt to take and bestow responsibility for past, present, and future. The effect is that not only others' transgressions are highlighted, but also her own; for the latter, she is apologetic and unapologetic at the same time. Through it all, multispecies agency appears, and even if some of the species or individuals put on display have died, they *were* agents and are *kept in memory* as such. Tagaq-as-speaker unfolds the plural character of mourning, involving remembrance as much as the staking of territories and engagement in (future) sympoietic world-building (Haraway 2016: 164-165). Perhaps the main lesson she teaches is this: nothing is worse than indifference.

It should come as no surprise that Haraway bestows the role of Speaker for the Dead on a symperson. Following her earlier attempts to harmonise human and non-human experiences-of-existence through gene-sharing, and realising the plural character of the task of the Speaker, she attempts to bring both concepts together in an ultimate attempt to effect a kind of sympoietic mourning in language, action, and being (Haraway 2016: 164-168). However, the risks posed by gene-sharing as element of mourning soon become evident. For instance, Haraway's introduction to the fifth and last Camille Story states that – between the years 2340 and 2425 – '[m]any humans are syms with extinct partners' (2016: 166). Rather than creating exemplary 'Speakers', this practice – already problematic for all the reasons listed in the previous chapter – carries the risk of fuelling indifference: of choosing new sym-species (or even: (sym-species)$^{\wedge 2}$, Haraway 2016: 167-168) to replace previously gone-extinct ones, and celebrating the future but forgetting the past. Even though the first two elements of the work of sympoietic remembrance (language and action) can work powerful effects, it is in fact only the *impossibility* of the last (being) that enables mourning to fuel a plurispecies spirit of community. By *not*-merging-in-being, or gene-sharing, with dead and extinct others, a reminder is issued of the great care that needs to be taken in charting multispecies futures. The refusal to conflate self and other insists that hosts of different species and individuals muddle through together rather than disappear into one another (cf. Tsing 2017: 22, 254-255). 'We' are not 'them'; 'they' are not 'us'; and yet *together we are the living and the dead.*

Anna Tsing's suggestions of being-surprised and celebrating flourishing in decay (cf. 2017: 282) are much more tentative than Haraway's idea of sym-Speakers. They are open to the unexpected and acutely aware of the disasters of the past without immediately foreclosing all possible futures. Whereas Haraway's Speakers are all (quasi-)human, Tsing's 'arts of noticing' help humanity recognise kin in non- and more-than-human others. Some

of these Speakers are alive, others dead, and yet others again were never alive to begin with. The unexpected latter category includes, for instance, the so-called 'tsunami stones' dotting the coast of Japan. These stones recall the destructive impact of tsunamis – often caused by submarine earthquakes – that have battered the country at various points in history, and issue stark warnings to locals not to build their houses below the indicated inundation line (Hunchuck 2018: 23-24). Their inscriptions might read: '"[an] earthquake is an omen of a subsequent tsunami. Watch out for at least one hour. When it comes, rush away to higher places. Never reside on submerged land again."' (in Hunchuck 2018: 24). Or simply: '"Do not build your homes below this point!"' (in Fackler 2011). Other stones have no written text, or their warnings have long faded, yet their very presence suffices to send an unequivocal message. In this way, the stones recall past seas in the present moment: they speak for those – humans, non-humans, communities, ecologies, environments – who were lost in previous natural disasters, and implore future generations not to risk their lives unnecessarily.

Despite their stark warnings, the stones are not always taken seriously. For example, many villages along the eastern coast of Japan were built well past any point that could sensibly be regarded 'safe', especially in this earthquake-prone part of the world. The Tōhoku undersea earthquake and subsequent tsunami wave occurring on March 11, 2011 swept away the majority of these villages, resulting in more than 15,000 casualties (Hunchuck 2018: 23). The catastrophe also caused the uncontrolled shutdown and partial destruction of the Fukushima Daiichi reactor (see Fig. 5), which led to considerable radioactive fallout. Its sister installation, the Daini plant, only barely avoided a similar fate (Gulati, Casto and Krontiris 2014).

Fig. 5: Damage to the Fukushima Daiichi nuclear plant and indication of its proximity to the sea. (Source: Tokyo Electric Power Company 2011. Reproduced with permission)

Many lives could have been preserved, and much damage to infrastructure avoided, if only the tsunami stones' warnings had been heeded. Indeed, some have argued that 'the loss of life [following the Tōhoku earthquake] was *the predictable result of a series of choices* that were made about where to build, what to build, where to work, where to live' (Hunchuck 2018: 23; emphasis and inset added). Reliance on techno-scientific knowhow gave plant architects, engineers, maintenance workers, and the local population a sense of security that proved unfounded when the waves came crashing down on top of them. Today, plans are being made to install new stones (Hunchuck 2018: 24). They will commemorate the casualties of 2011, and implore yet new generations not to be foolhardy. Whether anyone will listen to these Speakers is another question entirely: compiled aerial footage of reconstruction efforts in previously inundated areas suggests that this is not the case (cf. Hunchuck 2018: 25, 27).

There are also non-human Speakers that commemorate – or are made to commemorate – their own species' fraught past and present. Well-known in this context is the 1970 LP *Songs of the Humpback Whale*, which was put together by bio-acoustician and cetologist Roger Payne and his team. Comprised of five songs ('Solo Whale', 'Slowed-Down Solo Whale', 'Tower Whales', 'Distant Whale', and 'Three Whale Trip') the collection captures communications between a number of humpback whales at a time when the species' population had reached an all-time low (Webster 1970). Though it might be impossible to determine what whale song *means to whales themselves*, the tracks collected on the LP assumed great importance in a different sphere: the human one. The recordings played a

pivotal role in the establishment of a worldwide 'Save the Whales' campaign in the 1970s, having grabbed listeners' attention with their 'unearthly, soft, haunting, *mournful*, meditative and peaceful' sounds (O'Dell 2010; emphasis added). This campaign, in turn, is widely considered to have been a major catalyst in the International Whaling Commission (IWC)'s decision to impose a global moratorium on the whale hunt from 1986 onwards (O'Dell 2010). In this way, snatches of whale communication were successfully leveraged as instruments for the survival of the species. This is proof that human and animal politics play key roles in Speaking for the Dead, and that such mourning can achieve real societal change.

Cultural and Political Aspects of Mourning

In her seminal work *Imagining Extinction*, Ursula K. Heise demonstrates that mourning, remembering, and representation are first and foremost cultural and political acts: value is apportioned to species – whether flourishing, endangered, or extinct – and ecosystems less on the basis of scientific fact than it is on grounds of personal and societal preference (2016: 31). 'Public engagement with endangered species,' Heise explains, 'depends on (…) broader structures of imagination, and individuals' paths to conservationist engagement become meaningful for others only within these cultural frameworks' (2016: 5). This superimposition of culture over scientific fact means that both conservation and mourning only succeed when they are perceived by society as necessary and good.[14] It also means that underlying motivations – to preserve, to care, to intervene or let flourish – tend to be rooted for a large part in personal or collective belief systems. For example, the sense of duty (cf. Heise 2016: 5) experienced by many environmentalists is often fuelled by subjective interpretations of what constitutes 'original nature' (Heise 2016: 127-161). On a larger scale, governments endeavouring to protect their nation's flora and fauna might do so as the result of a biased reading of the role of landscape vis-à-vis human society (Heise 2016: 96-107). There are even instances where conservation efforts directly contradict scientific evidence: an example of this is the US Forestry Service's long-standing fire exclusion policy, which appears to have damaged forests' health rather than safeguarded it (Tsing 2017: 196, 200-202). Similarly, Heise draws on the work of Joan Mooallem to observe that '[w]e expend enormous labour and capital to save polar bears, whose habitat is melting away and who may be interbreeding with northward-migrating grizzlies; [and] we guide whooping cranes

[14] Heise employs a rather narrow sense of 'mourning', namely as umbrella term for expressions such as the elegy and tragedy (2016: 32ff). Following the earlier discussion on Speaking for the Dead, the term is here understood in a much wider sense, to encompass a wealth of world-remembering and -making practices. This definition of mourning closely aligns with Heise's use of the term 'conservation'.

with planes on hundreds of miles of migration to summer habitats that may well be engulfed by rising sea water in the foreseeable future' (2016: 5). She rightfully asks what the real reason is behind these efforts: do they fill a scientific need or a cultural-political one?

Heise's objective in querying the sociopolitical aspects of conservation – including Speaking for the Dead in its many forms – is to determine how this process can be leveraged to establish a new sense of community that extends full rights of citizenship to non-human others. Her work develops the thesis that the taxed relationship between Nature and Culture can be challenged not only ecologically and/or geophysically, but also (human-)culturally:

> [Studying the role of culture in our engagement with endangered species] shows some of the crucial ways in which animals and, more rarely, plants and other organisms, are cultural tools and agents in humans' thinking about themselves, their communities, their histories, and their futures. Understanding the ways in which relationships to other species already form part of our self-understanding will be useful in developing the forms of multispecies justice and multispecies cosmopolitanism [that emerge] as possible models for rethinking humans' place in what we have come to call the Anthropocene. (Heise 2016: 6)

Cultural contexts differ around the globe, which can lead to conflicting views on ecological value, (self-)preservation, and the desired make-up of multispecies societies. One example given by Heise – inspired by a playful ad for the Nissan LEAF electric car – is that of the polar bear. Unlike some of its peers, this charismatic megafauna is 'not tied to a particular national or cultural community' (Heise 2016: 240). Its plight appears to transcend divisive boundaries with ease, and as a result the need to 'save the bears' has become virtually incontestable around the world (Heise 2016: 240). However, Heise observes that even this focal point of the ecological crisis is under pressure from counter-narratives. Western societies might be united in their horror at the fate of the polar bear, but Inuit communities tell a very different story. They suffer directly from the southbound migration of polar bears due to disappearing sea ice, with the animals' increased presence in Inuit settlements posing a serious threat to their people's well-being (Heise 2016: 241ff). Nor do the Inuit believe that climate change is to blame for the dwindling number of polar bears around the world: they say the animals will be able to survive, if only they are left undisturbed (Heise 2016: 241). Local knowledge here clashes directly with scientific consensus: Inuit point to '"Southern meddlers"', or US and Canadian visiting scientists, as the main threat to polar bear well-being, due to their practices of 'anesthetizing, collaring and tagging' (Heise 2016: 242). The Inuit population knows its wildlife intimately and can see that the bears suffer from these forced interactions with scientific communities, which render them stressed, deaf, and generally disoriented (Heise 2016: 242). Furthermore, the Inuit consider it absurd that ignorant outsiders criticise them for their time-honed hunting practices, or for protecting

their own from trekking bears. Heise concludes that '[t]he polar bear's symbolic role as the paradigmatic victim of climate change vanishes in this [argument]. Instead, the bear turns into a symbol of struggle over cultural and political sovereignty. Who knows local wildlife? Who has the right to determine appropriate interactions with wildlife, and the authority to tell others how to live with it?' (2016: 243). She adds that her aim is not to resolve these disputes, but 'to foreground that such divergent cultural meanings are the stuff of living in multispecies communities' (Heise 2016: 243).

Heise's findings resonate with Haraway's earlier postulates that '[i]t matters what stories tell stories' and 'what worlds world worlds' (see Chapter II or Haraway 2016: 35). Any configuration of multi-species coexistence must take into account a plurality of cultural and political positions. As with the Inuit and the "Southerners", many of these positions are at direct odds with each other and will likely never be resolved. Multispecies society can only flourish if its proponents remain acutely aware of existing tensions, for example by acknowledging that 'they' are not 'us', nor 'we' 'them'. At the same time, it should be emphasised that together, as living and dead, groups with conflicting interests can come to constitute one society, whose very existence invalidates dichotomies like sentience/non-sentience, human/animal, culture/nature, science/indigenous knowledge, and – precisely by acknowledging difference – us/them. The difficulty of this work becomes clearer when turning, again, to the *Songs of the Humpback Whale* LP.

In the wake of the 1986 global moratorium on whaling, populations of humpback whales have recovered around the world, from an approximate low of 5,000 to a current estimate of more than 150,000 individuals (IWC). In terms of pure numbers, 'Save the Whales' campaigns – part-spurred by the release of the LP – have therefore been a resounding success in rallying support for a dying species. For this reason, fifty years after *Songs of the Humpback Whale* was first released, some are looking to re-leverage its content to achieve new successes that benefit the whales. Roger Payne's ex-wife Katy – who collaborated with him on the production of the original album – has taken a first step in this process by co-launching an anniversary project that uses whale song to reflect on '[t]he challenges whales face today, like climate change and noise from oil and gas drilling and maritime shipping, which can be devastating for marine mammals that rely on sound for their survival' (Nutt 2019). Yet these new challenges are not as unequivocal in character as the original threat to the continued existence of the species. For example, a lot of underwater noise is generated when installing wind turbines at sea. This means that even though the shift towards wind energy is aimed at deterring climate change (and deep sea drilling) by rendering oil and gas superfluous, (whale) conservationists are not necessarily in favour of offshore wind farm

construction. It turns out that contemporary whale preservation efforts can be as much at odds with the proliferation of the fossil fuel industry as they are with the burgeoning green energy movement. This gives rise to a number of uncomfortable questions. Who (or what) receives priority? Do the whales benefit most from a hands-off or a hands-on approach? Should society maybe risk the well-being of one species to save many others, or vice versa?

Risks and Opportunities. Mourning and 'SF'

Donna Haraway argues that the nature of these deeply complex 'string figuring' (2016: 3) (or cat's cradle) games is better understood when they are read in conjunction with other types of 'SF', which is 'a sign for science fiction, speculative feminism, science fantasy, speculative fabulation, [and] science fact' (2016: 10; inset added). Haraway does not define these categories to any great extent, but this is to their benefit rather than detriment. The "guises" of SF can be understood as paradigms in which discussions of agency and inter- or intra-action can be productively situated, and which refuse to impose their own sets of rules or agendas. They provide a space in which pushing and pulling, shoving and claiming, and the marking of some territories while surrendering others become part of a narrative rather than remain meaningless clashes of interest. In this way, Haraway suggests, inherently risk-riddled mourning efforts can be read as rife with opportunity.

Haraway demonstrates the value of SF with the example of the 'Crochet Coral Reef' project, a 'Speculative Feminism', 'Science Fact', 'Science Fantasy', and 'String Figuring'-inspired approach to sympoietic mourning-cum-coexistence that operates wholly independent of physical interaction yet has world-defining impacts. Participants in this project raise the plight of coral reefs by crocheting their image in homes and offices around the world, developing for themselves and others a 'hyperbolic embodied knowledge' (Haraway 2016: 78) as they work with various discarded materials that harm the reefs, including plastic waste, clothing fibres, and tape. The final product thus comes to live 'enfolded in the materialities of global warming and toxic pollution (…) [while] the makers of the reef practice multispecies becoming-with to cultivate the capacity to respond, [that is] response-ability' (Haraway 2016: 78; insets added). The Crochet Coral Reef project presents itself as a possible tool for constituting tomorrow's marine society in a case where reality has surpassed humanity's worst nightmares: no matter the type of intervention that is staged, the reefs will very likely disappear. Certain types of string figuring – emissions from human industry, bottom trawling, and poor waste management among many others – are slowly but irreversibly pushing them out of existence. However, others (such as the Crochet Coral Reef project) are fighting back by retaining their memory as leverage material for a plurispecies,

pluriphenomenal politic that has yet to unfold. In this way, the crocheters' furious international 'loop[s] and whirl[s]' (Haraway 2016: 78), though unable to save the Great Barrier Reef or its lesser kin from extinction, are nonetheless world-altering actions that help rewrite past, present, and most notably future coexistences between humans and non-humans. They do so by fabulating, fantasising, and figuring in concert.

The challenges faced by those seeking to releverage the *Songs of the Humpback Whale* LP should be dealt with in a similar way as the obstacles that emerge when crocheting coral reefs: as part of a newly emergent narrative co-constituted by a number of realms of 'SF', including but not limited to 'Science Fact', 'Science Fantasy', and 'Speculative Fabulation'. Can Katy Payne and her colleagues – or anyone else for that matter – dream up alternative futures in which whales and wind farms come to productively co-exist in the marine biosphere? Is there a scenario in which the cat's cradle strings are manipulated in harmony, rather than tangled in conflict? What would that world look like? And perhaps most importantly, how might one include as many contributions – human, non-human, and more-than-human – in this dream of multispecies flourishing?

Listening Practice

If the preceding pages have made anything clear, it is that non- and more-than-human others are fully capable of demonstrating their own agency in the politics of existence. Uncountable new citizens are finding their voices and clamour for attention in multispecies society. Their insistence on joining the conversation means it is now time for humanity to not only speak (for, as, with, or despite the other) but also *listen.* As it stands, however, non- and more-than-human communications are all too often forced to comply with human expectations, if not disowned altogether and credited to human groups and individuals. For instance, one could still argue that there is nothing particularly non-human about Japan's tsunami stones, since each and every one of them was installed by local (human) governments or community initiatives. Similarly, it is possible to maintain that the whale song in *Songs of the Humpback Whale* was recorded, interpreted, and leveraged strictly by 'us', and that the Crochet Coral Reef project, despite its success in emphasising the plight of its subject, is a thoroughly human endeavour that says nothing about the agency of real reefs. The result of such assertions is that little space remains for the non-human to express autonomy of being or prove its influence on other actors in the multispecies, multiphenomenal network.

Bruno Latour and a number of colleagues suggest that human societies can reverse this trend of partial deafness by engaging in 'risky' science (1993: 142; see also Stengers 1997: 126). Rather than 'cleaning up' the act of inquiry through the assumption of objectivity

(operating from 'Sirius', an impossibility already discussed in Chapter II; see also Latour 2018: 68), or precluding possible outcomes by adherence to bias (Simons 2017: 161-162), this kind of scientific risk-taking allows the other to 'make a counterclaim and be heard' (Simons 2017: 167). Engaging with the non-human other in this way involves a complete overhaul of the notion of 'voice'. For one, human insistence on distilling recognisable (or 'meaningful') linguistic expressions from non-human soundscapes must be abandoned. No longer should whale song – itself an anthropomorphic term – be sentimentalised through reference to its supposedly 'haunting', 'mournful', or 'meditative' overtones (cf. O'Dell 2010). Such an interpretation of intraspecies communication might make whales culturally consumable to a human society seeking to battle its own histories of transgression, but it also prevents these non-human others from demonstrating their capacity for independent agency. Risky science, on the other hand, remains open to the unexpected by refusing to determine in advance the categories of interpretation. The result is a dialectic process of negotiation where '[t]hings can respond and show themselves to disagree with the questions asked (…) [or even] take the lead' (Simons 2017: 161; inset added).

Numerous examples can be drawn upon to demonstrate how scientific risk-taking changes the human perspective when engaging in multispecies dialogues. It was already shown that unexpected expressions of non-human agency abound in Japan's coastal environment. Earthquakes and tsunamis rewrite the local landscape on a regular basis and leave governments scrambling to keep up with the changes by overhauling natural disaster policies, heightening seawalls, and moving and/or (re)erecting warning stones. Rather than taking the lead in this process of de- and reterritorialisation, human actors are rendered almost powerless; to paraphrase Haraway (2016), they are barely able to *stay with the trouble*. Following this reappropriation of active agency in the constitution of (coastal) reality, the tsunami stones become a constant reminder of the wilfulness of the non-human. They are not just a warning sign, but also a kind of taunt. In a further testament to non-human autonomy, participants in the Crochet Coral Reef project – who do not practise mimetic weaving and often simply create their designs on a whim (Haraway 2016: 78) – come to discover that the patterns knitted into their handiwork closely echo those already laid out in the submarine environment of the reefs (Wertheim). Whether they want to or not, the crocheters follow the lead of non-human agents as they craft their way through the details of those others' forestalled existences. As the project founders put it, 'here, the art-making *itself* recapitulates processes at the heart of organic evolution. Art becomes a tool not just for learning *about* science, but for *enacting* methodologies within nature that science uncovers' (Wertheim; emphasis in original). This means that the project's politicisation of the plight

of the reefs may be a decidedly human endeavour, but it is evident that the intricacies of connection that characterise the resulting artwork originate elsewhere. In the context of whale song, the creators of online underwater sound repository Pattern Radio (including Katy Payne's colleague Annie Lewandowski; see Allen et al. 2019) offer visitors to their website the possibility to embark on a personal, unbiased journey of discovery by searching for patterns in thousands of hours of unfiltered recording. As these users tease out the intricacies of marine soundscapes, however, unexpected counterclaims abound and throw them off-course. What might, at first, sound like a dim whale call reaching the hydrophone from great distances may turn out to be the engine noise of a cruise ship or an echo bounced off a school of fish (Chen 2019). In this way, underwater noise rewrites human assumptions of sentience and communication by tricking the ear into hearing what is not there. Similarly, visitors to a recent musical re-enactment of J. G. Ballard's *The Drowned World* in an Essex swimming pool experienced marked differences in the eerie sounds played at full volume all around them depending on whether they held their heads above or under the water (Jeffries 2020). One participating artist suggested that '"[w]hen you're underwater, sound is perceived through the bones. This makes it more intimate. Above the water, the sound is more public as if it were to do with a communal consciousness"' (Frazer Merrick in Jeffries 2020). Though the artists experimented with the pool's sound properties by employing different musical instruments, volumes, and tones, they were ultimately not the ones in charge: the water itself reimagined Ballard's aging work of (proto-)cli-fi, thus transposing it into the contemporary marine poetic.

Towards a Parliament of Things

The United Nations' Universal Declaration of Human Rights describes, among other things, 'the right to freedom of opinion and expression' as well as 'the right to take part in the government of [one's] country, directly or through freely chosen representatives' (1948). However, the charter explicitly only grants these rights to members of the human species, on the basis of their general '[endowment] with reason and conscience' (United Nations 1948). This seems to suggest that only those beings that are capable of exercising certain rights should be granted them. Even within this narrow definition of a rights-bearing citizen, however, a strong argument can be made for the inclusion of non- and more-than-human others. After all, the previous section has firmly established that many of these others have the capacity for independent expression. By the above logic, this means that they should be allowed to communicate whatsoever they wish in a range of contexts, including the political.

Extending the full range of political rights to non- and more-than-human others means letting them speak in their own way, but carrying the same force as their human counterparts. It means hearing them, enabling them to form interest blocs, and ultimately allowing them to co-determine the future of their societies. Like so many revolutions, this overhaul of the notion of the political individual must be allowed to sweep through the entire system. After all, it is really only when human practices of listening to non- and more-than-human others are deployed at the greatest possible scale that a true multispecies politics can emerge. Various iterations of this new kind of 'Dingpolitik' (Simons 2017: 151; cf. Latour 2005) have surfaced over the years, the majority of which agree on the need to 'listen to things as things, to create new technologies in which [non- and more-than-human actors] can express themselves in their complexity and multiplicity; [and] to articulate and differentiate their habits and their associations' (Simons 2017: 169-170; insets added). A brief overview will now be provided of one particular kind of Dingpolitik, namely Bruno Latour's 'Parliament of Things'. Due attention will also be given to a number of the sensitivities highlighted by his colleague Isabelle Stengers in her own 'Cosmopolitics'.[15]

Almost all of Latour's works published in the last three decades end on a similar note: a call to start convening a kind of 'Parliament of Things', in which the meaningful (re)negotiation of territories between individuals, species, and phenomena – tangled together in the mess that is Gaia – can unfold (cf. 1993: 142ff; 2017: 255ff; 2018: 86ff). Listening-through-science and speaking on behalf of the other prove to be key elements of this new political reality:

> [In the context of the Parliament of Things] the continuity of the collective is reconfigured. There are no more naked truths, but there are no more naked citizens either. The mediators have the whole space to themselves. (…) Natures are present, but with their representatives, scientists who speak in their name. Societies are present, but with the objects that have been serving as their ballast from time immemorial [e.g. non- and more-than-human actors]. Let one of the representatives talk, for instance, about the ozone hole, another represent the Monsanto chemical industry, a third the workers of the same chemical industry, another the voters of New Hampshire, a fifth the meteorology of the polar regions; let still another speak in the name of the State; what does it matter, so long as they are all talking about the same thing, about a quasi-object they have all created, the object-discourse-nature-society whose new properties astound us all and whose network extends from my refrigerator to the Antarctic by way of chemistry, law, the State, the economy, and satellites. The imbroglios and networks that had no place now have the whole place to themselves. They are the ones that have to be represented; it is around them that the Parliament of Things gathers henceforth. (Latour 1993: 144; insets added)

[15] Other work in the same area includes Jane Bennett's *Vibrant Matter: A Political Ecology of Things*, in which she seeks to 'articulate a vibrant materiality that runs alongside and inside humans to see how analyses of political events might change if we gave the force of things more due' (2010: viii).

Convening the Parliament of Things involves an extensive readjustment of existing structures of representation, in order to finally heed the voices of *all citizens* during the decision-making process. This reorientation ensures that the focus of the assembly comes to lie with the network as a whole rather than individual loci of (human) interest. Sensitivity to the voices emerging from the nodes and relations in the network – particularly those of non- and more-than-human actors – is ensured through the work of the scientist-as-representative. They are a well-informed Speaker, who presents to the assembly the fruits of their investigative labours with due attention to possible errors in the data, unexpected research outcomes, and counterclaims made by the actor(s) studied (Latour 2017: 264-265). In response, the assembly no longer takes the 'natural' for granted (or worse: ignores it), but acknowledges instead the influence that non- and more-than-human actors have always had on and in societies. This means that the gathering listens to these new citizens' claims, demands, and protests as much as it does to those submitted by representatives of human interest groups (Latour 2017: 262-264). The result of this dialectic process is a flourishing multispecies politics that puts to shame the rather limited incorporation of non- and more-than-human others effected by popular concepts such as 'environmental personhood'.[16]

Though largely in agreement with Latour's postulated 'Parliament', colleague Isabelle Stengers has drawn attention in her work to some of the finer details that must not be forgotten or omitted when engaging in multispecies politics. She is particularly concerned with elements that do not willingly communicate their position, or that cannot be swayed to make concessions during the negotiation process (cf. Stengers 2011: 347; see also discussion in Simons 2017: 168ff). What about religious convictions and moral codes, ingrained patterns of behaviour that are not easily discredited or abandoned? What about irreversible changes in the world climate, for instance when ecosystems pass a tipping point? And what about (equally irreversible) species loss? To Stengers, the new 'Parliament' can only be successful if it both makes place for these excluded elements and accepts that their position is unalterable. The result is her own iteration of a 'Dingpolitik', called the 'Cosmopolitical Parliament' (Stengers 2011: 395).

Stengers' footnotes to Latour's (early) vision of the Parliament of Things may seem to communicate mixed messages. On the one hand, she draws attention to aspects of

[16] Over the last decade or so, the idea of environmental personhood has emerged as an instrument to fight the cause of non- and more-than-human others within existing legal and political structures. It achieves this by establishing these others as rights-bearing 'people' somewhat after the fashion of corporate personhood (Gordon 2018). The Parliament of Things, however, moves into entirely new sociopolitical territory by dedicating itself to *actively listening* as well as *responding* to the voices and claims of non- and more-than-human citizens.

multispecies, multiphenomenal negotiation that Latour later (particularly in *Facing Gaia*) made central to his thesis: the impossibility of total reconciliation and the real risk of intense conflict in human encounters with the chaotic multispecies reality of Gaia (cf. Latour 2014: 5). On the other hand, some of the recalcitrant elements Stengers identifies (e.g. religion and other belief systems) are precisely the forces that have long prevented non-human others from making counterclaims in the scientific process. Should one not seek to eradicate the influence of such predispositions – essentially unwanted remnants from the old political situation – on the interspecies encounter? Or is this merely wishful thinking? Stengers suggests this: as long as bias plays a role in the political dialectic, it must be acknowledged as a contributing (or debilitating) factor (2011). In this way, she paints both a fuller and a more complicated picture of the new political arena in which all citizens – including the petulant ones – exercise their right to speak.

There is a distinct role reserved for literature in the process of convening the Parliament of Things. The idea of multispecies political representation is well-established in literary fiction and theory, ranging back as far as mid-thirteenth century epic poem *Of Reynaert the Fox* (Bouwman and Besamusca 2009; originally published c. 1250) and Chaucer's *The Parlement of Foulys* (1972; originally published c. 1381-1382). This literary trend of exploring human (and non-human) receptivity towards and participation in a 'Dingpolitik' is continued in recent works of climate fiction, including the novel that will be discussed in the remainder of this chapter. This is Ben Smith's *Doggerland* (2019a), which explores the challenge of becoming attuned to new (multispecies) political realities for those whose present sense of self has crumbled under the pressures of Anthropocene life. It achieves this by navigating a dizzying array of temporalities, landscapes, species, and objects, and by daring to ask what it means to be someone (anyone) in a society on the brink of collapse.

Navigating Identities Across Space and Time in *Doggerland*

Smith's novel tells the story of a boy (infrequently referred to as Jem, cf. 2019a: 13) and an old man (Greil, cf. 2019a: 7) living together on a dilapidated wind farm somewhere in the North Sea between the United Kingdom and the Netherlands. Caught in a life contract with the 'Company' to carry out repairs on the thousands of turbines surrounding their maintenance rig, the boy and the old man live a life that is close to meaningless. They are not entirely sure why they perform their labours, who the turbines serve, and whether it matters, ultimately, if the output of their farm goes up or down. The only other human contact they have is with the pilot of the quarterly supply boat, who is also their sole link to what remains of the world market. Whereas the boy – the fresher arrival of the two, having

replaced his father who reneged on his contract by trying to escape the wind farm – still feels a sense of duty towards his work, the old man spends most of his time digging up relics from the sea floor using tools acquired through trades with the supply boat pilot (cf. Smith 2019a: 18-30).

As the novel progresses, the boy begins to find repairs carried out by his father in a distant past (Smith 2019a: 75-77). His search for answers regarding his father's disappearance leads him to discover a second maintenance boat, located way out in the fields (Smith 2019a: 82ff). The engine has blown and the boat is listing heavily; it is evident that his father's escape attempt, years back, was a failure. This does not stop the boy from deciding to patch up the boat and attempt his own escape. Before he is ready, however, a violent storm kickstarts his adventure and he finds himself far out at sea, in a wind farm he has never seen before (Smith 2019a: 126-144). He camps out in this new environment for weeks or possibly months, then discovers that it is possible to propel the boat using wind power instead of batteries. Instead of continuing his outbound journey, however, the boy decides to turn back and search for the old man, who may or may not have died during the storm. He finds Greil in poor physical health and trades his father's maintenance boat for some medicine with the greedy supply boat pilot. The novel ends much as it began, with the boy and the old man readying themselves for a round of repairs on the rusted remains of past green energy dreams (Smith 2019a: 242-243).

Smith's novel traces today's plans for sustainable marine development as they unfold in a future where human society is crumbling and hopes for a better world have largely evaporated. The maintenance workers in his frighteningly realistic near-future dystopia struggle to make for themselves some kind of identity; to find meaning in their everyday activities and come to an understanding of their relationship with the endless sea around them. Slowly but surely, it dawns on the novel's main protagonist, Jem, as well as the readership that numerous non-human elements are screaming for attention from the margins of the story. Discarded waste, broken and functioning turbines, extinct and flourishing species, wind, rain, salt, and even the landscape itself make demands on the boy as he tries to work out who he is. It ultimately becomes clear that the only way to find meaning in this dilapidated future is to weave together narrative histories of the self, the human and other species, objects, and the environment along a variety of timescales. As the boy discovers, the worlds of yesterday and tomorrow are as unceasingly entangled as those of today.

Image of Our Future

The vision of a North Sea jam-packed with wind turbines is not Smith's own. In fact, his descriptions closely mirror current plans by a number of countries bordering on the North Sea, particularly Great Britain and the Netherlands, for sustainable offshore energy generation. Since existing 'nearshore' facilities are reaching their limit of expansion, companies and governments are mapping out scenarios in which a quarter to a third of the entire North Sea – particularly the remoter areas surrounding the Doggerbank – is populated with wind farms (TenneT 2017; Vaughan 2017; Koster 2019). Bigger and better turbines are imagined to one day fulfil the energy needs of almost the entire European continent, all the while remaining practically invisible and requiring little to no maintenance (TenneT 2017; Vaughan 2017).[17] In *Doggerland*, all of these dreams have come true: rows upon rows of rapidly beating turbines stretch as far as the eye can see (cf. Smith 2019a: 3). The novel includes a nod to the utopian visions of our present – the novel's medium-term past – when it describes how the boy temporarily sets up camp in the conference room of an enormous new model of turbine:

> Automatic lights flickered on, revealing a long table and six black chairs wrapped in cellophane. On one wall there was a large screen, covered in a layer of bubble-wrap, and on the other walls there were framed posters – technical drawings of turbines and gearboxes, pictures of the farm on clear bright days with words like 'future', 'stability' and 'security' printed on them. In the far corner of the room there were more posters, rolled up and leaning against a wall, and a stack of cardboard boxes. (Smith 2019a: 150-151)

This dream of a clean energy future is violently discredited in the rest of the novel. Above all, Smith paints a picture of decay: wind turbines are creaking, rusting, and collapsing all around the maintenance rig, and over the course of the book the output of the boy and the old man's allocated section of wind farm drops roughly ten percent to almost half of its projected capacity (Smith 2019a: 64-65, 96). There is very little the maintenance crew of two can do to stop the collapse: they have been provided with limited equipment, and are therefore only able to carry out small repairs (Smith 2019a: 9). 'More and more often,' the narrator concedes, 'the only option they had was to shut the turbine down, feather the blades, apply the brake and leave it to rust' (Smith 2019a: 9). The result is that '[i]n every image there was at least one turbine standing still and broken against the movement' (Smith 2019a: 9).

[17] The 'urbanisation' of marine environments – in particular the North Sea – is described in a recent volume by Nancy Couling and Carola Hein (2020). Their work is discussed in more detail in the conclusion of this thesis.

Wind turbines are not the only parts of this world that speak of collapse and decay. The pages of *Doggerland* are dotted with waste: oil spills, plastic bags, bottles, clothing, bits and pieces of household appliances, and furniture all drift through the farm on a regular basis, tracking the current (Smith 2019a: 5). Marine fauna has effectively disappeared. Instead, the boy's fishing line regularly gets tangled in 'shoals' of shopping bags (cf. Smith 2019a: 47). He once even 'hooks' a Company-issue boot (Smith 2019a: 1-7). Sparse reference to the mainland suggests that previously inhabited coastal areas have become inundated. Entire towns have been wiped off the map and coastlines need to be continuously redrawn in order to remain accurate (Smith 2019a: 68). A stable government no longer exists; it has been replaced in its entirety by the mysterious, shapeshifting 'Company' that exploits the wind farm, manufactures the food and other supplies, and enforces employment on the few human characters that appear in the book (cf. Smith 2019a: 8, 15, 33-34, 47).

Both the utopian clean energy scenario drawn up today and the dystopian future reality depicted by Smith in the majority of his novel assume a kind of 'end' to history.[18] The former presents itself as the be-all-end-all answer to many of today's most pressing questions: it promises limitless supplies of energy to meet the world's growing demands, while neatly sidestepping the issues of pollution and global warming. Meanwhile, social and ecological degradation in the latter scenario have left such deep scars that there is little to no hope of future improvement. This point is driven home by the fact that the boy's attempt to escape the wind farm fails miserably. Meanwhile, the two scenarios work in tandem – the promise of the first devolving into the grim reality of the second – to blur the significance of the past. Innovation, capital, and de-democratisation together ensure that younger generations of workers – exemplified by the boy – have limited ability to situate their own person in the new world order, for instance by acquiring knowledge of significant historical events. The result is a kind of paralysis: what does it even mean to live and carry out repairs in this collapsed world?

Retaining a Sense of Self in a Post-Everything World

Bereft of a clear life goal and individual or collective referents to an overarching (local, national, or world-historical) narrative, the boy and the old man are forced to carry out a

[18] *Doggerland* lends itself well to analysis using the work of authors like G. W. F. Hegel, Francis Fukuyama, and Friedrich Nietzsche. The last line of narrative in the novel, for instance, is the same as the first: 'Strange fish' (Smith 2019a: 1, 243); an apparent nod at the doctrine of eternal return (see Nietzsche's *Gay Science* [2019a] and *Thus Spoke Zarathustra* [2019b]). The 'flotsam and jetsam' (Smith 2019b) populating the boy and the old man's world is also reminiscent of the 'pile of debris' viewed by Walter Benjamin's despairing Angel of History as it is swept forward into an uncertain future (1968: 257-258; see also comparison with Latour's Gaia in Chapter II).

number of only partially successful meaning-making activities. Early on in the novel, for instance, the narrator concedes that '[o]f course, the boy was not really a boy, any more than the old man was all that old; but names are relative, and out in the grey some kind of distinction was necessary' (Smith 2019a: 2). In order to retain a sense of time, the boy furtively checks his broken watch throughout the day and attempts to keep it matched either to the clock in his bedroom or to that of the unreliable central maintenance system (Smith 2019a: 14-17). The old man and himself keep up a running dialogue that serves little more than a phatic function, and even though they frequently misunderstand each other, they make no effort to resolve this breakdown of communication (cf. Smith 2019a: 10-12). During heavy storms, boredom is kept at bay through an endless game of snooker with a host of made-up rules (Smith 2019a: 117-123). Finally, the old man in particular takes recourse to homebrewed spirits – made from engine coolant (Smith 2019a: 61-65) – to make it through the days.

The primary way in which the boy and the old man ward off stasis, however, is through individual projects with a deeply personal character. From his first days on the rig, the boy has sought to reconstruct the story of his father: to find out not only what his parent was like as a person and how he went about his repairs on the wind farm, but also what drove him to attempt escape and how he expected to succeed in this endeavour (Smith 2019a: 38, 70-71). Since the boy has very few memories of his father, his journey of discovery is mostly aided by chance encounters with discarded possessions (cf. Smith 2019a: 32-33, 38, 76) and ingenuous repairs found dotted around the wind farm (Smith 2019a: 75-77). Such tangible evidence of his father's past is padded out with conjunction. For example, the discovery of *two sets* of foam mattress, clothes, and eating utensils on the second maintenance boat leads the boy to believe that his father was always going to come back for him (Smith 2019a: 85-86). However, the boy's attempts to construct meaning out of these bits and pieces of discarded past are hampered by his lack of referential knowledge. For example, he is uncertain what the Company really is; he has no concept of the mainland; and he struggles to put into context such elementary things as potatoes, coffee, and fish (Smith 2019a: 31, 151-152, 170).

The old man keeps himself busy by piecing together parts of the environmental history of the area in which their farm is located. He finds bones, shells, rocks, and other relics from the time when Doggerland was still a continent, and spends hours cleaning and categorising these in his bedroom (Smith 2019a: 48-52). To the annoyance of the boy, he is willing to trade perfectly good spare turbine parts with the supply boat captain, receiving in exchange the equipment and maps needed to locate the dregs of ancient history (Smith 2019a: 55-60).

Even more infuriating to his younger colleague is the fact that the old man does not betray any interest in recent pasts, the present, or the future. His attention lies entirely with the long-gone:

> [The old man] would talk about homes and settlements – a place that had flooded thousands of years ago. He would talk about woods and hills and rivers, and he would trade away crate-loads of turbine parts for maps that showed the seabed as if it were land, surveys from before the farm was built – the paper thin and flaky as rust – that described the density and make-up of the ground beneath the water. Every resupply he would trade for a new chart, or a new trawling tool, and then he would reposition his nets, rewrite his coordinates, and start the whole bloody process again. (Smith 2019a: 28-29)

This curious interest in the history of their particular patch of sea, combined with the old man's utter unwillingness to attempt to escape the farm or question the authority of the Company, strike the boy as proof that his elder has given up on an alternative conception of life (Smith 2019a: 89). In the latter part of the book, however, the boy comes to realise that the old man's indifference is merely a façade. Reminiscing on their years of forced companionship, he begins to see that the old man has in fact cared deeply about one thing: the boy's well-being. The first time the supply boat arrived late, for instance, the boy had worried himself sick over their dwindling supplies; in response, the old man feigned disinterest and even staked – and lost – several nonsensical bets using his allotted stock of food (Smith 2019a: 171-174). When his nonchalance did not have the desired effect, the old man secretly cut the connection cable for their communications system, forcing the boy to spend a week tracing the fault, becoming so absorbed in his task that he momentarily forgot about the supply boat's unexplained absence (Smith 2019a: 175-176). Looking back from a literal and temporal distance, the boy is finally able to understand what the old man's gruff manner was all about: keeping him fed, busy, and generally worry-free (Smith 2019a: 183-184). It is this realisation of the old man's longstanding attitude of care that prompts the boy to return to the 'home' rig and nurse his elder back to health. He there discovers yet another reason for the old man's behaviour: he, too, is on a life-long contract that will be passed to his son if he refuses to abide by its terms (Smith 2019a: 240).

Forced to Listen

Smith's novel alludes to species, items, and environmental histories from the very beginning. Wind, waves, metal, rust, salt, trash, and bones litter the pages of his work, clamouring for attention on the edges of human experience. Frequent reference is made to species that have been lost to the marine tangle of actors, as well as to the items that have come to replace them: shoelaces, rope, tarpaulin, and shoals of plastic bags (cf. Smith 2019a: 5). For a long

time, the boy remains blissfully unaware of the numerous counterclaims made by these non-human others, distracted as he is by concerns with his own past, present, and future identity. Yet he also experiences an inexplicable need – driven by nostalgia, remorse, or simple curiosity – to question his environment and seek out the non-human. Upon hooking the Company-issue boot, for instance, he unabashedly asks it: '"Where have you come from?"' (Smith 2019a: 5). Even though he has no idea *why* he cast his fishing line in the first place, he subconsciously expects some kind of response from beyond the microcosm formed by the old man, himself, and (occasionally) the supply boat captain:

> He thought about the days, the years, he'd spent setting and checking his line. He'd never caught a fish. He'd never even seen a fish. But every day he'd gone down to the rig's support to check his line. Why had he done it? He must have thought, at some point, that he would catch something. What was it called, that feeling? He couldn't remember. (Smith 2019a: 170)

These two conflicting character traits – the persistent inability to really listen and, despite himself, a natural curiosity towards the o/Other – come to a head when the boy encounters an armada of jellyfish during his stay at the new model turbine. Spotting from up high a kind of 'line in the water', he exclaims: '"Who's cut the sea in two?"' (Smith 2019a: 176). To his limited frame of reference, the jellies look most like discarded shopping bags; they 'were all the same colour and they rose and sank in the same strange way that plastic bags did' (Smith 2019a: 177). Even when the boy realises that these are, in fact, *live creatures* unlike anything he has ever seen before, he continues to approximate their bodies and movements using terms familiar to him. Their veins are 'circling their bodies and spreading down, as if a *line of paint* had been spilled', while '[t]heir *inner workings* were right there – the strange purple and orange *wires* of them, their *circuits*, their entire *systems* that looked too delicate for the huge, silent creatures that were sweeping in' (Smith 2019a: 177-178; emphasis added). The entire shoal resembles, to him, something like 'drops of oil' in the water (Smith 2019a: 178).

The boy's inability to respond to this new life form casts doubt on the power of the jellyfish's counterclaim of being alive: how can they attain agency, *be reckoned with*, if the boy is not listening? However, the passing jellyfish soon double down on their demands by forcefully invading the boy's imagination. As he watches the jellies' ballooning movements, he comes to realise that his current understanding of such elements as water and wind is woefully inadequate. The jellyfish demonstrate that these forces are capable of sustaining far more life and movement than he has ever known, and provide the boy with a crucial hint for the continuation of his journey:

> It was amazing how easily they moved, using the currents, flexing, tilting, as though being driven on by some underwater breeze. (…) Out of the corner of his eye he saw the loose tarpaulin flapping on the deck. He (…) watched as the sheet ballooned up and slumped back down. He turned back to look again at the creatures, their bodies swelling as they moved through the sea. He went over to the tarpaulin, lifted up one corner, and felt the tug of the wind. (Smith 2019a: 178)

From one moment to the next, the boy's frame of reference, plans for the (near) future, and sense of self and other in an unexpectedly crowded multispecies society are rewritten. He has spent weeks trying to decipher the complicated mechanics of the new model turbine, in a desperate bid to create a new kind of engine for his boat; now he discovers that his technical know-how has hindered rather than aided him (Smith 2019a: 163-164, 181). Tinkering with the cogs, wires, and tubes of the turbine has blinded him to the ready solutions offered by the various non-humans that share his world. The pulsating movements of the jellyfish and the flapping of the tarpaulin in the breeze reveal to him the power of the more-than-human: he can rig his boat with a sail and chase the wind.

Clamouring Non-Humans

Following the 'shock' of the new reality introduced by the passing jellyfish, both boy and reader start to retrospectively hear the clamour of other non-human voices. It emerges that the ancient computer system on the maintenance rig – much more than the Company – has dictated the rhythms of the boy and the old man's lives (Smith 2019a: 19-20); that intermittent storms have literally forced them to change their behaviours (Smith 2019a: 117-123, 126-133); and more generally, that the 'background' of the story is teeming with non-human groans and noises (cf. Smith 2019a: 18, 26, 36). Even the absence of sound is a kind of (negative) claim of existence. This becomes evident in the closing pages of the novel, when wind and water and rain are temporarily muffled by a blanket of Saharan desert sand (Smith 2019a: 233-243).

As they crowd in on a society that has long ignored their voices, non-human others start to rewrite identities in unexpected ways. They put certain human bonds and selves at immediate risk of collapse by dissolving the edges of their autonomy, but also create new ties of dependency and coexistence. For example, the boy comes to realise that 'his' dust particles (comprised of shed skin cells, hair, and other body waste products) are intermingling with that of the old man under the influence of the rig's air-conditioning unit (Smith 2019a: 113-116). This is both an apt metaphor for the circuitous 'dance' of their respective ploys and evasions throughout the novel and a powerful reminder that their lives overlap on a plurality of levels, including the atomic-physical. With regard to establishing

new connections, one finds in *Doggerland* that (some) non-humans' longevity allows them to productively bridge space and time in ways entirely unavailable to their human counterparts. More than anything, the *objects* left behind by his father drove the boy forward on his search for answers regarding the man's disappearance (cf. Smith 2019a: 32-35, 75-77). Meanwhile, his own journey may never have begun if it was not for the unexpected intervention of a storm, driving him far out to sea over the course of a single wave- and wind-tossed night (Smith 2019a: 132-133). In these situations, human design does not precede non-human agendas; instead, the former (unwittingly) follows the latter into an unknown future.

Alongside these human, non-human, and more-than-human entanglements, feral objects run amok. Obvious contenders for this category of the 'gone wild' are the bags and other plastic items drifting through and clinging to the story. The narrator pointedly remarks that one day, these 'latches and hooks, clips and cable-ties – all the disposable components that were never designed to last' will be the only trace remaining of the windfarm (Smith 2019a: 51). They will join the ranks of the historical markers already in situ: bones, stones, and petrified underbrush that recall civilisations long gone (cf. Smith 2019a: 48-51). Other increasingly uncontrolled/able objects in this engineered marine landscape are the turbines themselves. The boy and the old man struggle to carry out the repairs they have been tasked with, mainly because their charges continuously present with problems that they were specifically designed *not to develop*, including disintegrating seals, rusting scratches in the paint, or outright structural collapse (Smith 2019a: 20-23). The boy is even more at a loss when he encounters the new model turbine: despite his expertise, he is unable to make any sense of this generator's complex mechanics (Smith 2019a: 158, 163-164). The object has virtually moved beyond the realm of human understanding and become its own claimant of agency; in other words, it has joined the category of the feral. Less obvious examples of non- and more-than-humans gone wild appear at various stages throughout the book. They include coffee (Smith 2019a: 151-153, 156, 173); the maintenance boats (cf. Smith 2019a: 27, 83ff, 106); the tarpaulin that later becomes a sail (Smith 2019a: 178ff); the whimsical winds (Smith 2019a: 191); and even remnants of capital, such as half-remembered commercial jingles occupying forgotten corners of the boy and the old man's minds (cf. Smith 2019a: 30, 160).

Doggerland emphasises the importance of (re)discovering one's own (human) identity in today's and tomorrow's multispecies mess of existence, but it evidently does so only in the context of a much greater non-human narrative history. With relation to this, Smith has argued that the compounded image of plurispecies interaction, unfolding across a variety of

spatial and temporal scales, makes a 'mockery of individual [human] action' (2019b). At any remotely 'grand' scale, it does not matter in the slightest what the boy and the old man do with their time (Smith 2019b). Their agency is dwarfed by that of surrounding non- and more-than-human elements, and though their quest for identity *matters*, it does so mostly to themselves and for their attitudes towards these far more powerful and enduring other agents. As will soon become clear, the most influential of this latter group is the setting of the story itself: the Doggerbank and surrounding seas, and the way these have evolved over thousands of years.

Doggerland Then, Now, Someday

Smith is one of very few authors working in contemporary cli-fi that is willing to face head-on the challenge of writing with geological timescales rather than exclusively human ones. As Weik von Mossner observes, there is great difficulty in narrating events that span tens of thousands of years: it renders invalid virtually all (individual) human experience (2016: 87-88). Indeed, Smith's narrator remarks that if one were to zoom out far enough, the chain of events in this particular stretch of the North Sea reverts to 'a simple history – of water turned to ice, returning to water. And, barely noticeable, somewhere in the middle of this cycle, plants and animals and people made this place their home' (2019a: 54). Rather than attempt to 'recredit' human activity in the context of natural history, however, Smith chooses a different approach: he intersperses his account of a human 'here and now' with reflections on the ability of the non-human to navigate very different timeframes. The narrator describes, for example, how just one rogue drop of water harbours the power to destroy the maintenance rig:

> The wind would knock against the rig and throw rain like punches. (…) The dripping would continue, each drop hitting the vent in exactly the same place, chipping away at the metal, molecule by molecule, millimetre by millimetre. Soon it would wear away a dent, then a divot, then a hole; then it would begin its work again on the layer below. Given time, a single drop of water would carve out a tunnel through every level of the rig. (Smith 2019a: 37)

The patient intervention of this tiny drop of water on the surface of the maintenance rig completely inverts the extent of agency of the large and small, the human and the non-human. Even 'one hundred thousand years', the narrator reminds the reader, '[is] barely worth mentioning in the lifetime of water' (Smith 2019a: 54). The drop will persevere on its gravity-led journey, effectively dwarfing the human dreams of geophysical intervention represented by the sprawling windfarm. A similar, slow unfolding of non-human agendas is found in the falling and rising seas (un)covering Doggerland, and the earlier-mentioned

arrival and departure of a large host of species – birds, reptiles, smaller and large mammals, plants, shrubs, and trees – during that period.

Each in their own way, the boy and the old man are acutely aware of these conflicting scales of agency. Though the boy ignores his colleague's recurrent reflections on Doggerland-as-continent for the majority of the novel, he does come to realise that his own story – of finding his identity; leaving and returning to the rig; and coming to terms with the eternal present of life in a dilapidated marine wind farm – takes place against the background of a much bigger history (Smith 2019a: 243). In fact, Smith claims that his narrative design for the boy's journey of (self-)discovery closely mirrors several stages in Doggerland's geological past (2019b). This is proven by a number of non-chronological interludes that describe the waxing and waning of life on this once-peninsula-now-sea (cf. Smith 2019a: 53-54, 102-104), while also echoing key points in the boy's psychological development. This is an innovative way of tying together human and non-human timescales that are by default incompatible.[19] Unlike many other fictions in the same genre, *Doggerland* does not rely on pedantic remarks about the longevity of radioactive waste, plastics, or other by-products of human life in the Anthropocene, nor does it attempt to 'shock' its readership into environmentally-conscious lifestyles and politics through the presentation of worst-case scenarios. Smith's account of the meeting of humans and non-humans against an elastic chronological backdrop allows his readership, instead, to come to terms with scenarios of multispecies cohabitation that are in tune with the fraught present and near-futures captured by Haraway in her vision of forthcoming 'epidemics of promising trouble' (2016: 11), and by Tsing in her call for living precariously (2017: 20-21, 282). He remains acutely aware of the extreme likelihood that, in 'Year Zero' (Smith 2019a: 244-245), the North Sea *will be* filled with wind turbines; yet he also persists in exploring the possibility of productive multispecies existence. In other words, Smith acknowledges non-human claims of agency despite mounting evidence of a global movement in the opposite direction (see also Latour 2018: 34, 40). This means he is teasing out the very beginnings of a Parliament of Things.

Conclusion

This chapter has explored past and present species and habitat loss in marine environments in order to put into context the emerging reality of plurispecies entanglement discussed in

[19] Julia Blackburn achieves something similar in *Time Song. Searching for Doggerland* (2019), which was published around the same time as Smith's novel. In this book, she offers an amateur archaeology of Doggerland that transforms the history of this semi-marine environment from an abstract geological timeline to a 'visitable past' (Smith and Blackburn 2019) by exploring its relics alongside a personal journey of loss, grief, and memory.

earlier chapters of the thesis. It has done so by drawing attention, in particular, to the politics of mourning: why is it necessary to speak for those who are gone or going, who should do the speaking, and to what end? Should or could it be possible that non-extinct species and environments make their own political claims and join humanity in a reinvented kind of political assembly? What picture of the marine future emerges if one adopts this attitude of historical awareness and – in the present – receptiveness towards the agency of the other? The discussion started with a reflection on Donna Haraway's concept of 'Speakers for the Dead'; humans, non-humans, more-than-humans, and cyborgs that seek to draw attention to the plight of (non)existence of their own or other species and environments. The 'Speakers' carry out this work as a constant reminder of the fraught past of plurispecies entanglement, demanding that society avoids repeating previous mistakes as it moves into a multispecies future that is by necessity built on the shaky foundation of an ecologically and socially degraded present. It was found that 'Speakers' come in a wide variety of guises; examples include Inuk throat singer Tanya Tagaq, Japanese tsunami stones, and humpback whales recorded on a platinum-ranked LP released in 1970. The work of Ursula K. Heise helped elucidate some of the cultural agendas that underpin conservation efforts around the globe. It became clear that no act of mourning is apolitical and that ecological value and associated preservation efforts are by no means unequivocal or universal. In order to better situate the different interests and narratives involved in ecological grieving, Haraway's theory of the "guises" of 'SF' – including Science Fact, Science Fiction, Speculative Feminism, Speculative Fabulation, and String Figuring – was drawn upon. These different approaches to multispecies mourning were shown to be able to productively co-constitute new narratives of shared existence. This became particularly clear when Haraway's lens was employed to assess the way whale song can be (re)leveraged today, some fifty years after the celebrated LP first came out. Finally, the discussion asked whether non-human species and individuals might be able to make autonomous political claims. This led to the idea of *listening* through feedback loops and allowing for agential counterclaims to made by non-human others. Taken as a model for society, this results in a new political constitution in which 'things' can express themselves: a 'Dingpolitik', or Parliament of Things. In the present moment, such a political arrangement might be considered risible or far-fetched; yet the very existence of its blueprint already constitutes a promise for better, more integrated or *other*-attuned multispecies futures.

Tentative efforts at hearing the voices of non-human others are central to the novel discussed at the end of this chapter: Ben Smith's *Doggerland* (2019a). Set in a dilapidated windfarm in a future North Sea, this novel weaves together individual and collective human,

non-human, and more-than-human narratives of being across a wide range of spatial and temporal scales, asking above all *what it means* to have agency in a world scarred by loss. The novel traces circular story arcs for both human characters and their natural environment, with most actors eventually ending up in much the same place as they began. At the same time, *Doggerland* depicts a clear linear progression in multispecies understanding and attunement; one that can be understood as the emergence, however timidly and against however many odds, of a kind of cross-species politics. In this way, it makes a case for listening to previously unheard voices, such as that of the Plymouth dolphin; and it insists that presently damaged marine environments do not necessarily prevent future individual and species flourishing. The latter lesson ties in with the next chapter, which will consider the many obstacles to the successful realisation of a multispecies marine society.

Chapter V – Submergence

Hydrocarbon Capitalism and the Continuing Degradation of Marine Environments

On October 7, 2019, *The Guardian* reported several sightings of a small humpback whale in the Thames estuary between Woolwich and Dagenham, just east of the city of London. Much like the case of the whale stuck in a North Sea windfarm, a scenario unfolded in the British capital where the primordial and the modern-urban commingled in unexpected ways. Upon investigation, British Divers Marine Life Rescue (BDMLR) confirmed that the Thames whale '[seemed] to be doing fine' and was 'surfacing once every five or six minutes, which is normal' (Agencies 2019). However, they also stressed that it was highly unusual for cetaceans to appear this far inland. They suggested that the animal may have made a 'navigational error' and hoped that it would eventually leave the estuary of its own accord (Agencies 2019). *The Guardian* reminded its readership that something similar had happened with 'Benny the Beluga', a whale that haunted the Thames for more than three months in the previous year yet eventually left the river unscathed (Agencies 2019).

Columnist and whale expert Philip Hoare wasted little time in broadcasting his excitement over recent events in the capital. Just one day after the mammal first appeared, *The Guardian* published his article 'Did the Thames whale come to save us?', which explored the carbon sequestration capabilities of humpback whales in the context of the United Kingdom's ongoing Extinction Rebellion protests against global warming, habitat loss, and species extinction. Hoare suggested that humanity could make amends for its historical transgressions against whale populations by letting their numbers flourish in the present day; in return, these mammals would help 'us' out by part-resolving the world's carbon emissions problem. The arrival of this individual specimen, he surmised, was a sign of hope in particularly dire times (Hoare 2019). However, only an hour or two after the online publication of Hoare's article, the 'Thames whale' was found dead in Kent's Greenhithe area (Rawlinson 2019; see Fig. 6).[20] It soon emerged that the juvenile whale had been struck by a ship, with subsequent post-mortem investigations suggesting that this could have happened before the animal even arrived in the Thames (Roberts 2019). Suddenly, it seemed very possible that the 'few happy days' (Hoare 2019) in which this cetacean navigated London's main waterway were characterised – at least for the whale – by agonising pain and a slow descent into unconsciousness.

[20] Hoare's article appeared on the website of *The Guardian* just after 3 PM on October 8, 2019. According to a tweet on their official account, BDMLR discovered the dead whale around 5 PM that same day (Rawlinson 2019).

Fig. 6: Recently deceased whale recovered from river Thames by crane in October 2019. (Source: Bennett 2019. Reproduced with permission)

Hoare's hopes for the restorative powers of this 'saviour' species were dashed before the ink of his pen had well and truly dried, and it should come as no surprise that he refrained from offering further comment in the days that followed the demise of the animal. One might read this chain of events – the appearance of the whale followed by Hoare's prophecy and its near-immediate refutation at the hands of a shipping vessel – as bad luck. Nobody could have known that the whale would suffer such a cruel fate so soon after its appearance in the Thames estuary. Alternatively, one could say that Hoare jumped to conclusions prematurely and allowed himself to indulge in a sentimentalist poetics of the whale, casting its appearance as a powerful yet unexpected ecological counterclaim in a time of great need. Against this reading, there is a more materialist-realist poetics that would have accounted for the strong possibility that this particular whale would star in yet another example of the ecological violence wrought by humans against cetaceans and other animals. Of all people, Hoare – author of books like *Leviathan, or, The Whale* (2008) and *The Whale: In Search of the Giants of the Sea* (2010), as well as an earlier op-ed foreshadowing the possible death of beluga whale Benny in the aptly named Gravesend (2018) – should have known better.

Up to this point, the thesis has painted an increasingly complex picture of seascapes in the contemporary moment by bringing a wide range of sources – fiction, film, newspaper reports, sound recordings, visual artwork, and more – into dialogue with recent work in the field of ecocriticism. Building on the idea of entanglement, a model for marine multispecies society was developed upon such premises as co-creative living, cross-species recuperation, and the unfolding of non-human agency. At the same time, past and present histories of violence, subjugation, and (environmental) degradation were acknowledged as inevitably

irredeemable. In the face of so much misery, one might justifiably ask whether a model based on the idea of peaceful cohabitation does not constitute – much like Hoare's opinion piece – a sentimentalist poetics for the future sea, rather than a materialist-realist one. In other words: can multispecies marine society retain credibility against a backdrop as dire as the present? Or could it be that this tension is non-existent, and that the mutual exclusivity of utopian and dystopian futures constitutes a false dichotomy altogether? To answer these questions, the chapter that follows steps away from the idea of a cross-species convergence in modes-of-being, and explores instead the rift of experience that separates human and non-human lived realities in the contemporary moment. Owing to the ubiquity of this problem, the inquiry marks a slight but necessary temporary departure from the overall marine theme of the thesis. At the same time, this detour reiterates the impossibility of investigating seascapes in isolation: they are interminably entangled with other environments.

Drawing inspiration from the newly emergent field of petroculture studies, the present chapter argues that the most prevalent (and damaging) expression of a dissociation between human and non-human lived realities is found in humanity's ongoing consumption of fossil fuels. To illustrate this point, an overview is provided of the sprawling material infrastructures that (quite literally) fuel global modernity, as well as the 'oil cultures' that result from more than a century of exposure to and profit from the rapid economic development made possible by cheap energy. The chapter leverages these findings to inquire after the possibility of a post-oil society. It finds that the vision of transitioning to a green energy future while retaining uninterrupted access to the luxuries of modern life is inherently flawed: petroleum and capitalism are so deeply entwined that the one cannot exist without the other. The work of cultural theorist Mark Fisher (2013) on the prevalent global sociocultural and economic paradigm of 'capitalist realism' – the mindset that both enables and perpetuates contemporary 'hydrocarbon capitalism' (cf. Appel 2015: 257) – is then drawn upon to argue that there might no longer be an alternative mode of modern human existence. This is because capitalist realism enfeebles any proposed remedial paradigm by insisting on the inescapability of free market principles. Yet the looming end of oil signals a way out: when capitalist realism's cheap energy foundation crumbles, systemic trouble is bound to follow.

The second part of the inquiry explores the attitudes of four different groups of people when faced with the end of the marriage of convenience between oil and modern capital. The first of these seeks to deny the inevitable, either by securing an ongoing supply of petroleum (and keeping the markets ticking over), by meddling with the global climate to mitigate the effects of anthropogenic warming, or by pursuing some other technofix for the

problems that haunt society and the economy. The second group seeks to overthrow both 'petro-reality' and the free market by pursuing a radical new agenda of social and environmental justice, commonly referred to as the 'Green New Deal'. A third group has effectively given up: they argue that too little has been done to abandon the petroleum present, and that the conjunction of energy, capital, and ecological degradation – very possibly spelling the eventual collapse of the biosphere – is now an inevitable fact of life. The fourth and final group proposes a complete paradigm reinvention, arguing that whichever future unfolds, a new mode of being-in-the-world is possible. This is the multispecies society that has received so much attention in the rest of the thesis, and which the present chapter seeks to validate.

The third and final part of this chapter engages with the distinct possibility that the tenacity of the free market paradigm will enforce a confluence of all four attitudes long into the future, resulting in a single society in which different interest groups all pursue their own agendas based on their respective reading of the state of capital and the environment. This is the scenario explored by Kim Stanley Robinson in *New York 2140* (2018; orig. 2017). Despite the submergence of large parts of Manhattan, the Bronx, and Queens in the wake of two significant sea level rise events, the market in this book continues to dictate the shape of society. Income disparity is even more severe than in the present day: people in the lower and middle classes are forced to inhabit communal living quarters and scrape together a meal while speculative traders, real estate moguls, and other 'haves' live in great luxury. This inequality is kept in place by many of the financial practices common to our own time: property acquisition, speculation, and high-frequency trading. The novel revolves around the attempts of a large host of characters to end the rule of the market and effect a more egalitarian state by means of mass civil disobedience and legitimate political reform. Their Herculean work unfolds against a backdrop of ongoing climate catastrophe, a phenomenon that ultimately casts doubt on the viability of any kind of system reform. Meanwhile, the edges of the narrative showcase possible modes of (sub)marine multispecies living, each of them a profound testament to the ongoing possibility of more-than-human existence.

Welcome to the Petroleum Present

Against the much-fêted image of the whale appearing on the edge of human civilisation – as fellow creature from a shared ancestral environment (cf. Alaimo 2016: 118), saviour for the human species (cf. Hoare 2019), or a sign of something else again – there is a different spectre that haunts modern-day marine society much more, yet never truly appears: the oil rig. This ghost of the present seems to have replaced the whale as defining image of the

contemporary sea, though their relationship is much more complicated than a simple passing of the baton (see Fig. 7). Some have argued that the discovery of petroleum in 1859 in Titusville, Pennsylvania saved the whales from extinction, since it rendered superfluous the up-till-then highly sought-after whale oils (cf. York 2017: 1). Others have been quick to point out that industrial whaling really only took off in the twentieth century, or after the discovery of petroleum; and that in fact this kind of large-scale exploitation was only possible *because of* the ready availability of cheap energy (York 2017: 4ff). This suggests that the near-extinction of the whales was very much accelerated by the discovery of petroleum, rather than prevented by it; and that successful avoidance of this event was a heroic feat achieved against baffling odds. Considered in terms of energy supply, however, the succession of the whale by the oil rig has been unequivocal. Already in the nineteenth century, whale oil – used mostly for lighting – had become so scarce that it was available only to the very wealthy (cf. Hitchcock 2015: 50). Petroleum, on the other hand, turned out to be plentiful and soon became an unrivalled fixture of economic development (cf. Wilson, Carlson, and Szeman 2017: 3ff).

Fig. 7: The offshore oil rig replaced the whale as defining image of the contemporary sea, almost rendering it extinct in the process.
(Source: Shaw 2018 / Capt. Alexander Shaw, Newport Coastal Adventure. Reproduced with permission)

The numbers speak for themselves: over the course of a century and a half, this 'new' oil helped achieve a 'sixteenfold increase in economic output (…) [and] similar increases in water use, sulphur dioxide emissions, world population levels, and (of course) carbon dioxide emissions' (Wilson, Carlson, and Szeman 2017: 5). The changing of the guard from whale to oil rig ushered in a whole new era: a 'petroleum present' characterised by growing affluence as well as a tremendous increase in environmental degradation and global warming.

In spite of its widespread networks of extraction, transport, and consumption, oil has to the present day managed to stay almost invisible to the wider public (cf. Wilson, Carlson, and Szeman 2017: 5; Szeman 2019: 6). For one, the offshore rig might as well be non-existent by virtue of its distance from the mainland. Its product is transported through pipelines that hide on the sea floor, or by mammoth tankers that spend the majority of their time on the high seas. Even during its final delivery at the petrol station, the sticky substance stays out of sight: it goes unseen from pump to tank, and is then smoothly fed into the engine for consumption. At the same time, that very engine, the car it sits in, and the convenience store tacked onto the pump are (or ought to be) some of the most tangible signs of the kind of life petroleum has enabled: an existence characterised by such things as unlimited freedom of movement, leisure time, and suburbia (cf. Appel, Mason, and Watts 2015: 13). Yet this connection is hardly ever made: the luxuries of modern life are taken for granted while their enabler continues to fly under the radar (Szeman 2019: 6; Stoekl 2014: xii-xiii; Wilson, Carlson, and Szeman 2017: 5-7). This dissociation between cause (petroleum) and effect (modern reality) is perhaps most painfully visible in the cultural realm. Even though the arts have boomed in the wake of greater affluence and more leisure time, they have curiously failed to remark on the energy source that fuelled their upward trajectory (Szeman 2019: 233-234).

The lack of sociocultural representations of oil led Amitav Ghosh to lament, as early as 1992, that '[t]he Oil Encounter (…) has produced scarcely a single work of note' (29). He puts this down to a variety of reasons, including the United States' instinctive dislike of the stuff ('oil smells bad', Ghosh 1992: 30); Western fiction's self-centeredness; silences enforced by Big Oil; the slipperiness of crude itself; and the extreme multilingualism of the extraction business (Ghosh 1992: 30). Following Ghosh's lead, others have identified even more fundamental issues hampering the representation of oil. For example, Imre Szeman has argued that 'it is a resource whose consumption is disassociated from its extraction', leading to an 'ethical dissociation [with regard to] its place in the cultural and social imaginary – it vanishes to the background, invisible to narrative, and so, too, to critique'

(2019: 229). At the same time, voices have emerged that strongly disagree with Ghosh's assertion that the 'Great American Oil Novel' (1992: 30) does not exist: Graeme Macdonald, for instance, has pointed at works like Upton Sinclair's *Oil!* and – in the context of energy continuity – Herman Melville's *Moby Dick* (2012: 7). He has also queried whether, '[g]iven that oil and its constituents are so ubiquitous in the material and organization of modern life,' it might not be the case that '*every* modern novel [is] to some extent an oil novel?' (Macdonald 2012: 7; emphasis in original). Regardless of their factual accuracy, however, Ghosh's complaints struck a chord: his review of Abdul Rahman Munif's *Cities of Salt,* where he first made his remarks on the invisibility of oil, became a founding text for a new academic discipline: petroculture studies. This field has set itself the goal of laying bare (Western) civilisations' sociocultural and economic reliance on oil, and to highlight and battle the void of representation that surrounds this cheap yet world-defining form of energy (Wilson, Carlson, and Szeman 2017: 15). Furthermore, it seeks to leverage these findings in the search for alternative energy futures.

The sections that now follow will draw extensively on findings from leading authors in petroculture studies in order to answer a number of pressing questions. Following Szeman's bifurcated structure for 'knowing oil' (2019: 174ff), the discussion will seek to establish more clearly the respective places of oil materialities and oil cultures in present-day societies. It posits these aspects of oil – physicality and abstraction – as interminably entangled with *what it means to be modern*, and queries whether a post-oil future can ever emerge. In other words: can the world run on anything but petrol?

Oil Materialities. The Rig

Much like the jellyfish in Marianne Moore's poem (2015; see also Ch. I), the offshore oil rig is at the same time visible and invisible. The latter is evident from the way rig operators employ nationally diversified labour organisation tactics, flags of convenience, and physical distance from the mainland to engage in near-frictionless crude production, staying far away from issues such as worker's rights conflicts, local community engagement, and national politics (Appel 2015: 268-271). At the same time, this 'intentional disentanglement from and thinning of liability for local conditions' is 'always incomplete, and, in fact, requires sticky entanglements with (…) people and environments' (Appel 2015: 273). It turns out that no matter how well-hidden, oil's physical infrastructures can have the curtain pulled on them in a number of ways. For example, recent civil unrest over plans to build and/or complete the Dakota Access Pipeline and Keystone XL projects in the United States and Canada forced the oil assemblage out into the open (Szeman 2019: 238ff). Similarly,

widespread media coverage of such incidents as the 1989 Exxon Valdez spill, off the coast of Alaska, and the 2010 Deepwater Horizon disaster in the Gulf of Mexico brought a swift (though ultimately temporary) end to the invisibility of the offshore operation (cf. Watts 2015: 211ff).[21]

As soon as one starts tugging on loose threads – protests, spills, media reports – of the evasive international oil assemblage, a true hyperobject emerges (cf. Appel, Mason, and Watts 2015: 5-9). The sheer physical dimensions, fixed assets, and annual turnover of this network put to shame virtually all other 'big players' on the world market: Appel, Mason, and Watts cite estimates from 2013 that put its value at 'several trillion dollars', with the 'market capitalization of the twenty largest oil and gas companies [amounting] to over $2 trillion, larger than the technology and consumer goods sectors, and comparable to financials (…); it is at least five times larger than the global pharmaceutical market' (2015: 5). This market value was the result of, among other things, '[c]lose to 5 million producing oil wells (…) by some estimations over 40,000 oil fields in operation (…) [m]ore than 2 million kilometres of pipelines [that] blanket the globe in a massive trunk-network (…) 6,000 fixed platforms, and 635 offshore drilling rigs (…) [and] some 4,295 oil tankers [moving] 2.42 billion tons of oil and oil products every year' (Appel, Mason, and Watts 2015: 21-22).

Not only do these dazzling numbers prove the scale of the oil industry, they also demonstrate that a huge amount of money involved in petroleum extraction, transportation, and delivery is stuck in fixed assets: the physical infrastructures needed to bring crude to the surface and trade it. Oil's end users find themselves in a similar situation. Industry giants have invested heavily in airplanes, shipping vessels, trucks, and heavy machinery that run exclusively on cheap and powerful fossil fuels. Similarly, most consumer cars and heating systems are (almost) completely petro-reliant. One result of this global addiction to petroleum is a considerable state involvement in its ongoing procurement: despite the 2015 Paris Agreement and other climate improvement commitments by the majority of world governments (cf. United Nations 2015), most non-renewables extraction around the world is now carried out by nation-states in the interest of national economic development and secure energy futures (Appel, Mason, and Watts 2015: 20-21; Szeman 2019: 97-100).[22]

[21] The industry's ability to cover over smaller spills (some of which constitute, on an annual basis, a larger discharge of oil into the natural environment than the major disasters ever did) speaks to the pervasiveness of oil's invisibility and 'Big Oil's commitment to keeping things that way (Barney 2017: 81; Watts 2015: 186; Nixon 2011: 107, 113).

[22] In 2007, the Financial Times declared the demise of the 'old' Seven Sisters of Oil (including ExxonMobil, Chevron, BP, and Royal Dutch Shell) and the rise of the 'new' Seven Sisters: the state-controlled Saudi Aramco, Gazprom, CNPC, NIOC, PDVSA, Petrobras, and Petronas. The 'old' Seven Sisters at that stage produced only 10% of the world's fossil fuels and held just 3% of reserves (Hoyos 2007). This number has since plummeted even further (Appel, Mason, and Watts 2015: 20).

Furthermore, oil remains the most traded commodity on the world market (Appel, Mason, and Watts 2015: 19), even if often fictitious, in the form of 'paper barrels' (cf. Johnson 2015: 193ff). All this is reflected in global oil consumption, which continues to increase on an annual basis; the world has yet to reach peak demand (cf. EIA 2020).[23]

Bearing in mind the material and financial entanglements of industries, consumers, nations, markets, and investors with the international oil assemblage, an end to the petroleum present remains almost unimaginable. Keeping the industry afloat means being able to continue extracting significant value from fixed assets, while also securing short-term national energy needs. On the other hand, abandoning the quest for oil means an astounding forfeit of capital assets, poorly adapted industries and consumers, uncertain energy futures, and a loss of revenue for both private and state-owned oil and gas companies and their subsidiaries. For these reasons, cartels such as the Organization of the Petroleum Exporting Countries (OPEC) and the International Energy Agency (IEA) have for decades intentionally confused projections for the occurrence of M. King Hubbert's 'peak oil' scenario: the point in time where oil production maxes out, after which it inevitably falls back to zero (Appel, Mason, and Watts 2015: 6-7; Gelpke and McCormack 2006). The narrative of proven oil reserves in particular is dominated by a kind of 'existential murk' (Appel, Mason, and Watts 2015: 9), which allows petroleum corporations to forestall the moment where large scale energy transition is not just desirable, but unavoidable. Meanwhile, ever more desperate attempts at ultra-deep-water exploration – both by privatised companies like BP and national giants like Petrobras (cf. Hoyos 2007) – indicate that the industry is redoubling its faith in oil rather than slowly starting to abandon it (Watts 2015: 211ff). Considering all this, it is safe to say that – at least from a materialistic and economic point of view – the end of petroleum is nowhere in sight. Among other things, this means that oil rigs, spills, and mammoth tankers will continue to haunt contemporary seascapes for decades to come.

Oil Cultures. The Lifestyle

There is yet another reason that a post-oil future remains out of reach: the very structure of contemporary society itself. In many ways, it can be said that *all aspects of modern life* are situated somewhere on the 'oil gradient' between materiality and cultural artefact. Most pertinent at this stage is the far end of the scale: intangibles such as lifestyles, values, and belief systems that are extremely petro-reliant yet (often) fail to explicate this dependency

[23] A slight but noticeable drop in oil and gas consumption in 2020/2021 can be attributed to the decline in industrial activity during the Covid-19 pandemic; it should not be understood as the first sign of a decrease in global demand.

(cf. Szeman 2019: 175). One might think, for example, of the general increase in wealth in Western nations since the beginning of the twentieth century; of the association between private automobile ownership and personal freedom; of the perceived right to leisure time and holidays (on the beach, by cruise ship, or plane); and of steady access to low-cost foodstuffs (Szeman 2019: 94, 174-175; Wilson, Carlson, and Szeman 2017: 5-7). All of these were first made possible when petroleum emerged as the fuel for the new ('American', cf. LeMenager 2016) century, and have since become fixtures of a modern lifestyle of relative affluence. Yet this high standard of living is only rarely attributed to the continued availability of fossil fuels (cf. Szeman 2019: 7). Instead, Western affluence is credited to personal and cultural savvy:

> [w]e assume that our current prosperity is the result of our personal decisions, our cleverness at school and our academic degrees, our correct career moves, our sagacity in investing our earnings – [essentially] forgetting that our luxurious homes, our cars, our clothes are the result of myriad energy slaves whose activities are those of all the joules liberated from the vast quantities each of us depends on, but never see, and never question. (Stoekl 2014: xii)

The issue at stake is whether contemporary energy-heavy lifestyles and associated horizons of (consumer) expectations could ever survive the switch to alternative energies. The assumption that this is possible is implicit to the majority of transition narratives (Szeman 2019: 12, 175), yet very much questioned by researchers working in the field of petroculture studies. Szeman, for instance, observes that '[t]he gaps and absences that the energy humanities have noted in conceptions of our social and cultural past remain alive, as well, in most articulations of our political futures' (2019: 12). There is a continued belief that unchecked economic growth remains possible after the demise of oil (Szeman 2019: 12, 102-103), yet little thought is given to the vast amounts of energy and physical resources required for this upward curve of expansion. It turns out that the modern blueprint for affluence – with its emphasis on vehicle ownership, international travel, mass-produced consumer goods, climate controls, and other environmentally damaging habits – is the exact opposite of sustainable or energy- and material-conservative living, regardless of whether it runs on petroleum or renewables. As such, it is not enough to abandon oil in the material sense; only by simultaneously giving up its cultures will society truly be able to progress to a post-petroleum reality (Wilson, Carlson, and Szeman 2017: 4). This requires challenging the dominant economic paradigm of free market capitalism, which enables and perpetuates lifestyles of petro-affluence. The deep entanglement of contemporary reality with the logic of the market makes this a near-impossible task.

Destabilising Capitalist Realism

In the early 2000s, cultural theorist Mark Fisher coined the term 'capitalist realism', which is meant to capture 'the widespread sense that not only is capitalism the only viable political and economic system, but also that it is now impossible to even *imagine* a coherent alternative to it' (2013: 2; emphasis in original). In many respects, the concept is a response to former UK Prime Minister Margaret Thatcher's assertion regarding the hegemony of the free market ('there is no alternative', cf. Fisher 2013: 8), and to Fredric Jameson and Slavoj Žižek's bold claim that 'it is easier to imagine the end of the world than it is to imagine the end of capitalism' (cf. Fisher 2013: 2). According to Fisher, capitalist realism is 'like a pervasive *atmosphere*, conditioning not only the production of culture but also the regulation of work and education, and acting as a kind of invisible barrier constraining thought and action' (2013: 16; emphasis in original). In many respects a deeply self-contradictory system of thought, the paradigm survives and proliferates by continuously reinventing itself in order to cover over internal inconsistencies (Fisher 2013: 54-61). These include the strained relationship between freedom and labour ("working to be free", see Fisher 2013: 43-50) and the incommensurability of capital and the natural environment (Fisher 2013: 18-19). A lack of critical attention towards the dominance of market principles in contemporary life aids the ongoing process of reinvention (cf. Fisher 2013: 8-9): by skipping 'dreamlike' from one conflicting reality to the next, modern citizens effectively resign themselves to the eternal present of the capitalist realist paradigm (Fisher 2013: 60).

Capitalist realism can be destabilised by demonstrating that it is 'in some way inconsistent or untenable; if, that is to say, capitalism's ostensible "realism" turns out to be nothing of the sort' (Fisher 2013: 16). This requires critical attention to a key element of the capitalist realist paradigm: the 'Real', an elusive concept borrowed from the work of psychoanalyst Jacques Lacan that constitutes 'an unrepresentable X, a traumatic void that can only be glimpsed in the fractures and inconsistencies in the field of apparent reality' (Fisher 2013: 18). Identifying and subsequently unmasking the Real means eroding the very foundation on which capitalist realism is built; as a result, the paradigm collapses and space is created for alternative manners of being-in-the-world. So what might this elusive Real be?

'Real' Oil and the Future of Capital

Hiding in plain sight in the network of the global markets, the petroleum industry consistently employs some of capitalist realism's most cunning strategies for proliferation. These include intentional epistemological confusion, such as the ongoing recalibration of proven reserves; industry reinvention, such as the use of enhanced oil recovery (EOR)

methods to push out the inevitable moment of peak oil (cf. Office of Fossil Energy); and the incorporation of counter-narratives, such as the supposed 'greening' of many oil companies after years of reaping the dirty benefits of resource depletion and environmental degradation (cf. Fisher 2013: 18-19; Monbiot 2019). Meanwhile, petroleum has for more than a hundred years provided capitalism with necessary low-cost energy inputs, leading some to refer to the ruling contemporary market paradigm as 'hydrocarbon capitalism' (cf. Appel 2015: 257). This mutual dependence between oil and modern capital makes it possible to cast the former as the bedrock Real on which the latter is built. Szeman, for instance, convincingly argues the following:

> oil is (…) an ontology, the structuring "Real" of our contemporary sociopolitical imaginary, and perhaps for this reason just as inaccessible as any noumenon in the flow of everyday experience from the smoggy blur of sunrise to sundown (…) [oil is] a substance that has given shape to capitalist social reality, perhaps as much as the division of labor or the dance of commodity reification. (2019: 138)

Once one identifies oil as the fundamental Real that keeps capitalist realism afloat, an end to modern capital becomes conceivable. Because of its ready availability, oil legitimised a number of core traits of free market capitalism, including rampant resource extraction, ecological degradation, and the race to the bottom. Despite furious attempts around the globe to integrate these principles into a renewable energies future, however, the reality is that none of them can survive such a transition. As Fisher observes, 'capitalism is by its very nature opposed to any notion of sustainability' (2013: 19). This means that the inevitable moment of 'peak oil' will cause not one, but two types of systemic collapse: society will find itself bereft of both its energy foundation and a valid economic base. The question is where to go from there.

Anticipating Systemic Collapse

In his essay on the end of oil – and very possibly oil capital – leading petrocultures author Imre Szeman identifies three response narratives to the looming crisis: strategic realism, techno-utopianism, and eco-apocalypse (2019: 95-97). Despite his keen awareness of the entanglement of capitalist reality and petroleum (cf. 2019: 94-95), however, Szeman's categories are insufficiently distinct from one another. For example, both strategic realism and techno-utopianism operate on the basis of system continuity, refusing to relinquish either petroleum or the logic of the free market in their blueprint for tomorrow's society and its economy. Bearing in mind the similarities between these two positions – and the variety of attitudes that remains unexplored when adhering to Szeman's trio of attitudes – a slightly

different categorisation is proposed. Four types of socio-political narrative are identified based on their underlying expectations vis-à-vis the end of hydrocarbon capitalism: denial, resistance, submission, and paradigm reinvention. These different attitudes will now be explored in detail.

Denial. Maintaining Energy Security and Chasing Technofixes

Perhaps the most widely deployed response to the end of oil is to simply deny or ignore that it is happening, and to maintain the dominant socio-economic paradigm of hydrocarbon capitalist reality for as long as possible. This line of reasoning is pursued by a group of people Szeman calls 'strategic realists', who 'suspend or minimize concerns about the cumulative environmental disaster of oil or the fact that oil is disappearing altogether, and focus instead on the potential political and economic tensions that will inevitably arise as countries pursue their individual energy security in an era of scarcity' (2019: 98). Popular with governments across the political spectrum (cf. Klein 2019: 226-227, 250-251; Szeman 2019: 238-243), this kind of thinking focuses on short and medium-term energy needs in an attempt to keep national economies ticking over relatively undisturbed. Ways of securing oil include military intervention (such as the 2003 US invasion of Iraq), bilateral trade agreements, new extraction techniques for existing reservoirs (the aforementioned Enhanced Oil Recovery, or EOR), and ongoing exploration efforts in offshore waters (Szeman 2019: 98, 100-101; Watts 2015: 211-236). The latter phenomenon explains many of the international conflicts over uninhabited islands that have erupted over the last few decades (cf. Visontay 2020). Any rocky outcrop that is successfully claimed by a nation state allows them – under the third United Nations Convention for the Law of the Sea (UNCLOS III) – exclusive use of sea floor resources in a 200-nautical mile radius (UN General Assembly 1982: 27, 43-44).

Denial also characterises the attitude of the group dubbed 'techno-utopians' (Szeman 2019: 100ff) or 'neo-environmentalists' (Kingsnorth 2012), who seek to delay or mitigate the end of oil – especially in relation to capital – through technological intervention (Szeman 2019: 100). More often than not, the work of techno-utopianism contributes directly to a strategic realist agenda. This includes finding new methods for deep-sea exploration, improving on existing EOR techniques, or developing alternative fuels (Szeman 2019: 101). What sets this group apart is the fact that many of its members engage directly with (rather than ignore) the problem of anthropogenic climate change, albeit very much in their own way. As Paul Kingsnorth explains, techno-utopians/neo-environmentalists see a bright future in 'enthusiastically embracing biotechnology, synthetic biology, nuclear power,

nanotechnology, geoengineering and anything else new and complex that annoys Greenpeace' (2012). Of particular interest in this list is geoengineering, which can be defined as 'deliberate, large-scale intervention in the climate system designed to counter global warming or offset some of its effects' (Hamilton 2013: 1). The reasoning here is to mitigate the impacts of continued fossil fuel use, resource extraction, and environmental degradation, rather than abandon those practices; or alternatively to 'buy time' for society to transfer to a greener kind of energy provision (cf. Buck 2019), all the while retaining full access to neoliberal consumer lifestyles (Szeman 2019: 102). Popular ideas include sulphate aerosol spraying in the stratosphere in order to reduce the amount of solar radiation that reaches the planet's surface (Hamilton 2013: 57ff) as well as battling water acidification by 'liming' the seas with ground-up minerals (Hamilton 2013: 36ff).[24] The problem with this kind of attitude – besides its refusal to abandon or revise modern consumer lifestyles based on the outdated model of petro-affluence – is that there is no guarantee that proposed interventions will work. Moreover, it has been rightfully pointed out that 'in the case of system-altering climate engineering schemes the local is the global; every major and minor ecosystem process would be changed' (Hamilton 2013: 116). This means that a failed geophysical intervention puts the entire planet at risk of further environmental catastrophe, leading some to ask whether humanity should really wish to gamble with the entire Earth's biosphere. Others have been more extreme in their rejection, with Bruno Latour scathingly referring to geoengineering as a 'nightmarish dream' (2017: 282). Nevertheless, the neo-environmentalist agenda retains a number of powerful backers that includes billionaires Bill Gates and Richard Branson (Hamilton 2013: 74-77), meaning this is not a position to be underestimated.

Resistance. The Call for a Green New Deal

Against the 'business as usual' agenda pursued by strategic realists and techno-utopians alike, a narrative of resistance is gaining momentum on the radical Left. Dubbed the 'Green New Deal' after President Roosevelt's successful plan for economic revival in the United States in the 1930s, this narrative calls for large-scale investments in solar, wind, and other local renewable energy initiatives, in tandem with profound socioeconomic restructuring based on social, racial, labour, and environmental justice principles (Klein 2019: 25-40; see also Monbiot 2018). This constitutes a farewell not only to petro-reality and free market

[24] One 'light' marine geoengineering project of note is that by the US-based Seasteading Institute, an organisation exploring the possibility of offshore living for up to a billion people (Quirk and Friedman 2017: 50) based on the libertarian model for socioeconomic organisation. Their plans include the exploitation of thousands of square kilometres of horizontal and vertical algae farms in poorly regulated deep-sea waters (cf. Quirk and Friedman 2017: 41-60, 65-99). Little attention is paid to the possible environmental upset caused by such macro-level interventions in already-fragile ecosystems.

ideologies (cf. Klein 2019: 78-80), but also to the systematic oppression of minorities, the erosion of workers' rights, privatisation of public goods, and more (Klein 2019: 39). The Green New Deal's bottom-up approach to building a sustainable and fair society includes helping workers from the fossil fuel and other polluting industries train for 'green' jobs, strengthening unions, providing universal access to healthcare and transportation, funding environmental restoration projects, introducing the circular economy, and generally implementing the principle of 'private sufficiency and public luxury' (Klein 2019: 80-91, 259-271; Raworth 2018; quote by Monbiot 2017). Not much has been said about what a Green New Deal would mean for contemporary marine environments, but one can expect at least coastal areas and their wildlife to benefit enormously from this change in attitude.

Opponents of the Green New Deal have described its agenda as an 'unrelated grab bag' or 'laundry list' (Klein 2019: 267) of the Left's political objectives. However, its proponents have painstakingly explained how 'our overlapping crises are (…) inextricably linked' (Klein 2019: 267), citing many examples of the 'slow violence' of environmental degradation that disproportionately affects women, minorities, and those living in the Global South (Nixon 2011). To name just a few, these include the reliance of the petroleum industry on institutionalised racism and colonial legacies in the suppression of minorities in Nigeria (Nixon 2011: 103-127) and the decades-long systematic dismantling of Puerto Rican society as the main driver of systemic collapse in the wake of climate change-exacerbated Hurricane Maria (Klein 2019: 253-258). For those pursuing a Green New Deal, abandoning hydrocarbon capitalism can never be a stand-alone feat. They argue that systematic change is necessary in order to rid society of the many inequalities that define oil and capital culture, and to ultimately give both people and the planet a fair chance at a better tomorrow.

Submission. Too Late for Change

The third category named by Szeman in his original trio of response attitudes to the end of oil and capital is that of apocalyptic environmentalism. Many in this group were once part of the radical Left and hoped for a return to a more intimate relationship with the natural environment (cf. Kingsnorth 2017: 68). However, the tenacity of the capitalist realist paradigm – along with the emergence in mainstream politics of a reductive kind of green thinking that concerns itself only with minimising carbon emissions (Kingsnorth 2017: 78) – has convinced them that any such hope is futile and that the destruction of nature is now inevitable (Szeman 2019: 104; Kingsnorth 2017: 68-72). As a result, theirs is a 'pedagogic' discourse rather than a just-in-time programme for political change: it seeks to instruct in the inevitability of collapse and explore new narratives for the subsequent period of uncertainty

(Szeman 2019: 105-106). Some vague attempts might be made to explain what it would take to avoid disaster – including '"[a] simpler, non-affluent way of life"; "more communal, cooperative and participatory practices"; [and] "new values"' (Szeman 2019: 105) – but these are forever overshadowed by the 'recognition that even if its coming can be established, nothing can be done to stop the disaster from [sic] coming' (Szeman 2019: 106). The obvious fallacy of this kind of thinking is that it discredits by default any kind of programme for change that does not rely on the violent uprooting of existing social order. For this reason, apocalyptic environmentalists have been accused of 'bad utopianism' (Szeman 2019: 105-106), or what one might call the hopeful anticipation of disaster. They have also been attacked for valuing nature over humanity (cf. Kingsnorth 2017: 71). At the same time, a major achievement of apocalyptic environmentalism has been precisely to expose the anthropocentrism that suffuses contemporary green agendas, and to explain that such thinking will invariably come at a high cost to the natural world. Kingsnorth puts it this way:

> [Achieving zero-carbon] will require the large-scale harvesting of the planet's ambient energy: sunlight, wind, water power. This means that vast new conglomerations of human industry are going to appear in places where this energy is most abundant. Unfortunately, these places coincide with some of the world's wildest, most beautiful and most untouched landscapes. The sort of places that environmentalism came into being to protect.
>
> And so the deserts (…) are to be colonised by vast 'solar arrays', glass and steel and aluminium, the size of small countries. The mountains and moors, the wild uplands, are to be staked out like vampires in the sun, their chests pierced with rows of 500-foot wind turbines and associated access roads, masts, pylons and wires. The open oceans, already swimming in our plastic refuse and [sic] emptying of marine life, will be home to enormous offshore turbine ranges and hundreds of wave machines strung around the coastlines like Victorian necklaces. (2017: 70)

Despite their frequently criticised, somewhat haughty attitude towards anything 'progressive' or 'sustainable' (cf. Kingsnorth 2017: 71-72), apocalyptic environmentalists see one thing very clearly: any narrative for change that continues to revolve exclusively around the human species is bound to cause further damage to the planet. The vision Kingsnorth presents in the above excerpt resonates strongly with works like Ben Smith's *Doggerland* (2019a; see Ch. IV); both challenge utopian dreams of low-impact sustainable energy generation and present an alternative future reality in which formerly pristine natural environments have been transformed into near-unrecognisable fields of production. In other words: they demonstrate that the passing of the baton from oil rig to wind farm (or, for that matter, from derrick to solar panel) is just as riddled with inconsistencies as the earlier

farewell to whales and whale oil. However, apocalyptic environmentalists fall short when it comes to construing a coherent and viable alternative; a new kind of story that is inherently non-anthropocentric and that retains credibility both before *and* after possible societal collapse. This leads to the fourth and final response narrative: the paradigm reinvention proposed by such authors as Stacy Alaimo, Donna Haraway, Bruno Latour, and Anna L. Tsing.

Paradigm Reinvention. Towards a New Manner of Being-in-the-World

The aforementioned advocates of the multispecies society have developed a convincing narrative that puts central the myriad interspecies, interphenomenal relations that make up the network of everything that exists in the present moment.[25] This radical model for societal restructuring ticks many of the same boxes as the Green New Deal, but heeds the warning of apocalyptic environmentalists not to allow the human species to dominate the network. For example, it proposes a reinvention of the public sphere, but expressly includes non-human animals and phenomena (see Ch. I on the 'new' social). Furthermore, it jettisons skewed narratives of oil and capital and argues instead for a tale of cross-species intra-active 'becoming' (see Ch. II on 'storying' the world). It pays keen attention to suppressed minorities – including non- and more-than-human ones – in order to stop offloading the environmental burden on 'others', and instead make amends for past transgressions (see Ch. III on the principles of ecofeminism). Finally, it actively pursues a devolvement of power by opening up the political arena to the widest possible range of voices (see Ch. IV on the Parliament of Things). This means that the multispecies society constitutes more than a radical socioeconomic restructuring; it is a complete reinvention – or as per Latour (1993), a discrediting – of the modern human idea of being-in-the-world.

The great strength of the multispecies model for coexistence and -creation is that it offers a viable blueprint for society no matter the circumstances. Despite ongoing global warming, species loss, habitat degradation, and other destructive forces unleashed by hydrocarbon capitalism (and very possibly perpetuated by the renewables industry), cross-species intra-action is *always* a possibility. Alaimo, for one, insists that there is pleasure – and more importantly, truth – to be found in the current 'dissolve' of difference between humans, non-

[25] Many others are starting to follow their lead. To name just a few examples: Pope Francis employed key principles from ecocritical theory in his encyclical *Laudato Si'*, in which he calls for 'a new dialogue about how we are shaping the future of our planet' (2015: 12). Similarly, Dutch philosopher and artist Eva Meijer has made a convincing argument for extending the full range of citizens' rights to sentient non-human others, including the ability to co-determine the shape of political institutions. Much like this thesis, she refers to the new community as a 'multispecies society' (2017). Meijer also contributes to the work of the recently founded Embassy for the North Sea, which has set itself the mission of listening, speaking for, and negotiating on behalf of a single marine locality (cf. Burgers, Meijer, and Nowak 2020: 123-126).

humans, and more-than-humans, even if this occurs under the pressures of water acidification and plastic pollution (2016: 135-137, 168). The cross-species convergence of manners of being-in-the-world due to acid exposure and microplastics ingestion enacts a central premise of the multispecies paradigm, namely the blurring of boundaries between self and other in the tangle of contemporary existence (Alaimo 2016: 168). Tsing agrees that there is a distinct possibility of unexpected multispecies flourishing in the ravages of capitalist society: new patterns of interaction appear precisely when the natural realm forces open spaces that were previously reserved for exclusive use by the human species (cf. 2017: 19-25, 282). This is not to say that societal collapse is a prerequisite for the flourishing of multispecies society; but rather that such breakdown is, ultimately, beside the point.

Tenacious Capital and the Future

The goal of this chapter has been to establish the validity of the paradigm of multispecies coexistence regardless of present or future circumstances. Out of the four possible types of response to the end of hydrocarbon capitalism, only the model for multispecies society stands a guaranteed chance of becoming reality. For one, strategic realists and techno-utopians will find themselves out of their depth when oil runs out and capital flounders. Those pursuing a Green New Deal might find attempts at enacting their programme for change harangued by political indecision; or alternatively, they will come to realise that 'greening' energy and building a more inclusive society does not necessarily equate a healthier planet. Even if the predictions of apocalyptic environmentalists come true, they will have precious little to rejoice about: both planet and people will be in a state of great despair. Meanwhile, paradigm reinventors are able to pursue the beginnings of a true multispecies society unhindered. As has become clear, such a configuration for shared human, non-human, and more-than-human existence will flourish in the cracks of whatever present unfolds.

However, in the short term none of this may happen. The ability of capital to reinvent itself can never be underestimated: it may well latch onto a new 'Real' when the oil industry comes undone. Something similar happened during the 2008 credit crisis, when capitalist reality survived despite the literal disappearance of money; when banks were eventually bailed out by their national governments, this only served to reinforce the truism that there is no alternative paradigm for modern socioeconomic existence (Fisher 2013: 77-78). Similarly, there is no guarantee that mild to moderate climate catastrophe and the associated rationing of resources will spell the end of free market principles (Fisher 2013: 80). Instead, responses to the end of oil – and the associated existential crisis of the market – may become

temporally stretched, existing in parallel in a society that continues to cling to a form of capitalist reality for as long as possible. Based on their understanding of the present and (expected) future state of the markets, energy provision, and the natural environment, some will pursue an exclusively strategic realist or techno-utopian agenda; others will offer resistance; and yet others again resign to the delayed but ultimately inevitable doom of ecological and societal collapse. Even in this situation of limbo, however, multispecies coexistence is possible. This will now be shown in a reading of Kim Stanley Robinson's *New York 2140*.

Sunk Assets in *New York 2140*

Like so many creative works before it, Robinson's novel is infatuated with the city of New York: it is presented as the centre of the known universe, the only place where anything or anyone really matters, and therefore a microcosm beyond which one need not venture (cf. 2018: 32-36, 495). This time, however, the much-fetishized Big Apple appears with a twist: it is the year 2140 and half of the city is underwater. Two significant sea level rise events (or 'Pulses', Robinson 2018: 34, 139ff) have turned New York's grid of avenues and streets into a veritable 'SuperVenice' (cf. Robinson 2018: 180) of canals crisscrossing semi-submerged skyscrapers. A number of the city's boroughs are entirely flooded, while others are now located in the 'intertidal zone' (cf. Robinson 2018: 106-107, 118-119), meaning their submergence is completely at the behest of ebb and flow. Lower Manhattan, where most of the story is set, is well beyond the intertidal part of the city – several stories remain under water at all times – yet millions of people continue to live in its waterproofed skyscrapers. This is also the case for the novel's many protagonists, all of whom are connected in some way or another to the MetLife Tower at Park Avenue and 45th Street. The group includes 'cloud star' (or live-streamer, vlogger) and animal rights activist Amelia Black, who flies around the globe in her airship, the aptly named *Assisted Migration*; inspector Gen Octaviasdottir of the NYPD; Householders' Union chair Charlotte Armstrong; near-feral orphans Roberto and Stefan; high-frequency trader Franklin Garr; and city-diver-turned-building-supervisor Vlade.

The inhabitants of future New York (and many people elsewhere on the globe) have made a number of lifestyle changes, even if mostly by necessity. For example, rapid decarbonisation has occurred but only after global warming and associated sea level rise had already been locked in (Robinson 2018: 139ff). People have had to take up such practices as rooftop farming (to combat food shortages, cf. Robinson 2018: 12, 377-378), communal living (due to rent pressures, cf. Robinson 2018: 12, 50ff), and commuting by vaporetto and

water taxi (rather than bus or cab, cf. Robinson 2018: 49). Meanwhile, familiar problems continue to plague this future society. There is controversy over a steady influx of refugees; citizens' rights are slowly being eroded; and most importantly, the rule of the market is causing extreme levels of income disparity (cf. Robinson 2018: 47ff, 222, 205-210). In the context of the latter, it must be noted that *New York 2140* mostly sidesteps the 'oil question': it presents the end of the petroleum era as a fait accompli, and the future city as a relatively liveable, recently 'greened' oasis in which petro-style affluence continues to be a (remote) possibility (cf. Szeman 2019: 102). However, Robinson scrutinises in all the more detail the crises and excesses of capital that ensue when 'nature' grows volatile, and when previous certainties – notably fossil fuels and other natural 'bounty' – drop away. Above all, his novel showcases that future capital is running against impossible odds: it has lost its material foundation yet insists on pursuing an upward trend (cf. Robinson 2018: 118, 318-319).

As long as capital – however fleeting – manages to retain a grip on global and local societies in *New York 2140*, response attitudes to the end of hydrocarbon capitalism are drawn out in parallel. The following pages will discuss various characters in the novel that maintain a distinctly strategic realist outlook on the world, along and in contrast with those pursuing a Green New Deal and those who have resigned themselves to scepticism and the near-certainty of further environmental catastrophe. These three attitudes are then contrasted with the voracity of human, non-human, and more-than-human lifeforms and manners-of-being that appear in the (submarine) cracks of the narrative; though scarcely remarked-upon, they are forever present and always full of promise.

Market Volatility and Continued Income Disparity

The world of *New York 2140* has not been able to rid itself of capitalist reality; far from it. Despite ongoing environmental catastrophe and associated credit crises, most notably in the aftermath of the two Pulses that inundated coastal cities around the world (cf. Robinson 2018: 207), markets have proliferated and now actively engage with – indeed instrumentalise – the phenomenon of collapse. This is most clearly addressed in the early chapters following high frequency trader Franklin Garr, architect of the renowned Intertidal Property Pricing Index (or IPPI), a financial index that collates data on the structural and legal status of buildings in intertidal zones around the world (Robinson 2018: 19, 118-123). Garr proudly mentions that his index has become a major anchor point for global speculative finance: trillions of dollars change hands on a daily basis according to buyers' and sellers' expectations regarding the future trend of the IPPI (Robinson 2018: 19). All this trading occurs despite the fact that Garr and his company, WaterPrice, reveal close to nothing about

the types of data that are fed into the IPPI's formula, meaning the accuracy of the index is pretty much accepted in blind faith (Robinson 2018: 120-123). Garr's IPPI might strike the reader as an absurd project, but in fact it constitutes an evocative example of a practice already unfolding in our own present: leveraging collapse to *make money* rather than lose it, by exploiting the occurrence of market volatility. This kind of hedging is performed in particular by petroleum conglomerates in the context of ultra-deep-sea drilling. For example, Lee Johnson mentions the use of an 'enormous density of financial instruments (…) including energy derivatives, storm-specific futures, seasonal hurricane futures, and over-the-counter loss derivatives' (2015: 196-197) in the business of mitigating against offshore asset loss. Such derivatives and futures are often appraised using what is known as the Black-Scholes options pricing formula (Johnson 2015: 199-200), the very tool that serves as the bedrock of Garr's IPPI (Robinson 2018: 120). In this sense, Robinson's depiction of a future of hyperfinance and the leveraging of environmental degradation is not so much a projection as it is a logical extension of present-day practices.

Garr is not the only one reaping the benefits of an economy built on and perpetuated by the perversity of financial speculation. He is joined by a number of other characters seeking to maintain the status quo. These include the faceless ultrarich, who move their money around the globe in pursuit of the greatest possible return on investment (Robinson 2018: 205-206); New York mayor and former cloud star Galina Esteban, who is mostly interested in her own fame and catering to the needs of the elite (Robinson 2018: 268); and angel investor Hector Ramirez, who flies around the globe in his very own skyvillage and only occasionally touches down at his penthouse apartment to play the markets with vast sums of money (cf. Robinson 2018: 581-583). On a much smaller scale, it is evident from the actions of Roberto and Stefan – the very youngest protagonists – that the American dream continues to revolve around get-rich-quick schemes: they spend a significant portion of the novel trying to find the lost treasure of the HMS 'Hussar', a British navy ship that sunk near New York in the 18th century.[26] The stark reality, however, is that the majority of the population struggles to scrape together a living. Salaried jobs hardly provide enough income to pay for a dorm bed in a commune (like the MetLife Tower), and even a celebrity like Amelia Black can barely afford the purchase of a one-bedroom apartment (Robinson 2018: 51-52).

[26] It must be conceded that when the boys finally manage to find the treasure, they quickly grow bored of it and start looking for a new project to pass the time (see Robinson 2018: 55-62, 301-310, 386ff, 443ff, 550, 595-596).

'Resetting' Capitalism

The main driver of the plot of *New York 2140* is the protagonists' growing disgruntlement with the way global finance continues to enrich the already-very-wealthy at great cost to the rest of the population. They are infuriated by the inevitability and easy assumption of national bailouts whenever finance runs aground (cf. Robinson 2018: 397-401, 432-435), and are deeply irked by the blindness to environmental and social decay that underpins the rule of the market. The latter is perhaps best captured in the phenomenon of 'capital flight', occurring whenever a geographical region loses economic viability due to resource exhaustion or other debilitating factors, such as coastal flooding (cf. Robinson 2018: 205ff). The characters' desire for change is spurred on by a number of events, most notably an unsolicited bid on the MetLife tower by an anonymous investor (who later turns out to be Hector Ramirez, see Robinson 2018: 52-53, 580-582); the killing of a number of rehomed polar bears by an activist group of conservationists (Robinson 2018: 258); and the devastating impact of Hurricane Fyodor on the city and subsequent refusal of the very rich to house refugees in their northern Manhattan skyscrapers (Robinson 2018: 453-477, 509-519, 531). Every new disappointment strengthens their resolve to effectuate some kind of system overhaul.

A first attempt to rewrite the rules of capital – by 'quants' or data analysts Mutt and Jeff (cf. Robinson 2018: 3-7, 73-75) – having failed to make the necessary splash, the protagonists of the novel band together to hit 'reset' on capitalism and allow the people to regain control over the global economy (Robinson 2018: 346ff). They engineer a global payment strike that will send private and national banks spiralling (Robinson 2018: 346-349, 504-507), launch it by means of Amelia's cloud popularity (Robinson 2018: 525ff), then convince the chair of the Federal Reserve System to force failing financial institutions into submission through nationalisation rather than another round of government bailouts (Robinson 2018: 559-563). Somewhat hypocritically, the group also plans to monetise Roberto and Stefan's salvaged gold (literal 'sunk assets') and use it to short a number of financial indices, including the IPPI; meaning the collapse of the global finance bubble will result in enormous wealth acquisition on the part of the MetLife consortium itself (Robinson 2018: 342-346, 545). This money can then be used, at least in part, to pursue born-again Franklin Garr's vision of constructing raft housing in the intertidal zone: a project not unlike that of the Seasteading Institute (see fn. 5), which the speculative-trader-turned-social-entrepreneur expects will rewrite many of the rules on coastal living in a time of climate catastrophe (Robinson 2018: 283-287).

By the end of the novel, the consortium's plans have worked out splendidly. Across the globe, people respond en masse to Amelia's call for civil disobedience by defaulting on their mortgages and other loan payments (Robinson 2018: 531-533). In the ensuing financial crisis, the US Treasury and Federal Reserve System refuse a no-questions-asked bail-out and instead demand that banks receiving aid should issue shares to the government for the same amount. Goldman Sachs turns down the deal and immediately goes bankrupt; not long after, virtually all remaining banks agree to being nationalised (Robinson 2018: 601-602). Having gotten 'a little giddy' by their successful takeover of the financial sector, a transformed Congress rushes through an extensive socialist (or Green New Deal-style) agenda, not in the least due to the work of newly elected senator 'Red Charlotte' and a supportive president (Robinson 2018: 602-603). Garr's project for sustainable marine living has obtained all the necessary permits and is coming along well (Robinson 2018: 556-557); and perhaps most importantly, the MetLife Building is no longer under threat of a hostile takeover (Robinson 2018: 568). A bright future for all awaits.

Scepticism. The Citizen

Despite the apparent success of the MetLife consortium's plan to recalibrate national and global finance and politics, there is a strong undercurrent of scepticism in the book. The main voice of dissent in the novel is that of the anonymous Citizen, an extremely critically aware and deeply pessimistic commentator with regular stand-alone appearances in the narrative. This character maintains an attitude similar to that of apocalyptic environmentalism and takes up the role of the classical chorus to help the reader situate the novel in a wider context, while also allowing Robinson to showcase his extensive reading on a wide variety of topics including art, ecology, finance, government, philosophy, and world history. For one, the Citizen makes implicit reference to the work of Barad, Haraway, and Latour (cf. Robinson 2018: 210, 399, 603), as well as to economists such as Keynes and Piketty (Robinson 2018: 398, 602), writers like Ayn Rand (Robinson 2018: 435), and a number of present-day public administrators (Robinson 2018: 432-435). The inclusion of such a critically aware chorus brings Robinson's work – and by extension, the thesis – full circle with the concept of a 'poetics' as envisioned by Aristotle, that is to say as mimesis or 're-presentation' of a real or possibly forthcoming state of affairs (cf. *Poetics*, 1447a.13-17, 1451a.36-37). The comments of the Citizen ground the projection of a flooded, hypercapitalist Big Apple by indicating the roots of Robinson's imagined reality in the present day. In other words: by giving proof of present climate catastrophe and widespread

financial perversion, they establish the increased likelihood of the future occurrence of events similar to those described in the novel.

The Citizen's final predictions for the world of *New York 2140* are brief, but deeply ominous. They argue that the new world order is frail and may not be able to withstand the perverse attractions of capital for long. 'Please do not because of this quick list of transient political accomplishments conclude that this account is meant to end all happy-happy,' they plead, for one way or another the 'immense black-hole gravity of greed and fear' will regain the upper hand (Robinson 2018: 604). The eventual return of free market capitalism to the global stage cannot be avoided:

> Every moment is a wicked struggle of political forces, so even as the intertidal emerges from the surf like Venus, capitalism will be flattening itself like the octopus it biomimics, sliding between the glass walls of law that try to keep it contained, and no one should be surprised to find it can squeeze itself to the width of its beak, the only part of it that it can't squish flatter, the hard part that tears at our flesh when it is free to do so. (Robinson 2018: 604)

Meanwhile, the greater measure of public control allowed by the nationalisation of the world's largest private financial institutions does not provide any guarantees that the economy – or indeed society as a whole – would survive a Third Pulse. '[G]et over your childlike Rocky Mountain desire for a happy ending,' the Citizen scoffs, 'because it doesn't exist. (…) [D]own there in Antarctica – or in other realms of being far more dangerous – the next buttress of the buttress could go at any time' (Robinson 2018: 604). This means that for all their attempts to level the playing fields of economy, government, healthcare, housing, and labour – that is to say, for all their efforts to reimagine society from the ground up – the protagonists of *New York 2140* have forgotten one key thing. Two catastrophic sea level rise events have occurred in living memory, and they have only just seen the tail end of a devastating hurricane; and yet they fail to reckon with the non-human.

Life on the Edge, or Flourishing from Decay

It is at this stage that one must consider the kind of cross-species flourishing that continues unabatedly on the edges of capitalism and/or its ruins; a phenomenon described at length by Tsing in her earlier-mentioned study of the international matsutake mushroom trade (2017), and acutely present in the narrative of *New York 2140*. The Citizen, for example, explains that the city and surrounding bays and land areas are effectively a multispecies playground, with numerous non-human others exploiting the urban(ised) landscape for their own benefit:

> On the floors of the canals, the old sewer holes spew life from below. Up and down life floats, in and out with the tides. Salamanders and frogs and turtles proliferate among the

> fishes and eels, burrow in the mulm. Above them birds flock and nest in the concrete cliffs of the city, beneficiaries of the setback laws for skyscrapers that were in force between 1916 and 1985. Right whales swim into the upper bay to birth their babies. Minke whales, finbacks, humpbacks. Wolves and foxes skulk in the forests of the outer boroughs. Coyotes walk across the uptown plazas at 3 a.m., lords of the cosmos. They prey on the deer, always numerous everywhere, and avoid the skunks and porcupines, who stroll around scarcely molested by anyone. Bobcats and pumas hide like the wild cats they are, and the feral ex-domestic cats are infinite in number. The Canada lynx? I call it the Manhattan lynx. (…) At the center of the estuarine network swims the mayor of the municipality, the beaver, busily building wetlands. Beavers are the real real estate developers. River otters, mink, fishers, weasels, raccoons: all these citizens inhabit the world the beavers made from their version of lumber. Around them swim harbor seals, harbor porpoises. A sperm whale sails through the Narrows like an ocean liner. Squirrels and bats. The American black bear. (Robinson 2018: 319-320)

For the most part – and despite their physical proximity to the city's human inhabitants – these non-human others continue to occupy a completely different paradigm of reality (Robinson 2018: 33, 320). Each in their own way, they benefit from the havoc wreaked upon the coastline by human occupation: they build nests in the forest of skyscrapers, hide in the parks, or find novel building materials for their dams floating around the bay. The human individual itself, however, almost never features in their lives; possibly for good reason. As the narrator of one of Amelia's chapters puts it: 'New York harbor was a very human space, no doubt about it, even though it too was an ecozone, the amazing Mannahatta Ecosystem. But the human element dominated it' (Robinson 2018: 41). Escaping that dominion is often as easy as not standing out; blending into the background in order to allow continued and more or less frictionless coexistence of the 'overlapping worlds' (Robinson 2018: 40) of human, non-human, and more-than-human. In a way, their diffidence to the presence of the human species might be the clearest sign that these non-human animals are true locals: 'they swim around living their lives, they scavenge and predate and browse and get by and avoid people, just like any other New Yorker' (Robinson 2018: 33). The book suggests that generally speaking, these contrasting realities really only meet in times of crisis, such as Hurricane Fyodor. Even then, encounters occur strictly by physical inevitability, for instance when the bloated bodies of caught-out animals and humans float through the SuperVenice canals side by side (Robinson 2018: 472, 480-483).

Yet there is one part of town where the divide between human and non-human lifeworlds is far less absolute: the intertidal. The intermittently submerged infrastructure of this area has proven to be a 'latent commons' (Tsing 2017: 254-255), in which no species takes precedence over another. This has allowed a kind of multispecies coexistence to emerge that goes well beyond the communal living pursued by the main characters of the story. Though

the social experiment conducted in the MetLife Tower and nearby buildings might occur radical to a contemporary readership, one must admit that it ultimately very much unfolds within the dominant (human) paradigm of capitalist realism. Life in the intertidal zone, meanwhile, is anarchistic in nature: its main characteristics are self-sufficiency, free artistic expression, and personal and ecosystem flourishing despite – or rather, because of – systemic collapse (Robinson 2018: 209-210). These traits of the intertidal cause the boundaries between species and individuals to dissolve. For one, human inhabitants of this space are frequently referred to as 'water rats' (cf. Robinson 2018: 145); no doubt to indicate their general untidiness and lack of hygiene, but also very much for the fact that their behaviours have come to resemble that of the city's prolific muskrats (cf. Robinson 2018: 17), and because some of them have (tentatively) begun to make kin with these fellow amphibians (cf. Robinson 2018: 492-493, 524-525). The result of this and many other confluence(s) of modes-of-being is that the intertidal space has come to resemble '[a] ferment, a tumult, a mess' (Robinson 2018: 210); or as two of this project's key authors would surely put it, 'compost', 'humus' (Haraway 2016: 11; Latour 2018: 86).

The narrators of *New York 2140* repeatedly suggest that the intertidal model for multispecies coexistence will persevere no matter the circumstances. The water rats have held on through repeated systemic collapse and redesign, more often than not using these periods of upheaval to their own advantage. The Citizen, for example, observes that 'being immersed in the drink mattered little' to human citizens of the intertidal when compared to the 'shitholes' they had been living in before the floods; and that in fact, '[n]ot a few experienced an upgrade in both material circumstances and quality of life' (Robinson 2018: 209). The flourishing of these squatters is the silver lining to the endless cycle of boom and bust associated with other systems for social organisation. Humans and non-humans make kin among the literal ruins of a previous society where no such thing was possible; and as that other society attempts to maintain itself in the face of increasingly serious threats, both from within and from without, its multispecies counterpart grows ever more resilient. 'Possibly the New York estuary was the prime actor in all that has been told here,' the Citizen suggests, 'or maybe it was bacterial communities, expressing themselves through their own civilizations, what we might call bodies' (Robinson 2018: 603). Indeed, it is quite conceivable that the future New York of Robinson's novel never revolved around capital acquisition, investment, and flight. The human drama rising, peaking, and collapsing over the years 2140-2143 ultimately pales in comparison to the voracity of life displayed by its societal successor; an incredibly creative, often fraught, but forever ongoing multispecies mess of coexistence.

Conclusion

The preceding pages have endeavoured to test the aptitude and long-term viability of the model for multispecies marine living that was developed in the rest of the thesis. This was done with particular attention to the pressures exercised by the growing contemporary rift between human and non-human experiences of existence. In order to prove the posited alienation of human society from its natural environment, a brief foray was first conducted into the field of petroculture studies. Both the material foundations and the cultural associations of the 'age of oil' were shown to point at a redoubled, though ill-informed human faith in fossil fuel exploitation, rather than the promised swift transition to renewable sources of energy. The resultant economic system – a marriage of convenience between oil and money frequently dubbed 'hydrocarbon capitalism' – was argued to be closely related to and perpetuated by the dominant ideological framework of capitalist realism. This paradigm posits that *there is no alternative mode of human existence*; a supposition that casts serious doubt on the possibility for a radically different configuration of society, such as the multispecies one, to gain ground. However, it was demonstrated that the mutual reliance of money and cheap energy can be undermined by removing either element, meaning that the inevitable moment of 'peak oil' will both spell the end of hydrocarbon capitalism and unmask the hypocrisies of capitalist realism.

Looming systemic collapse such as this demands a response. Drawing on the work of leading petrocultures author Imre Szeman, a quartet of attitudes towards the end of oil and/or capital was explored. These range from plain denial and adjustment (the group formed by 'strategic realists' and 'neo-environmentalists') to rapid system recalibration (the 'Green New Deal'-ers) and deep-seated pessimism (the 'apocalyptic environmentalists'). Even though each of these first three attitudes boasts an impressive support base, they were all ultimately found wanting: none are able to reckon with serious environmental catastrophe *and yet* provide a narrative for a liveable tomorrow. A viable response to the end of hydrocarbon capitalism was found in the fourth category: complete paradigm reinvention after the fashion of multispecies cohabitation. It was shown that this new manner of being-in-the-world is always possible: productive cross-species intra-action remains an option quite irrespective of the occurrence of economic and natural disaster or resource depletion.

The intentional confusion over proven oil reserves and fluctuating levels of demand and supply mean that the current situation – a kind of calm before the storm – could continue for another period of time. Furthermore, the great tenacity of the capitalist realist paradigm suggests that this mindset might proliferate against all odds, possibly even in the absence of its petrochemical foundation. The result of this delay of inevitable collapse would be that

the quartet of responses to the end of oil and capital unfolds in parallel, with each group charting a course based on their appraisal of the state of hydrocarbon capitalism. This is the situation described in the primary text for this chapter, Kim Stanley Robinson's *New York 2140.* In a semi-submerged New York some hundred years from now, ecological and financial pressures keep rising. Capitalism has retained its chokehold on society, with high-frequency trading and other perverse strategies of strategic market manipulation continuing to enrich the already-very-wealthy while the rest of society teeters on the edge. Growing ever more exasperated with the skewed status quo, the various protagonists of the novel band together to enforce a crash of the system and rewrite the rules of economy and society. Their ambitious plan works, but the tone of the novel remains sceptical: will this radical reconfiguration of local and global finance and politics last? There is a constant suggestion that further climate catastrophe or a return of free market ideologies could undermine the temporary victory of eco-socialism; in other words, the enactment of a Green New Deal might only be a stay of execution for a society that is fundamentally unable to rid itself of its ecological and socioeconomic problems. However, an alternative mode of being-in-the-world crops up on the edges of the narrative. In this future New York's 'intertidal zone', where buildings are entirely at the mercy of ebb and flow and where anarchy rules, a large host of human, non-human, and more-than-human citizens is conspiring to create a radically different kind of society: a multispecies one. This new way of life is not affected by regime changes and has little to fear from further eco-catastrophe, since it already unfolds in the ruins of past worlds.

By imagining this post- or contra-dystopian future present, Robinson's *New York 2140* provides an inventive answer to Imre Szeman's call for 'creative critical thinking' with regard to the question of oil, 'to intervene and generate alternatives (…) to shock us into recognition of reality through ideological critique, but also to spark the imagination so that we can see possibility in a world with apparently few escape hatches' (2019: 85). Furthermore, the novel is a testament to what this chapter, and the thesis as a whole, set out to do in the first place: prove that the (socio)-ethico-onto-epistemological (cf. Barad 2007: 185) paradigm of multispecies coexistence is viable no matter the circumstances. This is particularly the case in saltwater environments, where differences between species and individuals fade more readily than anywhere else; and it applies today more than ever before, as the rubble of past societal configurations piles high.

Conclusion – The End[27]

From Familiar Seascapes to the Multispecies Ferment of Possibility

Just after midnight on November 2, 2020, a metro shot through the stop barrier at its terminus in Spijkenisse, The Netherlands. The train would have plummeted some thirty feet into an ornamental pond, but was caught by a sculpture of a whale's tail, one of a pair that had been installed in 2002. The polyester structure held the metro suspended in mid-air (see Fig. 8), meaning the sole occupant of the vehicle, its frazzled driver, was able to escape unharmed (Boffey 2020). The story becomes even more unlikely when taking into account the fact that only the bottom part of each sculpture was internally reinforced using a steel lattice framework, yet it was the top that caught the train (Solico 2020). Surveying the damage to their local metro station the morning after the incident, the local population was both delighted and deeply surprised by everything that had happened. Nobody had ever thought that the lifeless 'Whale's Tails' art installation could (or would) star in such a strange series of events. Maarten Struijs, who designed the twin sculptures, was amazed at the resilience of his artwork, commenting that '"[w]hen plastic has stood for 20 years, you don't expect it to hold up a metro train"' (in Boffey 2020). To commemorate the unlikely occasion, the council soon proposed renaming the entire installation: 'Saved by a Whale's Tail' (Boffey 2020). Weighing the incident a few weeks later, one commentator wrote that it constituted a reminder to remain open-minded when going about the business of being alive: truly, anything – even a giant artwork flanking a metro terminus – can 'happen' (Van Veelen 2020).

Fig. 8: Runaway metro 'saved' by sculpture of a whale's tail in Spijkenisse (NL).
(Source: Muller 2020 / Hans Muller, Solico. Reproduced with permission)

[27] An adapted version of this text was accepted for publication in a forthcoming issue of *Anthropocenes.*

Spijkenisse is part of the urban sprawl of the city of Rotterdam and located in close proximity to its port, an extensive industrial distribution network that ranks among the biggest of its kind. The fact that a non-human object prevented the occurrence of calamitous systems failure in this very heart of human-industrial activity makes the situation more pertinent than it already was. In many ways, the incident constitutes a fable for the present: it signals the kind of collapse that will inevitably follow in the wake of anthropogenic (and industry-exacerbated) climate change, and reminds humanity of the promising agency of the non-human in averting total catastrophe. Rather than considering the moment a literal 'fluke', or accidental deus ex machina – a once-off in which an inert artwork happened to be in the right place, at the right time – the incident should therefore be seen as proof that flourishing is possible amid (capital) decay. However, this is only the case if one commits to the ongoing possibility and validity of extra-human claims of agency. In other words, it is imperative to allow for the surprises of multispecies, multiphenomenal collaboration in the making of new lifeworlds, even if – or especially when – those future realities emerge from the ruins of past capital behemoths.

The chain of signifiers employed in this thesis contains many individual links: whales stuck in wind farms or armed with military equipment, pulsating jellyfish, intricate cyborgs, dead dolphins flanked by traffic cones, tsunami markers, dystopian swimming pools, oil rigs and tankers, and now the 'Whale's Tails' intervention. Taking place entirely under the auspices of a rapidly changing marine reality, this last instalment in a long series of saltwater idiosyncrasies may well have been the most pertinent of them all. The incident can serve as a kind of punctuation mark, signalling a definitive end to the dichotomy between human and non-human realities (or between 'Culture' and 'Nature') and to human claims of a monopoly on agency. In their place, it invites productive reimaginations of saltwater communities, where non- and more-than-human others receive the freedom to shock human beings into a new paradigm of existence, the chief characteristic of which is a multispecies manner of communal existence. The pages that now follow begin by employing the incident in Spijkenisse as a means of revaluating a number of key aspects of the paradigm for multispecies cohabitation. They then take up the case of the 'urban sea', in order to demonstrate how one might reimagine contemporary and near-future marine environments from the 'ground' (or seafloor, sediment) up by remaining receptive to non-human claims of agency. This example helps outline a pragmatic approach to the disappearance of familiar seascapes under the pressures of the Anthropocene, following the logic that the end *is not the end*. The loss of past and present saltwater environments, however distressing, does not

curtail future flourishing: many new worlds can emerge from the multispecies ferment of possibility.

Reckoning

Reading the incident in Spijkenisse as watershed between past and future human-sea relationships suggests a renewed commitment to many of the key findings from this thesis. These include, in order of their previous appearance, the precedence of the network over the interests of individual actors; the depth of mediation (or entanglement) and the need to revisit the stories human beings tell about their marine surroundings; the collapse of tenuous dichotomies between human and non-human, culture and nature, self and other, and subject and object; attunement to extra-human autonomy; and the possibility of flourishing amid (capital) decay. At the same time, the sculpture's sudden assertiveness warrants a revaluation of a number of the concepts discussed thus far. The following section will opt for a similar strategy as the rest of the thesis in tracing the outline of the multispecies marine society from the human perspective outwards, highlighting along the way the possible impact of the 'Whale's Tails' intervention on the present understanding of the model's key characteristics.

The ferocity of the sculpture's intervention simultaneously validates and casts doubt on Latour's assertion that different species – including the human – must renegotiate their respective territories in the wake of the collapse of the boundary between Culture and Nature (2018: 87, 94-95). The metro run-amok and the 'Whale's Tails' counteraction are undeniable proof that non- and more-than-human agencies need to be reckoned with in the multispecies, multiphenomenal mess that follows the disappearance of old dichotomies; yet they also raise doubt regarding the human ability to control the narrative. If anything, the Spijkenisse incident reveals that the sudden switch from a 'man's world' to a Parliament of Things may strip human citizens of almost all of their influence in the negotiation process. A plurality of 'new' agencies – that of train, sculpture, tracks, terminus, stop barrier, and pond – dominate the stage and stand in stark contrast to the total passivity or mere spectatorship of the single human participant in the drama: the driver. The effect of this is that the process of 'coming down to Earth' (cf. Latour 2018), or for that matter returning to the sea, is initiated and led entirely by non-human actors.

The same role reversal constitutes a more extreme take on Haraway's idea of cross-species sympoiesis ('making-with', 2016: 58). This time around, non- and more-than-human others indicate the desired outcome of the process of co-constitutive 'becoming' and enlist human beings in its actualisation, rather than vice versa. The shift in hierarchy is both surprising and deeply instructive: it teaches a lesson in being 'at stake to each other'

(Haraway 2016: 55) according to the pattern set by non-human kin. Following the same logic, the 'Whale's Tails' intervention delivers the final blow to such concepts as the symperson by discrediting their reliance on human intentionality. The transient cyborg that emerged from the collision between metro and sculpture did not follow any human design and served no human purpose. It was completely and only the result of non-human actions: brakes failing, the barrier smashing, and finally the tail rerouting the trajectory of the falling train. This demonstrates that non- and more-than-humans might have a very different take on what constitutes successful sympoietic practice than their human counterparts; but since the latter have lost control of the narrative, they must resign themselves to whatever manners of 'living and dying well' (Haraway 2016: 56) are suggested by the multispecies tangle of interactions. As Haraway accurately remarks: 'critters are in each other's presence (…) the decisions and transformations so urgent in our times for learning again, or for the first time, how to become less deadly, more response-able, more attuned, more capable of surprise (…) must be made without guarantees or the expectation of harmony with those who are not oneself – and not safely other, either' (2016: 98). Being human-as-humus (cf. Haraway 2016: 11, 119, 159-160), then, means facing the unexpected head-on, regardless of the outcome.

Specific marine implications of the incident in Spijkenisse become evident when the events are read through the lens of Alaimo's admonition to 'follow the submersible' (2011). Strictly speaking, the intervention by the sculpture constitutes a non-local expression of marine agency: the metro terminus might be located in a coastal environment, but still very much sits on terra firma. However, the disappearance of the tail into the pond is suggestive of that which remains hidden under the surface of familiar seascapes: it issues an invitation to descend and explore (cf. Alaimo 2011: 283), to embark on the search for signs of a paradigm shift (almost) completely effected by non- and more-than-human agencies. Such submarine explorations are proof of a willingness to encounter the next surprise; one that does not, perhaps, carry the same immediate urgency as a sculpture catching a derailed train, yet will turn out to be absolutely essential for our – human, non-human, and more-than-human – communal existences in future marine environments. Alaimo reminds her readership of the role of transcorporeality (cf. 2016) in the process of submergence: it is vital to heed the physicality of the body and the interplay between diffuse selves and others when diving below the surface, not in the least because this might reveal further 'surprising affinities' between humanity and the marine environment (2011: 283). Such affinities have the capacity to further rewrite existing assumptions about the agency/ies of non- and more-than-human others, in particular when it comes to the tension between rivalry and productive

entanglement. This is revealed, for instance, by the fact that the sculpture's intervention led directly to the *preservation of human life* rather than its further endangerment.

The benevolence of the installation casts Tsing's idea of the 'feral' in a more positive light than before. It confirms that anthropogenically enabled non-human agents 'gone rogue' have the capacity of positively contributing to the making of multispecies lifeworlds, rather than being exclusively detrimental to humans' and other species' well-being. Non-humans testing the limits of their ability for independent expression prove to be fully capable of exploiting *as well as* remedying the faults and fractures in human- (and other-)constructed spaces. In the case of the latter, this applies even if their own architects have failed to perform the necessary work to ensure the continued integrity of the system. For example, human design of the Rotterdam-Spijkenisse metro network was unable to prevent near-catastrophic feral behaviour: fail-safes were missing or proved insufficient, meaning the train was able to continue driving down the tracks and smash through the barrier. Only a second (or third, fourth) expression of ferality – that by the sculpture – stood in the way of the worst possible outcome. This kind of cross-species, cross-phenomenal interaction is precisely what ensures flourishing amidst capitalist ruin (cf. Tsing 2017: 19-25), and constitutes further proof of the validity of the poetics of the twenty-first century sea that were developed in this thesis.

Equipped with this recalibrated understanding of the model for multispecies marine society – founded on the same principles, but more receptive yet to the agency of the other – the remainder of this conclusion will explore in practice the emergence of 'post-punctuation' seascapes and the role human beings can play in their actualisation. The discussion begins by examining possible futures for the 'urban' sea and its constituent elements: ships, oil rigs, wind turbines, and other capital structures. Particular inspiration is drawn from existing multispecies patterns of interaction to envision appropriate end-of-life interventions for these installations, revealing along the way the surprising ability of the other-than-human to reshape the world as humans know it.

Following

In a recent study of the North Sea, Nancy Couling and Carola Hein point out that like many of its peers, this particular seascape has of late been 'so transformed that it has become an enigmatic urbanised space' (2020: 6). Among other things, the contemporary North Sea is populated by fixed installations for the purposes of hydrocarbons extraction, renewables generation (including wind, solar, and wave energy technologies), and global communications, as well as moving elements such as ferries, shipping vessels, and trawlers (Couling and Hein 2020: 11). Perhaps owing to the transient nature of many of these

structures and vehicles, the authors of *The Urbanisation of the Sea* observe that society has '[allowed] planning decisions to follow inherited notions of temporary structures and a visually open horizon' (Couling and Hein 2020: 11). In other words, it continues to assume that the North Sea remains a blank space, even if in reality '[e]nergy and communications infrastructure has been extended into the sea over the past 150 years' (Couling and Hein 2020: 11). To remediate this problem, Couling and Hein suggest that '[urbanising] the sea must also mean practicing a form of *cultivation*: we must take care of commons, ecologies, and synergies for the long-term and acknowledge deep cultural and spiritual ties' (2020: 14; emphasis in original). Among other things, this means finding appropriate *multispecies* solutions for the inevitable rubbish that will amass in urban seas over the course of human exploitation, including but not limited to ships' hulls rusting on the sea floor, oil rigs sitting over depleted wells, and (eventually) wind turbines with missing blades.

Existing narratives regarding ageing (sub)marine capital structures and their potential ecosystems impact do not yet reckon with outcomes proposed by non-human kin. As it stands, end-of-life interventions are agreed upon in advance – often before installations are in situ – and strictly enforced through international treaties such as the Western European OSPAR (or the Convention for the Protection of the Marine Environment of the North-East Atlantic). The directives of this protocol are unambiguous: decommissioned structures should be entirely removed in order to '"close the loophole" for deepwater disposal' (Jørgensen 2012: 60), thus returning the marine environment to (an approximation of) its original state. However, submarine exploration of ship 'graveyards' as well as working and decommissioned oil rigs and wind turbines reveals that this approach does not reflect the practical reality of non-human activity at all. Many of these supposedly wasteful installations have come to serve as the artificial foundation for new reefs, effectively creating a shelter for numerous crustaceans, fish, jellies, sea anemones, and other critters (Jørgensen 2012). Despite the diffidence to ecosystems integrity displayed by human beings during the introduction of these structures to the marine environment, it appears that unexpected outcomes can emerge over the course of their lifetimes. In response, human proprietors of (sub)marine capital installations might consider leaving (parts of) ships, rigs, and turbines in situ to benefit future marine societies.

Proposals for 'rigs-to-reefs' (cf. Jørgensen 2012) projects such as these tend to be met with scepticism. Critics have argued that the artificial reefs created by shipwrecks, oil rig stilts, and the submarine foundations of wind turbines do not act as a catalyst for ecosystems flourishing as much as they are a biological magnet or 'aggregation device', depleting surrounding areas of hosts of species by presenting a more attractive new home (cf.

Ounanian, van Tatenhove, and Ramírez-Monsalve 2020: 212). Others insist that rigs-to-reefs projects are a subtle but perverse way of loosening the already very weak legislative reins on corporate environmental responsibility, and that the savings associated with leaving capital structures in place – rather than hauling them to shore – constitute a hand-out to oil companies (Ounanian, van Tatenhove, and Ramírez-Monsalve 2020: 218-219). In fact, a standoff between Greenpeace and Shell over the proposed deepwater disposal of the Brent Spar facility in 1995 is seen by many as the root of OSPAR's later exclusion of the use of 'non-virgin materials' for artificial reef construction, effectively foreclosing the possibility of rig transformation in European waters (Ounanian, van Tatenhove, and Ramírez-Monsalve 2020: 213-214; Jørgensen 2012).[28] Yet the value of deepwater artificial habitat creation, including by means of decommissioned capital structures, has been proven in a number of independent reviews (Jørgensen 2012: 57-58). This means that the main driver of Western European reluctance to engage in rigs-to-reefs conversion is not scientific consensus on its ecosystem impact, but rather an inability to consider previously unthought options. Extra-human interventions in human-designed landscapes have the potential to reimagine reality from the ground up, but only – or precisely – because they do not fit into tried-and-trusted human conceptual and narrative frameworks. In this and many other scenarios, humanity must learn to follow in the footsteps of the other-than-human, rather than attempt to independently keep pace with or even dictate the rapidly changing character of contemporary (marine) environments.

Towards the End. Towards New Marine Realities

The 'post-punctuation' marine paradigm insists that humanity adopt a pragmatic stance towards the disappearance of familiar seascapes under the pressures of human industrial activity. Following the lead of non- and more-than-human kin allows 'us' to reckon with the risks *and* opportunities for flourishing amidst the fallout from an ecologically destructive present. Leveraging today's ruins in the making of tomorrow's lifeworlds does not constitute a disavowal of past and present injustices committed by humans against non- and more-than-human marine others (such as explored at an earlier stage in this thesis). Rather, this kind of pragmatism follows Ursula K. Heise in arguing that attempts at 'rewilding' the world should not be 'a means of returning to the ecological past,' but can serve instead as 'a tool in the *creation of functional ecosystems of the future*' (2016: 212; emphasis added). This attitude

[28] (Sub)marine capital structure conversion to foster the growth of artificial reefs has been more successful in the United States, especially in the Gulf of Mexico (Ounanian, van Tatenhove, and Ramírez-Monsalve 2020: 218).

helps human beings cast their look forward and discover the opportunities for cross-species flourishing that manifest themselves even as old certainties disappear.

In much the same context, Tsing observes that '[i]ndeterminacy is not the end of history but rather that node in which many beginnings lie in wait (…) I comb through the mess of existing-worlds-in-the-making, looking for treasures' (2017: 254-255). Like her, I have sifted through a wide range of materials in order to find something of value: the beginnings of a new paradigm of marine existence. The inquiry revealed that entrenched narrative patterns are frequently unable to keep pace with the kind of reimaginations that emerge from the world itself. More often than not, non- and more-than-human storytellers take the lead: bursting through the cracks in human constructions of reality, they upset the balance of carefully crafted marine poetics by presenting seascapes unlike any that have ever been seen before. Their actions effectively enforce a return to the mimetic principle introduced at the very beginning of this thesis: relegated to the side-lines, humans learn not to dictate, but only to give narrative coherence to the new marine state of affairs as it emerges from the multispecies ferment of possibility.

Acknowledgements

I would like to thank my supervisor, Dr. Michael Hinds, for his help with this project. Among many other things, he allowed for numerous detours, helped establish the conceptual framework, and provided generous feedback on written work. His flexibility and critical wit were (and are) very much appreciated.

I am deeply grateful to the people who propelled my academic career forward at key moments. These include Ms. Anita Hendricx, for encouraging independent critical thinking; Dr. Birgit Kaiser, for fostering a love of literature *and* theory; and Prof. Peter de Voogd, for going above and beyond to make my education – and that of many others – thoroughly enjoyable.

Many friends helped me keep chipping away at the thesis. Particular thanks are due to Mark Kelleher, Orla Shannon, Nina Visscher, and Willem van Toor.

Thanks to the Buitendijk, de Rijke, and Larragy families for their relentless support, especially during the difficult latter half of the degree.

Finally, my gratitude and love go to Emma Rachel, who has done everything and more to keep me happy, healthy, and motivated over the last four years.

Bibliography

Agencies. 'Humpback whale spotted in Thames east of London.' *The Guardian.* The Guardian, 7 Oct. 2019. Web. 5 June 2020.

AHN. 'Actueel Hoogtebestand Nederland.' *Actueel Hoogtebestand Nederland.* AHN, 1 Feb. 2019. Web. 2 June 2019.

Alaimo, Stacy. *Exposed. Environmental Politics & Pleasures in Posthuman Times.* Minneapolis, MN: University of Minnesota Press, 2016. Print.

Alaimo, Stacy. 'New Materialisms, Old Humanisms, or, Following the Submersible.' *NORA – Nordic Journal of Feminist and Gender Research* 19.4 (2011): 280-284. Web. 14 Dec. 2018.

Allen, Ann, Matt Harvey, Christopher Clark, Annie Lewandowski, and David Rothenberg. *Pattern Radio: Whale Songs.* Google AI, 2019. Web. 20 Feb. 2020.

Appel, Hannah, Arthur Mason, and Michael Watts, eds. *Subterranean Estates. Life Worlds of Oil and Gas.* Ithaca, NY: Cornell University Press, 2015. Print.

Appel, Hannah. 'Offshore Work: Infrastructure and Hydrocarbon Capitalism in Equatorial Guinea.' *Subterranean Estates. Life Worlds of Oil and Gas.* Eds. Hannah Appel, Arthur Mason, and Michael Watts. Ithaca, NY: Cornell University Press, 2015. 257-273. Print.

Aristotle. *Aristotle XXIII. The Poetics, 'Longinus', Demetrius.* Trans. and ed. W. H. Fyfe and W. Rhys Roberts. Cambridge, MA: Harvard UP; London: William Heinemann, 1932. *Perseus Digital Library.* Tufts University. Web. 19 Jan. 2021.

Atwood, Margaret. *MaddAdam.* London: Bloomsbury, 2013. Print.

Atwood, Margaret. *Oryx and Crake.* London: Bloomsbury, 2003. Print.

Atwood, Margaret. *The Year of the Flood.* London: Bloomsbury, 2009. Print.

Auden, W. H. *The Enchafèd Flood, or the Romantic Iconography of the Sea.* London: Faber & Faber, 1985. Print.

Bähr, Ulrich, ed. *Ocean Atlas. Facts and Figures about Our Relationship with the Ocean.* Berlin; Kiel: Heinrich Böll Stiftung and Kiel University, 2017. Print.

Ballard, J. G. *The Drowned World.* Reprint. London: Millennium, 1999. Print.

Baltrusch, Ernst. 'Ancient Horizons. Appropriating the Sea.' *Europe and the Sea.* Eds. Dorlis Blume et al. Munich: Hirmer, 2018. 14-22. Print.

Barad, Karen. *Meeting the Universe Halfway. Quantum Physics and the Entanglement of Matter and Meaning.* Durham & London: Duke UP, 2007. Print.

Barney, Darin. 'Who We Are and What We Do: Canada as a Pipeline Nation.' *Petrocultures. Oil, Politics, Culture.* Eds. Sheena Wilson, Adam Carlson, and Imre Szeman. Montreal, QC: McGill – Queen's University Press, 2017. 78-119. Print.

Beauty and the Beast. Dir. Bill Condon. Perf. Emma Watson, Dan Stevens, and Luke Evans. The Walt Disney Company, 2017. DVD.

Beauty and the Beast. Dir. Gary Trousdale and Kirk Wise. The Walt Disney Company, 1993. VHS.

Benjamin, Walter. *Illuminations.* Trans. Harry Zohn. Ed. Hannah Arendt. New York: Schocken Books, 1968. Print.

Bennett, Jane. *Vibrant Matter: A Political Ecology of Things.* Durham and London: Duke University Press, 2010. Print.

Bennett, Jim. Photograph of deceased humpback whale lifted from river Thames by crane. 9 Oct. 2019. Personal collection.

Bertagna, Julie. *Aurora.* London: Pan Macmillan, 2011. Print.

Bertagna, Julie. *Exodus.* London: Young Picador, 2002. Print.

Bertagna, Julie. *Zenith.* London: Pan Macmillan, 2007. Print.

Blackburn, Julia. *Time Song. Searching for Doggerland.* London: Jonathan Cape, 2019. Print.

Blume, Dorlis, et al. *Europe and the Sea.* Munich: Hirmer, 2018. Print.

Boffey, Daniel. 'Whale sculpture stops Dutch train crashing into water.' *The Guardian.* The Guardian, 2 Nov. 2020. Web. 18 Nov. 2020.

Bouwman, André, and Bart Besamusca, eds. *Of Reynaert the Fox. Text and Facing Translations of the Middle Dutch Beast Epic.* Amsterdam: University Press, 2009. eBook.

Bracke, Astrid. *Climate Crisis and the 21st-Century British Novel.* London: Bloomsbury Academic, 2018. eBook.

Brasiskis, Lukas. 'Mermaid with a Movie Camera: Performing the Cold War Past Eco-Critically.' *The Cine-Files* 14 (2019): 1-14. Web. 7 Oct. 2019.

Breymayer, Ursula, Matthias Miller, and Andrea von Hegel. 'Tourism.' *Europe and the Sea.* Eds. Dorlis Blume et al. Munich: Hirmer, 2018. 386-419. Print.

Buck, Holly Jean. *After Geoengineering.* London: Verso, 2019. eBook.

Buitendijk, Tomas. Photograph of dead dolphin with traffic cone on Plymouth Hoe. 4 Sept. 2019. Author's personal collection.

Buitendijk, Tomas. '"Spelende" vinvis wilde alleen maar overleven.' *De Volkskrant*, 25 Oct. 2018: 22. Print.

Burgers, Laura, Eva Meijer, and Evanne Nowak. *De stem van de Noordzee.* Amsterdam: Boom, 2020. Print.

Castaing-Taylor, Lucien, and Véréna Paravel, dirs. *Leviathan*. Perf. Brian Janelle, asterias vulgaris, callinectes sapidus, and fulmarus glacialis. Cinema Guild, 2013. DVD.

Chakrabarty, Dipesh. 'The Climate of History: Four Theses.' *Critical Inquiry* 35 (2009): 197-222. Web. 14 July 2017.

Chaucer, Geoffrey. *The Parlement of Foulys.* Ed. D. S. Brewer. Manchester: University Press, 1972. Print.

Chen, Alexander. 'Pattern Radio: Whale Songs.' *Medium – Science.* Medium, 5 June 2019. Web. 20 Feb. 2020.

Cinderella. Dir. Clyde Geronimi et al. 1950. The Walt Disney Company, 1988. VHS.

Cinderella. Dir. Kenneth Branagh. Perf. Cate Blanchett, Lily James, and Richard Madden. The Walt Disney Company, 2015. DVD.

Cohen, Margaret. *The Novel and the Sea.* Princeton, NJ: Princeton UP, 2013. Print.

Connery, Christopher. '*There Was No More Sea.* The Supersession of the Ocean, from the Bible to Cyberspace.' *Journal of Historical Geography* 32 (2006): 494-511. Web. 25 Nov. 2017.

Conrad, Joseph. *The Mirror of the Sea.* US: CreateSpace Self-Publishing, 2014. Print.

Cook, Adam. 'Heavy Metal: An Interview with "Leviathan" Co-Director Véréna Paravel.' *MUBI Notebook.* MUBI, 28 Aug. 2012. Web. 8 Jan. 2021.

Couling, Nancy, and Carola Hein, eds. *The Urbanisation of the Sea. From Concepts and Analysis to Design.* Rotterdam: nai010 publishers, 2020. Print.

Crutzen, Paul, and Eugene Stoermer. 'The "Anthropocene".' *IGPB Newsletter* 41 (2000): 41-42. Web. 5 Mar. 2019.

Dealberto, Clara. ‘Les océans au centre du monde.’ Map. Scale not given. *Libération.fr*, 30 Aug. 2018. Web. 5 Nov. 2018.

Downey, Dara, Ian Kinane, and Elizabeth Parker, eds. *Landscapes of Liminality: Between Space and Place*. London: Rowman and Littlefield, 2017. Print.

Dowrick, Molly. ‘Shock as dead dolphin washes up on Plymouth Hoe.’ *Plymouth Live.* The Plymouth Herald, 3 Sep. 2019. Web. 24 May 2020.

EIA. ‘Short-Term Energy Outlook.’ *U.S. Energy Information Administration.* U.S. Energy Information Administration, 7 July 2020. Web. 17 July 2020.

Ellis-Petersen, Hannah. ‘Whale with harness could be Russian weapon, say Norwegian experts.’ *The Guardian.* The Guardian, 29 Apr. 2019. Web. 30 Apr. 2019.

Fackler, Martin. ‘Tsunami Warnings, Written in Stone.’ *The New York Times.* The New York Times, 20 Apr. 2011. Web. 10 Feb. 2020.

Fiction Uncovered. ‘Amy Sackville interviewed by Sandeep Mahal for Fiction Uncovered.’ Online video clip. YouTube. YouTube, 1 June 2013. Web. 16 Dec. 2019.

Fisher, Mark. *Capitalist Realism: Is There No Alternative?* Alresford: Zero Books, 2013. Print.

Francis. *Encyclical Letter Laudato Si’ of the Holy Father Francis. On Care for our Common Home.* Vatican City: Vatican Press, 2015. Web. 19 Feb. 2021.

Frodon, Jean-Michel. ‘A Monster Rises from the Abyss.’ DVD Booklet. Trans. Nicholas Elliott. *Leviathan*. Dir. Lucien Castaing-Taylor and Véréna Paravel. Cinema Guild, 2013. DVD.

Gelpke, Basil, and Ray McCormack, dirs. *A Crude Awakening. The Oil Crash.* Lava Productions, 2006. Documentary.

Ghosh, Amitav. ‘Petrofiction. The Oil Encounter and the Novel.’ *The New Republic* 206.9 (1992): 29-34. Web. 9 July 2020.

Ghosh, Amitav. *The Great Derangement. Climate Change and the Unthinkable.* Chicago/London: U. of Chicago Press, 2017. Print.

Gillis, John R. ‘The Blue Humanities. In studying the sea, we are returning to our beginnings.’ *Humanities* 34.3 (2013). Web. 24 Jan. 2021.

Gordon, Gwendolyn J. ‘Environmental Personhood.’ *Columbia Journal of Environmental Law* 43.1 (2018): 49-91. Web. 16 Apr. 2020.

Grace, Patricia. *Wahine Toa: Women of Maori Myth.* New York: Viking, 1991. Print.

Gulati, Ranjay, Charles Casto, and Charlotte Krontiris. ‘How the Other Fukushima Plant Survived.’ *Harvard Business Review – Crisis Management.* Harvard Business Review, 1 July 2014. Web. 11 Feb. 2020.

Hamilton, Clive. *Earthmasters. The Dawn of the Age of Climate Engineering.* New Haven, CT/London: Yale University Press, 2013. eBook.

Haraway, Donna. ‘A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late 20th Century.’ *The International Handbook of Virtual Learning Environments.* Eds. J. Weiss et al. Amsterdam: Springer, 2006. 117-158. Web. 31 Oct. 2019.

Haraway, Donna, et al. ‘Anthropologists Are Talking – About The Anthropocene.’ *Ethnos: Journal of Anthropology* (2015). Web. 23 Jan. 2021.

Haraway, Donna. ‘Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.’ *Feminist Studies* 14.3 (1988): 575-599. Web. 16 Sep. 2019.

Haraway, Donna. *Staying with the Trouble. Making Kin in the Chthulucene.* Durham: Duke UP, 2016. Print.

Haraway, Donna. *When Species Meet.* Minneapolis, MN: U. of Minnesota Press, 2008. Print.

Harman, Graham. *Object-Oriented Ontology. A New Theory of Everything*. London: Pelican – Penguin Books, 2018. Print.

Harrington, Erin. *Women, Monstrosity, and Horror Film: Gynaehorror.* Abingdon & New York: Routledge, 2017. eBook.

Heise, Ursula K. *Imagining Extinction. The Cultural Meanings of Endangered Species.* Chicago, IL: U. of Chicago Press, 2016. Print.

Henley, Jon. '"Russian spy" whale has defected to Norway, locals claim.' *The Guardian.* The Guardian, 2 May 2019. Web. 9 Sept. 2019.

Hitchcock, Peter. 'Velocity and Viscosity.' *Subterranean Estates. Life Worlds of Oil and Gas.* Eds. Hannah Appel, Arthur Mason, and Michael Watts. Ithaca, NY: Cornell University Press, 2015. 45-60. Print.

Hoare, Philip. 'Did the Thames whale come to save us?' *The Guardian.* The Guardian, 8 Oct. 2019. Web. 1 June 2020.

Hoare, Philip. 'Leviathan: the film that lays bare the apocalyptic world of fishing.' *The Guardian.* The Guardian, 18 Nov. 2013. Web. 8 Jan. 2021.

Hoare, Philip. 'The lonely Thames beluga whale is an anomaly – and an omen.' *The Guardian.* The Guardian, 26 Sept. 2018. Web. 5 June 2020.

Hoyos, Carola. 'The new Seven Sisters: oil and gas giants dwarf western rivals.' *Financial Times.* Financial Times, 12 March 2007. Web. 14 July 2020.

Hunchuck, Elise Misao. 'An Incomplete Atlas of Stones. A Cartography of the Tsunami Stones on the Japanese Shoreline.' *The Funambulist* 18 (2018): 22-27. Web. 10 Feb. 2020.

IDFA. 'Leviathan.' *IDFA.* International Documentary Film Festival Amsterdam, n.d. Web. 8 Jan. 2021.

IWC. 'Population (Abundance) Estimates.' *International Whaling Commission.* International Whaling Commission, n.d. Web. 18 Feb. 2020.

Jeffries, Stuart. 'Come on in, the water's dystopian! JG Ballard's Drowned World hits an Essex pool.' *The Guardian.* The Guardian, 10 Mar. 2020. Web. 6 Apr. 2020.

Johnson, Leigh. 'Near Futures and Perfect Hedges in the Gulf of Mexico.' *Subterranean Estates. Life Worlds of Oil and Gas.* Eds. Hannah Appel, Arthur Mason, and Michael Watts. Ithaca, NY: Cornell University Press, 2015. 193-210. Print.

Jørgensen, Dolly. 'OSPAR's exclusion of rigs-to-reefs in the North Sea.' *Ocean & Coastal Management* 58 (2012): 57-61. Web. 21 Jan. 2021.

Joseph, Ali. 'With Disney's "Moana," Hollywood almost gets it right: Indigenous people weigh in.' *Salon.* Salon.com, 3 Dec. 2016. Web. 7 Oct. 2019.

Kaplan, E. Ann. *Climate Trauma. Foreseeing the Future in Dystopian Film and Fiction.* New Brunswick/New Jersey/London: Rutgers UP, 2015. Print.

Keats, John. 'La Belle Dame sans Merci.' *The Oxford Book of English Verse 1250-1918.* Ed. Sir Arthur Quiller-Couch. Oxford: University Press, 1942. 757-758. Print.

Kingsnorth, Paul. *Confessions of a Recovering Environmentalist.* London: Faber and Faber, 2017. Print.

Kingsnorth, Paul. *Savage Gods.* Toller Fratrum, Dorset: Little Toller Books, 2019. Print.

Kingsnorth, Paul. 'The new environmentalism. Where men must act 'as gods' to save the planet.' *The Guardian.* The Guardian, 1 Aug. 2012. Web. 12 June 2019.

Klein, Naomi. *On Fire. The Burning Case for a Green New Deal.* London: Allen Lane, 2019. Print.

Koster, Rob. 'Noordzee wordt grote bouwplaats voor windmolens.' *Nieuwsuur.* NOS, 13 Apr. 2019. Web. 22 Apr. 2020.

Kube, Alfred. ‘Dancing Upon the Sea. The Age of European Mass Overseas Migration, 1815 to 1970.’ *Europe and the Sea.* Eds. Dorlis Blume et al. Munich: Hirmer, 2018. 100-109. Print.

Lanchester, John. *The Wall.* London: Faber & Faber, 2019. Print.

Latour, Bruno. ‘Agency at the Time of the Anthropocene.’ *New Literary History* 45.1 (2014): 1-18. Web. 16 Apr. 2020.

Latour, Bruno. *Down to Earth. Politics in the New Climatic Regime.* Trans. Catherine Porter. Cambridge: Polity Press, 2018. Print.

Latour, Bruno. *Facing Gaia. Eight Lectures on the New Climatic Regime.* Trans. Catherine Porter. Cambridge: Polity Press, 2017. Print.

Latour, Bruno. ‘From *Realpolitik* to *Dingpolitik* or How to Make Things Public in Making Things Public.’ *Making Things Public: Atmospheres of Democracy.* Eds. Bruno Latour and Peter Weibel. Karlsruhe: ZKM Center for Art and Media, 2005. 14-41. Print.

Latour, Bruno. *Reassembling the Social. An Introduction to Actor-Network-Theory.* Trans. Catherine Porter. Paperback ed. Oxford: University Press, 2007. Print.

Latour, Bruno. *We Have Never Been Modern.* Trans. Catherine Porter. Cambridge, MA: Harvard University Press, 1993. Print.

LeMenager, Stephanie. *Living Oil. Petroleum Culture in the American Century.* Oxford: University Press, 2016. Print.

Liddell, Henry George, and Robert Scott. *A Greek-English Lexicon.* Eds. Henry Stuart Jones and Roderick McKenzie. Oxford: Clarendon Press, 1940. *Eulexis-web.* Equipex Biblissima. Web. 19 Jan. 2021.

Luhn, Alec. ‘Massive marine die-off in Russia could threaten endangered sea otters, other vulnerable species.’ *National Geographic.* National Geographic, 16 Oct. 2020. Web. 27 Jan. 2021.

Macdonald, Graeme. 'Oil and World Literature.' *American Book Review* 33.3 (2012): 7; 31. Web. 9 July 2020.

Magnus, Olaus. *Map of the Sea*. Rome: Antoine Lafréry, 1572. *World Digital Library.* Web. 1 Oct. 2019.

Massey, Doreen. 'A Global Sense of Place.' *Marxism Today* (1991): 24-29. Web. 11 Dec. 2017.

Meijer, Eva. *De soldaat was een dolfijn.* Amsterdam: Cossee, 2017. Print.

Mellor, Mary. *Feminism & Ecology.* New York: University Press, 1997. Print.

Moana. Dir. Ron Clements and John Musker. Perf. Auli'i Cravalho and Dwayne Johnson. The Walt Disney Company, 2016. DVD.

Monbiot, George. 'How Labour could lead the global economy out of the 20th century.' *The Guardian.* The Guardian, 11 Oct. 2017. Web. 11 Aug. 2020.

Monbiot, George. *Out of the Wreckage. A New Politics for an Age of Crisis.* London: Verso Books, 2018. Print.

Monbiot, George. 'Shell is not a green saviour. It's a planetary death machine.' *The Guardian.* The Guardian, 26 June 2019. Web. 1 Aug. 2020.

Moore, Jason. *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism.* Oakland, CA: PM Press, 2016. Print.

Moore, Marianne. 'A Jelly-Fish.' *Poets.org,* Academy of American Poets, 30 Aug. 2015. Web. 19. Oct. 2018.

Morton, Timothy. *Being Ecological.* London: Pelican/Penguin, 2018. Print.

Morton, Timothy. *Hyperobjects. Philosophy and Ecology after the End of the World.* Minneapolis, MN: University of Minnesota Press, 2013. Print.

Muller, Hans. Photograph of metro train resting on whale's tail sculpture. *Solico.* Solico, 2 Nov. 2020. Web. 5 Feb. 2021.

Nagel, Thomas. 'What Is It Like to Be a Bat?' *The Philosophical Review* 83.4 (1974): 435-450. Web. 30 Oct. 2018.

Nietzsche, Friedrich. *The Gay Science.* Trans. Josefine Nauckhoff and Adrian del Caro. Ed. Bernard Williams. Cambridge: University Press, 2019a. Print.

Nietzsche, Friedrich. *Thus Spoke Zarathustra.* Trans. Adrian del Caro. Eds. Adrian del Caro and Robert Pippin. Cambridge: University Press, 2019b. Print.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor.* Cambridge, MA: Harvard University Press, 2013. Print.

NOAA. 'North Atlantic Right Whale.' *NOAA Fisheries.* NOAA, n.d. Web. 21 Nov. 2018.

NOS. 'Monteurs filmen zeldzame walvis op Noordzee.' *NOS.nl,* 19 Oct. 2018. Web. 20 Oct. 2018.

Nutt, David. 'Collaboration showcases creativity of whale songs.' *Cornell Chronicle.* Cornell University, 18 June 2019. Web. 18 Feb. 2020.

O'Dell, Cary. '"Songs of the Humpback Whale" (1970).' *Library of Congress.* Library of Congress, 2010. Web. 12 Feb. 2020.

Office of Fossil Energy. 'Enhanced Oil Recovery.' *Office of Fossil Energy.* U.S. Department of Energy, n.d. Web. 1 Aug. 2020.

Ounanian, Kristen, Jan P. M. van Tatenhove, and Paulina Ramírez-Monsalve. 'Midnight at the oasis: does restoration change the rigs-to-reefs debate in the North Sea?' *Journal of Environmental Policy & Planning* 22.2 (2020): 211-225. Web. 21 Jan. 2021.

Pauly, Daniel. 'Aquacalypse Now.' *The New Republic.* The New Republic, 28 Sept. 2009. Web. 26 Mar. 2019.

Payne, Roger. *Songs of the Humpback Whale.* CRM Records, 1970. LP.

Pirotta, Enrico, et al. 'Understanding the population consequences of disturbance.' *Ecology and Evolution* 8.19 (2018): 9934-9946. Web. 21 Nov. 2018.

Plumwood, Val. *Feminism and the Mastery of Nature.* London: Routledge, 1993. Print.

Pörtner, Hans-Otto, et al. *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate.* Geneva: IPCC, 2019. Web. 27 Oct. 2020.

Pye, Michael. *The Edge of the World. How the North Sea Made Us Who We Are.* London: Penguin, 2015. Print.

Quirk, Joe, and Patri Friedman. *Seasteading. How Floating Nations Will Restore the Environment, Enrich the Poor, Cure the Sick, and Liberate Humanity from Politicians.* New York: Free Press, 2017. Print.

Ratcliffe, Rebecca, and Carmela Fonbuena. 'Inside the cruise ship that became a coronavirus breeding ground.' *The Guardian.* The Guardian, 6 Mar. 2020. Web. 5 Apr. 2021.

Rawlinson, Kevin. 'Humpback whale seen in Thames has died, says rescue service.' *The Guardian.* The Guardian, 8 Oct. 2019. Web. 1 June 2020.

Raworth, Kate. *Doughnut Economics. Seven Ways to Think Like a 21st-Century Economist.* London: RH Business Books, 2018. Print.

Rees, Emma L. E. *The Vagina: A Literary and Cultural History.* London / New York: Bloomsbury Academic, 2013. eBook.

Reynolds, Kevin, dir. *Waterworld.* Universal Pictures, 1995. Film.

Rijkswaterstaat. 'Als ons water stijgt.' *overstroomik.nl.* Rijkswaterstaat, 2014a. Web. 2 June 2019.

Rijkswaterstaat. Image of stick figure threatened by wave against outline of the Netherlands. *overstroomik.nl.* Rijkswaterstaat, 2014b. Web. 2 June 2019.

Rinke, Stefan. '"New Worlds." Discoveries and Subjugation.' *Europe and the Sea.* Eds. Dorlis Blume et al. Munich: Hirmer, 2018. 44-52. Print.

Roberts, Callum. *Ocean of Life.* London: Penguin, 2012. eBook.

Roberts, Lizzie. '"Hessy" the humpback whale died after a shipstrike, ZSL confirm.' *The Telegraph.* The Telegraph, 11 Oct. 2019. Web. 5 June 2020.

Robinson, Kim Stanley. *New York 2140.* London: Orbit, 2018. Print.

Roy, Eleanor Ainge. '"One day we'll disappear": Tuvalu's sinking islands.' *The Guardian: Seascape. The state of our oceans.* The Guardian, 16 May 2019. Web. 27 Jan. 2021.

Sackville, Amy. *Orkney.* London: Granta, 2014. Print.

Samman, Nadim. 'Emilija Škarnulytė: "Sirenomelia".' *Vdrome.* Vdrome, 2018. Web. 7 Oct. 2019.

Saudaskaitė, Agnė. 'Invisible Structures. The cut of a stratosphere as a reflection of human values. An interview with the filmmaker Emilija Škarnulytė.' *Echo Gone Wrong.* Echo Gone Wrong, 11 June 2018. Web. 18 Nov. 2019.

Shaw, Alexander. Photograph of humpback whale breaching in front of oil rig in the Gulf of California. 9 Oct. 2018. Personal collection.

Simons, Massimiliano. 'The Parliament of Things and the Anthropocene: How to Listen to "Quasi-Objects".' *Techné: Research in Philosophy and Technology* 21.2-3 (2017): 150-174. Web. 10 Mar. 2020.

Škarnulytė, Emilija. 'Sirenomelia.' *Vimeo.com.* Vimeo, 25 Feb. 2017. Web. 7 Oct. 2019.

Smith, Ben, and Julia Blackburn. 'Ben Smith and Julia Blackburn on Doggerland; Ghana's Literary Scene; Rosie Price.' Interview by Mariella Frostrup. *BBC Radio 4 – Open Book,* 19 May 2019. Web. 17 Feb 2020.

Smith, Ben. *Doggerland.* London: 4th Estate, 2019a. Print.

Smith, Ben. 'Rusting Windfarms, Rising Seas and Frayed Fishing Line: Writing with Non-Human Agencies in *Doggerland.*' Co-Emergence, Co-Creation, Co-Existence. ASLE-UKI Biennial Conference, 4 Sep. 2019b, Plymouth University, Plymouth, England. Conference Presentation.

Solico. 'The tale behind the runaway metro saving 'Whale Tails' sculpture.' *Solico.* Solico, 2020. Web. 2 Feb. 2021.

Steinberg, Philip. *The Social Construction of the Ocean.* Cambridge: UP, 2001. Print.

Stengers, Isabelle. *Cosmopolitics II.* Minneapolis, MN: University of Minnesota Press, 2011. Print.

Stengers, Isabelle. *Power and Invention: Situating Science.* Trans. Paul Bains. Minneapolis, MN: University of Minnesota Press, 1997. Print.

Stevenson, Lisa, and Eduardo Kohn. '*Leviathan:* An Ethnographic Dream.' *Visual Anthropology Review* 31.1 (2015): 49-53. Web. 18 June 2019.

Stoekl, Allan. 'Foreword.' *Oil Culture.* Eds. Ross Barrett and Daniel Worden. Minneapolis, MN: University of Minnesota Press, 2014. xi-xiv. Print.

Szeman, Imre. *On Petrocultures. Globalization, Culture, and Energy.* Morgantown, WV: West Virginia University Press, 2019. Print.

Taylor, Sam. *The Island at the End of the World.* London: Faber & Faber, 2010. Print.

TenneT. 'Windenergie. Het net op zee.' *TenneT.* TenneT TSO B.V., Nov. 2017. Web. 22 Apr. 2020.

Tokyo Electric Power Company. Photograph of conditions around Units 5-6 and the seaside area (#05-030). *Tokyo Electric Power Company.* TEPCO, 17 Mar. 2011. Web. 11 Feb. 2020.

Tsing, Anna L., et al. *Feral Atlas. The More-Than-Human Anthropocene.* Redwood City, CA: Stanford University Press, 2020. Web. 30 Oct. 2020.

Tsing, Anna L. *The Mushroom at the End of the World. On the Possibility of Life in Capitalist Ruins.* Princeton, NJ: University Press, 2017. Print.

Turner, George. *The Sea and Summer.* London: Faber & Faber, 1987. Print.

UN General Assembly. "The United Nations Convention on the Law of the Sea." Montego Bay, Jamaica. *United Nations Treaty Series,* no. 31363 (Dec. 1982). Web. 8 December 2017.

United Nations. *A Universal Declaration of Human Rights.* 8 Dec. 1948. Web. 22 May 2020.

United Nations. *Paris Agreement.* Paris: United Nations, 2015. Web. 17 July 2020.

Van Veelen, Arjen. 'Gun jezelf het geloof in wonderen.' *NRC.* NRC, 20 Dec. 2020. Web. 21 Dec. 2020.

Vandendriessche, Eric. *String Figures as Mathematics? An Anthropological Approach to String Figure-Making in Oral Tradition Societies.* New York: Springer, 2015. Print.

Vaughan, Adam. 'Is this the future? Dutch plan vast windfarm island in North Sea.' *The Guardian.* The Guardian, 29 Dec. 2017. Web. 22 Apr. 2020.

Visontay, Elias. 'Australia declares "there is no legal basis" to Beijing's claims in South China Sea.' *The Guardian.* The Guardian, 25 July 2020. Web. 5 Aug. 2020.

Voce, Antonio, et al. 'Why are fish a sticking point in the Brexit talks?' *The Guardian.* The Guardian, 25 Nov. 2020. Web. 15 Jan. 2021.

Watersnoodmuseum. 'The aftermath of the flood.' *Watersnoodmuseum.* Watersnoodmuseum, 2018. Web. 27 Oct. 2020.

Watts, Michael J. ‘Securing Oil: Frontiers, Risk, and Spaces of Accumulated Insecurity.’ *Subterranean Estates. Life Worlds of Oil and Gas.* Eds. Hannah Appel, Arthur Mason, and Michael Watts. Ithaca, NY: Cornell University Press, 2015. 211-236. Print.

Webster, Bayard. ‘Whales Sing Siren Song for Scientist.’ *The New York Times,* 26 May 1970: 1. Web. 12 Feb. 2020.

Weik von Mossner, Alexa. ‘Imagining Geological Agency. Storytelling in the Anthropocene.’ In: ‘Whose Anthropocene? Revisiting Dipesh Chakrabarty’s “Four Theses”’. Eds. Robert Emmett and Thomas Lekan. *RCC Perspectives: Transformations in Environment and Society* 2 (2016): 83-88. Web. 19 Feb. 2019.

Wertheim, Margaret. ‘Science+Art Project: *Crochet Coral Reef.*’ *margaretwertheim.com.* Margaret Wertheim, n.d. Web. 6 Apr. 2020.

Wilson, Sheena, Adam Carlson, and Imre Szeman, eds. *Petrocultures. Oil, Politics, Culture.* Montreal, QC: McGill – Queen’s University Press, 2017. Print.

Wolff-Thomsen, Ulrike. ‘The Sea. Artistic Positions Since 1800.’ *Europe and the Sea.* Eds. Dorlis Blume et al. Munich: Hirmer, 2018. 154-165. Print.

York, Richard. ‘Why Petroleum Did Not Save the Whales.’ *Socius: Sociological Research for a Dynamic World* 3 (2017): 1-13. Web. 3 Aug. 2020.