

## Durham Research Online

---

### Deposited in DRO:

14 June 2019

### Version of attached file:

Accepted Version

### Peer-review status of attached file:

Peer-reviewed

### Citation for published item:

Steinberg, P. and Peters, K. (2019) 'The ocean in excess : towards a more-than-wet ontology.', *Dialogues in human geography.*, 9 (3). pp. 293-307.

### Further information on publisher's website:

<https://doi.org/10.1177/2043820619872886>

### Publisher's copyright statement:

Steinberg, P. Peters, K. (2019). The ocean in excess: Towards a more-than-wet ontology. *Dialogues in Human Geography* 9(3): 293-307. Copyright © The Author(s) 2019. DOI: 10.1177/2043820619872886

### Additional information:

## Use policy

---

The full-text may be used and/or reproduced, and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not-for-profit purposes provided that:

- a full bibliographic reference is made to the original source
- a [link](#) is made to the metadata record in DRO
- the full-text is not changed in any way

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Please consult the [full DRO policy](#) for further details.

## **The Ocean in Excess**

### **Towards a *more-than-wet* ontology**

#### **Abstract**

This paper builds upon previous assertions that the ocean provides a fertile environment for reconceptualising understandings of space, time, movement, and experiences of being in a transformative and mobile world. Following previous articles that urged scholars to adopt a ‘wet ontology’, this paper presents a progression of, and a caveat to, these earlier arguments. As we have argued previously, the liquid materiality, motion, and temporality allows for new ways of thinking that are not possible when only thinking with the land”. This paper maintains that critical perspectives can be gained by taking the ocean’s liquidity to heart. However, it also questions the premise of this vision. For the ocean is not simply liquid. It is solid (ice) and air (mist). It generates winds, which transport smells, and these may emote the oceanic miles inland. Although earlier attention to the ocean’s liquid volume was a necessary antidote to surficial static ontologies typically associated with land, this is insufficient in light of how the ocean exceeds material liquidity. This paper thus explores what might emerge if, instead, one were to approach the ocean as offering a *more-than-wet ontology*, wherein its fluid nature is continually produced and dissipated.

#### **An approach**

If you hope the world is alive, then you should cast off and open the oceanic door.  
(Nicolson, 2004: 111)

In his autobiographical reflections on sailing the Atlantic west coast of Ireland, amateur sailor Adam Nicolson remarks that to feel alive a person must be enfolded within the world: within its elements, its brute force, and its beauty (2004). The ocean, for Nicolson, presents the most direct medium to feel the world, and in turn to feel the liveliness of the world (see also Ingold, 2011). Sailing allows him to experience the ocean’s dynamism, or ‘inhuman nature’ (see Clark, 2010). This contrasts with the normative Western perspective wherein our dominant experiences, our livelihoods, and our social institutions are considered to be

fundamentally terrestrial. As we have argued elsewhere (Peters and Steinberg, 2014; Steinberg and Peters, 2015), it might be both productive and appropriate, in our world of flows, flux, connection, change, and uncertainty, to upend these earthly norms and think with the ocean, adopting what we call a ‘wet ontology’.

From the perspective of a ‘wet ontology’,

... the sea – its materiality, motion, and temporality – allows for new ways of thinking that are not possible when only thinking with the land. ... [A] ‘wet ontology’ – a way of thinking about the world that comes from a wet, watery perspective ... opens new frames for thinking geographically. (Peters and Steinberg, 2015: n.p.)

As we argued in our previous writings, a wet ontology does not simply highlight a world of flows, connections, liquidities, and becomings. Nor does it simply provide a perspective for understanding the ocean. Rather, we have suggested that thinking from a perspective informed by the ocean’s material and phenomenological distinctiveness can facilitate the reimagining and re-enlivening of a world and our being-in-the-world, providing a way of engaging with, and speaking to, a vibrancy much like that experienced by Nicolson in his travels on the boat *Auk*.

In this paper, however, we present a progression of, and a caveat to, our previous arguments. We stand by our assertion that critical perspectives can be gained by turning to the ocean, and, in particular, the ocean’s liquidity, for thinking of and beyond ocean spaces. However, we also wonder whether this understanding may be a bit facile. The ocean is not simply liquid; it is not simply wet. It is solid (ice) and air (mist); it generates winds, which transport smells and tastes that permeate senses and imaginations, emoting the ‘marine’ and the ‘maritime’ miles inland. In our earlier writings we raised such observations (see, for example, Peters and Brown, 2017 and Steinberg, Kristoffersen, and Shake, 2020) as well as in our wet ontologies piece (Steinberg and Peters, 2015). The overall focus of the latter, however, was on the ocean’s *liquid* volume for rethinking space, time, and motion. This was necessary as an antidote to the static, grounded ontology that is typically associated with land. However, it is not sufficient in light of the ways in which the ocean *exceeds* its material liquidity, and its felt wetness. In this paper, then, we explore what might emerge if, instead, we were to approach the ocean as offering a ‘more-than-wet’ ontology.

In taking this approach, we adopt a strategy that has some resonances with those who have proposed understanding the ocean as an assemblage or a convergence (e.g. Anderson,

2012; Bear, 2017; Spence, 2014; Winders and Le Heron, 2017). However, rather than seeing the ocean as existing in the coming together of diverse elements, we see these elements as emanating outward from and refracting from the ocean so that, in effect, they too *are* the ocean. In this sense, we remain true to our original formulation: thinking *through* and *from* the ocean's liquid materiality. At the same time, however, even as we maintain our focus on the ocean's specific material properties, we explore the diverse ways in which the ocean *exceeds* that materiality.

To develop this argument, the remainder of this paper proceeds in three sections. In the first – 'The ocean within' – we discuss how the ocean exceeds its liquid materiality through a 'wetness' that permeates *within* bodies that inhabit, constitute, and transcend the marine environment. In the second section – 'The ocean beyond' – we conceive of the ocean as a universal system and force that is *beyond* the liquid wetness that is typically assumed to be 'the ocean'. In the third section – 'The ocean imagined' – we consider the representational power of the ocean in excess. Here we consider how the ocean is existent in stories, dreams, and imaginings. Throughout, we draw upon a series of historic accounts, contemporary events, fictional stories, and poetry, asking how the sea transcends itself through its material form and capabilities, and its entwinement with and transformation to other elements. First, however, we begin by introducing the theoretical basis for this new approach: this more-than-wet ontology.

### **Towards a more-than-wet ontology**

We begin our exploration by returning to the work of Carl Schmitt, whose denigration of the ocean framed our initial exploration of a wet ontology (Steinberg and Peters, 2015). In our previous article, we strongly took issue with Schmitt's admonition that "on the waves there is nothing but waves" (2003: 43), problematizing waves' temporality, force, and material liquidity to propose a new way of thinking with the ocean's material presence. However, we also inadvertently reproduced Schmitt's division of the ocean from its elemental and material counterpoint: land. For Schmitt, the ocean is conceptualised as a space neatly bounded and bordered; distinct and set apart from the terrestrial sphere (Schmitt, 2014). Whether understood as devoid of meaning (the perspective of Schmitt; see also Barthes, 1972; Lévi-Strauss, 1973) or productive for upending epistemological norms (as we previously suggested), the ocean continues to be conceptualised as a closed off space, a vast basin of salt water that, as a distinct geo-physical entity, neither spills nor leaks into the starkly differentiated 'landed' spaces to which it is set in strong opposition.

But the ocean does spill and leak – and often in ways that are less obvious than the creeping or cascading of water across the land in the intertidal zone (cf. Ryan, 2012). Sea and land do not just meld in littoral space: the ocean exists far inshore, above ground, underground, in our senses, and as part of fantasy. The ocean is not an entity then; it is an *extension*. We argue below that it is extensive geographically, as a materiality that exists beyond the liquid, blue spaces on the map that are marked as ‘water’. But we argue as well that it is extensive metaphysically, in the way that philosophers, most notably Spinoza (1996 [1677]), refer to extension as the property of a substance that allows it to be sensed and known – a substance’s outward property – and that connects it with other substances with which it is in constant, mutual relation.

Thus, through the concept of extension (and the related concept of ‘excess’, discussed later in this work), we take the wet ontology beyond ‘the sea’, venturing deeper into its depths and into the molecules and objects that co-constitute the ocean’s watery environment. In our previous work, we argued that it was precisely the waves derided by Schmitt that make the ocean productive for enlivening our understandings of space, time, and motion. Here, we consider how the ocean might enliven such understandings in a somewhat different guise, unsettling our assumptions about the static ‘form’ of space and the apparent ‘reach’ of space including, and especially, in this instance, that of the sea. We thus present a way of thinking of the ocean and its presence beyond the sea’s watery volume, as a ‘more-than-wet’ phenomenon.

To be clear, in adopting the ‘more-than’ appellation we are neither pointing to a state of ocean that is *quantitatively wetter* than liquid ocean (an *ordinal* form of more-than-wetness) nor are we attempting to simply add new states and spaces to an oceanic essence (an *additive* form of more-than-wetness). Rather, with a nod to the “more than” of more-than-human studies, we turn to the ocean as a space, and a set of properties, that, on the one hand, exists in and of itself, as transformative and transformed material, but that, on the other hand, always exists in a broader universe of relations. The ocean thus *exceeds* its liquid form.

To elucidate this ontological approach further, we turn to a number of scholars whose work provides us with tools for understanding how the ocean exceeds its liquidity, both through elemental interdependence, interaction, and mutation *and* through its capacity to become tightly interwoven with ‘felt’ life that extends far beyond the liquid space of the sea. We begin our investigation by turning to Earth Systems Science (ESS). ESS, in basic terms, is an approach that seeks to consider the world as a ‘whole’ system – providing a holistic or

relational approach to thinking through planetary processes and practices that shape life and the environment (often over many millions of years). As Martin Ruzek explains,

At the highest level, the four basic elements of the Earth system can be represented as air (atmosphere), water (hydrosphere), land (geosphere), and life (biosphere). Missing in this representation is the critical context within which the Earth system operates: the solar system and galaxy beyond (sometimes referred to as the exosphere) ... The Earth system [then] is often represented [as these] interlinking and interacting "spheres" of processes and phenomena. (Ruzek, 2013: n.p.)

This idea of an open world of connected systems operates as a useful window for conceptualising the ocean as more than simply a distinct, bounded, liquid space. In an ESS approach, the ocean exists only in its connection to other elements, larger planetary processes, and broader, extraplanetary networks.

To use the water cycle as an example, water from the ocean (which constitutes approximately 97% of all water on Earth) is enfolded in a continual process of exchange, changing states between liquid and vapour when heated by the sun. When this occurs, liquid mutates; its molecular form loosens to enable a lightness as water moves from the hydrosphere to the atmosphere. Then, in the atmosphere, latent heat transforms vapour – air condenses to form clouds – resulting in precipitation. Seawater becomes rain or (depending on temperature) a solid such as hail or snow. Here the ‘ocean’ can re-enter the hydrosphere, but also the geosphere and biosphere. The ocean, carried through the water cycle, can seep into the land through rainfall or snowfall. The ocean extends itself as it infiltrates the terrestrial sphere, creating aquifers – large subterranean vaults of water held in the soaked, moist sand, soil, silt, and clay.

Human life is part of these wider, interconnected systems. For Tim Ingold (2008; 2011), there is no neat divide between the natural, physical properties of one component of the planet – in this case, the ocean – and the various forces that course through it, including the force of people. Ingold thus conceives of the world as a ‘meshwork’ (2011), where human life and planetary processes intersect along paths or lines (2007), creating entanglements between people and multiple environments. These entanglements facilitate a way of thinking about how we experience the world, and, in turn, how we understand the configuration of our world. The world is, in effect, tightly threaded together in what Anderson and Wylie describe as an ‘open system’ (2009: 328), where immaterialities (such as human experience,

understandings, dreams, desires) are “internal to, rather than in opposition to” the materialities to which they relate (2009: 328).

Drawing on Ingold’s notion of a meshwork, alongside ESS, we can begin to recognise how we are deeply entangled with the ocean, but in its multiple guises: in its liquid form *and* in extensions of that liquid form. And yet, the very power that both ESS and Ingold’s meshwork bring to ecological thinking – both individually and in combination with each other – also limits their utility for our effort to map a more-than-wet ontology of excess. Turning first to Earth Systems Science, ESS is fundamentally about macro-scale connections across processes: exchanges of energy and matter between air, water, land, and life. In its focus on processes, ESS leaves us with unanswered questions regarding how the entities that undergo exchange – from individual molecules to complex life forms – are transformed amidst this swirl of processes and how they, in turn, actively transform their environment. These transformations occur both through and against the acts of naming, stabilisation, bounding, abstraction, and commodification that facilitate the designation of resources (including water) and the generation and projection of power (Da Cunha, 2018; Linton, 2010; Steinberg, 2018). Additionally, in its holism, ESS deprives us of any reason for prioritising one ‘sphere’ (in this case, the hydrosphere) over the others, as a foundational entry point for conceiving the integrated earth system.

To address these gaps in the ESS perspective, we augment it with palaeontologists Dianna and Mark McMenamín’s theory of ‘Hypersea’ (McMenamin and McMenamín, 1996). Relying on fossil records and analysis of contemporary cellular structures, the McMenamíns explain the evolution of life on land by hypothesising a historic oceanic colonisation. As they describe, the life forms that developed amidst the fertile fluidity of the ocean eventually – and surprisingly – moved to the land (a space not obviously hospitable to early forms of life). In doing so, these organisms constructed connections between the intra- and inter-cellular fluid transfers that were essential for life and reproduction and the liquidity of the environment that existed beyond any single organism’s borders. In effect, land organisms constructed an ‘ocean’ beyond the hierarchies of scale as it is conventionally defined. For the McMenamíns, the foundation of life on land lies in organisms’ ability to reproduce and thrive in a global environment that is fundamentally oceanic in nature, even as its fluidity is superficially masked by a prevailing materiality of dryness. The McMenamíns’ ‘Hypersea’ is not the ocean as it is conventionally understood: a bounded, liquid space. Rather, in a manner that resonates with Astrida Neimanis’ (2017) more recent feminist provocation linking the openness of water with that of human and non-human bodies, the

McMenamin's Hypersea *exceeds* the chemical state of liquidity and the felt property of wetness, as it extends from the inner composition of organisms and bodies (what, below, we call 'the ocean within') to the universe where energy and matter are exchanged between the four 'spheres' (what, below, we call 'the ocean beyond'). Although a text of non-fiction, science writing, the McMenamin's thesis nonetheless re-vision/re-represents the ocean (in what, below, we lastly call 'the ocean imagined').

Returning to our 'more-than-wet' ontology, then, the Hypersea approach spurs us to think of the ocean not as an isolated physical entity in distinct opposition to the land but as a *state of the hydrosphere* that, both in its overall state and in the properties of its individual molecules, is perpetually in mutation and that is always exceeding the ocean's geographic boundaries. The ocean exists, then, as 'more-than' water. Contrary to Schmitt's (2014) admonition that it would be 'strange' to think of our world as a 'maritime globe', the Hypersea perspective teaches us that land, sea, and air, and the liminal spaces where they meet, are all extensions of the more-than-wet ocean. Although in our earlier work we approvingly quote William Langewiesche (2004) when he opines that "[g]eographically, [the sea] is not the exception to our planet, but by far its greatest defining feature ... our world is an ocean world" (cited in Steinberg and Peters, 2015: n.p), our world is also a 'more-than-ocean' world. The world is also extension: an ocean in excess.

But what precisely *is* excess? Ingold's (2008; 2011) configuration of a world of 'open bindings' – where it is impossible to see the seams where human and non-human worlds begin and end – attends to excess in the ways in which phenomena such as weather are not independent but are lived, felt, and internalised in the bodies of those experiencing them. His concept of the 'meshwork' provides a way of thinking that is alert to how people 'mesh' with the elements in ways that continually merge human experiences and physical processes – extending both experiences and processes beyond their traditionally configured limits. The world can then no longer be grasped as composed of discrete units of matter (earth, air, water, flesh) or formed through distinct processes (freeze/thaw, erosion/deposition, and so on).

However, Ingold's concept of the 'meshwork' is of limited use when we turn our attention to a space of 'excess' – when matter and form are understood as occupying 'more-than' their typical 'shape'. Instead we turn to Ben Anderson and John Wylie's keystone paper 'On Geography and Materiality' (2009) for further help in theorising the 'more-than' contention of our wet ontology. Building from Ingold, Anderson and Wylie provide a way of thinking of materiality – in our case, the liquid matter of the ocean – as that which "far exceeds any invocation of ground or physicality" (Anderson and Wylie, 2009: 319). Whilst



our previous discussion already departed from the notion of a solid, stable ground (Steinberg and Peters, 2015), a conceptualisation of the ocean as beyond its liquid physicality takes us further. For Anderson and Wylie, it is vital to conceive of matter in a “*thoroughly materialist way*” (2009: 319, emphasis in original), that is, to understand a substance such as water, such as the sea, in “multiplication”. As they state,

[m]ateriality is never apprehensible in just one state, nor is it static or inert. Materiality is not glue, binding and holding other, less material, things (social relations, cultural meanings) together.... materiality is always already scored across states (solid, liquid, gaseous) and elements (air, fire, water, earth). As such, as variously turbulent, interrogative, and excessive, materiality is perpetually beyond itself. (Anderson and Wylie, 2009: 323)

As a space that is ‘perpetually beyond itself’, the ocean is not ‘the ocean’ (or ‘the sea’, a sealed unit) but is already and always in excess. As a totality that exceeds its (wet) materiality, it is, to reference back to the McMinimans (1996), a ‘Hypersea’. This materiality of the ocean in excess meshes together with human life in such a way that embodied experience transcends liquid, ‘wet’ engagement. The ocean’s materiality is sensed through a concatenation of smell, sound, sight, and taste as well as touch, exceeding the unidimensional physical property of wetness.

### **The ocean within**

At the most basic, material level, the ocean exceeds wetness through its continual transformation in and out of liquid states, becoming solid (ice) and gas (vapour) in response to changes in ambient temperature (accompanied by associated changes in the speed of molecule movement and density). This, however, is just the starting point of oceanic excess. As the ocean exceeds itself and its liquidity, it becomes embodied, internalising itself within the subjects that constitute the marine environment. This is seen, most profoundly perhaps, in the metaphysical significance of the human body having almost precisely the same water content as the planet’s surface. Although not directly referencing the Hypersea hypothesis, author-journalist Carl Safina expresses a similar sentiment when he writes:

We are, in a sense, soft vessels of seawater. Seventy percent of our bodies is water, the same percentage that covers Earth's surface. We are wrapped around an ocean within. You can test this simply enough: Taste your tears. (Safina, 1997: 435)

Safina's reference to tears begins to suggest that the ocean within (our 'more-than-wet' condition) is at times accompanied by the pain of an adaptation that remains incomplete. This becomes apparent when we consider the condition of the human body amidst sea spray, which is formed by the ocean as water particles become airborne, contributing to clouds and thus forming a crucial link between ocean and atmosphere in the earth system. As this occurs and meshes with human life, the process of spray produces encounters with the ocean that, like the ocean itself, exceed water's liquidity. The body, when subject to spray can become more than just momentarily wet. It may become saturated, damp, and persistently moist – to the point that it feels *more-then-wet*. It becomes soaked. Here the ocean might extend further still as the body exudes signs of this engagement. The ocean emerges as welters on skin as it is beaten by the ocean's saltiness. The ocean transforms the body, just as the body transforms the ocean, through processes of incorporation and rejection.

These processes are illustrated in Yann Martel's (2001) *Life of Pi*, a tale of a fictional world at sea that relates the story of Pacific castaway Pi Patel. The book follows Pi's existence on a life raft following the demise of the ship *Tsimtsum*, which was voyaging from Pondicherry to Toronto, with his family and their zoo of animals (including a zebra, hyena, orang-utan, and a Bengal tiger). After days and nights subject to salt and spray, Pi records the impacts of his entanglements with the open ocean:

My clothes disintegrated, victims of the ... salt. First they became gauze-thin. Then they tore until only the seams were left. Lastly, the seams broke. For months I lived stark naked except for the whistle that dangled from my neck by a string. Salt-water boils - red, angry, disfiguring - were a leprosy of the high seas, transmitted by the water that soaked me. Where they burst, my skin was exceptionally sensitive; accidentally rubbing an open sore was so painful I would gasp and cry out. Naturally, these boils developed on the parts of my body that got the most wet and the most wear on the raft; that is, my backside. There were days when I could hardly find a position in which I could rest. Time and sunshine healed a sore, but the process was slow, and new boils appeared if I didn't stay dry. (Martel, 2001: 192)

For Pi, the experience of the ocean exceeds its form as a wet space. It is a space that – if possible – is more-than-wet; *appallingly wet*. Pi is saturated: soaked to the point at which his body carries the ocean *within*. The ocean is present beyond its liquid form as water surrounding the life raft. It is an extension in the pus of the boils it has produced, in the scars left as oceanic markers upon his body.

Like countless castaways before him, Pi's problem was that the ocean that surrounded him (and that ultimately shaped him) was simultaneously *too wet* and *not wet enough*. As in Samuel Taylor Coleridge's *The Rime of the Ancient Mariner*, there was "water, water, every where / Nor any drop to drink" (1834: n.p.). Pi's problem, though, was not just that seawater was too salty (and thus not drinkable) but also that the water in his midst had too much texture. It therefore clung to his body and his clothes, rather than serving as a medium for cleansing them. Today, a small number of municipalities address the first problem through desalination while households around the world address the second by applying surface tension-reducing detergents to the waters that cleanse one's clothes and one's bodies. Each of these processes makes water *geochemically* more-than-wet so that it also becomes *geographically* more-than-wet, exceeding the liquid spaces of our water world. But it also leads to the *body* becoming more-than-wet, a saturated component of the Hypersea that threads a continuum between the ocean environment and the liquidity of its constitutive organisms.

Although *Life of Pi* presents a particularly tactile entanglement between body and sea, the experience of becoming more-than-wet exceeds the sense of touch. Indeed, the full range of senses is deployed as the ocean transcends its elemental liquidity. Consider the ways in which the smell of a seawater environment permeates far inland. There is a science to the seemingly invisible movement of the sea to the dryness of land. Dimethyl sulphide (DMS) is a particular biospheric gas that is produced at sea when the product of single-cell phytoplankton organisms are broken-down and converted by bacteria. These gases are incredibly abundant (but occur more-so in some seas than others). They can be collected by winds that in turn carry the smell, and the sea it evokes, inshore (O'Connell, 2009). Often depending on the density of gas and the nature of the molecular compound, the sea can be carried miles inland. It is here that the olfactory system picks up the scent of the bacteria, translating the sea once more, to being *even-more-than-wet*, as physical particles become a cascade of emergent memories. It might be argued that when one smells the DMS produced by decaying marine phytoplankton one is not so much smelling the ocean as smelling objects *within* the ocean. Technically, that is true. To smell the ocean is to smell its constitutive

objects. From a phenomenological perspective, however, these elements *are* the ocean and their smells *are* the ocean's smells.

Sound provides a further example of the myriad ways in which we internalise the ocean in excess. Although the sound of the sea is most commonly associated with the crash of waves, it can extend far beyond physical, liquid oceanic matter itself. William Wordsworth (n.d.) describes this reach in his short poem detailing the wondrous binding of a child and the sea through the audio capacity of a shell, to unlock the sound of the ocean.

### The Sea Shell

A curious child, who dwelt upon a tract  
Of inland ground, applying to his ear  
The convolutions of a smooth-lipped shell;  
To which, in silence hushed, his very soul  
Listened intensely; and his countenance soon  
Brightened with joy; for murmurings from within  
Were heard, sonorous cadences! whereby  
To his belief, the monitor expressed  
Mysterious union with his native sea.  
Even in such a shell the Universe itself  
Is to the ear of Faith: and there are times,  
I doubt not, when to you it doth impart  
Authentic tidings of invisible things;  
Of ebb and flow and ever-during power;  
And central peace, subsisting at the heart  
Of endless agitation.

For Wordsworth, even those 'inland' might access the ocean (and in return, the ocean may reach them) as a shell is held to the ear. Together, the hollowness of the shell and the capacity of hearing produce the 'sonorous cadences' of the ocean. The rhythmic sound of advancing and retreating waves creates nothing short of a 'union' between boy and ocean in the poem. Although this sound is not the ocean as we know it – wet, liquid, visible matter – it *is* the ocean: a somehow 'authentic' yet 'invisible' manifestation of more-than-wet excess.

The sounds of seashells and the smells of phytoplankton notwithstanding, perhaps the sense most frequently employed for extending the ocean beyond the coastline and into our perceptions and livelihoods is that of taste. As Elspeth Probyn (2016) notes, even when we are far inland, the act of ‘eating the ocean’ connects the ‘foreign’ space of the ocean with the most intimate forms of corporeality. Tracing a ‘mercurial ocean’, for example, Probyn highlights how mercury “is taken up and transported by atmospheric and oceanic currents from artisanal mines in Asia, and transformed into methylmercury”, carrying the ramifications of an ocean of excess toxicity far in land, and also inside our bodies (Probyn, 2018). In respect of the taste of our oceans, global fish consumption has reached a record high and is continuing to grow. In 2015, human per capita consumption of fish (including crustaceans, molluscs, and other aquatic animals, but excluding mammals and reptiles) exceeded 20kg for the first time, and it has continued to rise since (FAO, 2018). The ocean thus reaches further and further beyond the shore, and beyond the water. Fish are farmed, fished, netted, caught. They are sold, processed, re-formed; marinated, crumbed, battered. The ocean reaches onto dinner plates and barbeques across the globe through the corporeal and embodied act of eating. The ocean *is* plant life. It *is* fish. The ocean is an ensemble of parts that are more-than just liquid matter (see Spence, 2014) and it is those things together, in a meshwork, that constitute the ocean.

However, in contemporary society our connection with the ocean through taste is diminished rather than enhanced, even as we eat more and more fish. Shaped and frozen sticks of seafood are separated from the ocean through processes linked to global-scale food production. As Robert Feagan has noted,

The geography of the modern food system reveals that, as food chains become stretched further and in more complex ways across space, we experience both the physical and psychological displacement of production and consumption ... The irony is that [we are] more connected than in any other age, yet simultaneously [more] alienated. (Feagan, 2007: 38; see also, Steinberg, 2008)

Indeed, the taste of fish is not always linked with the taste of the ocean and with the knowledge that fish are of the ocean itself. The ocean reaches out, but as it does so, the tether weakens. This is a troubling disconnect. As global consumption of seafood increases, overexploitation of the oceans occurs. Accordingly, whilst we can think of the ocean existing in excess of its watery qualities through the food it can supply, the ocean is also a space of

limits and finitude. It is necessary to think of the ocean as more-than-wet so as to not take it as an abstract set of coordinates within which resources can be found, but as a space of life that we must engage with sustainably and responsibly.

### **The ocean beyond**

As the fluidity of the ocean's taste, smell, sound, and feel illustrate, the very processes that permit the ocean to exist *within* our bodies also are associated with its extension *beyond* its characteristic liquidity. The ocean, then, can be *beyond* our expectations of traditional 'ocean-ness'. Indeed, beyond the ocean's physical boundaries the ocean is present as planetary processes and materialities that may not, at first glance, appear to be 'oceanic'. The ocean is present in artificial matter that is beyond the 'earthly' (such as plastic debris). The ocean transforms chemically through physical processes related to heating and cooling (as well as via chemical compounds that mix with it). It transforms via the objects that are suspended in its waters and that are spat-out on to beaches, promenades, marshes, water courses, and *beyond*.

This allows us to progress further the ways we might think of the ocean in excess; the ocean as 'Hypersea'. Returning momentarily to *Life of Pi*, if the sea water that Pi encountered was 'more-than-wet', then one might consider the material of sea ice to be the opposite: a 'less-than-wet' state of water as solid. Ice is not obviously 'ocean' in its material form; for instance, when covered by snow, sea ice is often indistinguishable from adjacent land. And yet, while sea ice lacks some of the material liquid properties typically associated with ocean, it is *not* an antithetical, land-like solid. Sea ice is not the 'opposite' of liquid water. Indeed, ontologically, as well as chemically and juridically, sea water retains many of the same properties when frozen, even if these properties are *experienced* differently. Historically, attempts to define the point in time and space when liquid ocean becomes sea ice has been highly contested, and frequently the 'divide' between frozen and liquid ocean has been moved for political purposes (Steinberg and Kristoffersen, 2017). Mapping the limits of sea ice is a challenge because both in the ways it is dynamic – in its dissolution and re-formation, through seasonal processes of melt and freezing as well as continual processes of brine rejection and pressurisation – and in the ways it is mobile – as bonded molecules of ice move on and through the ocean – sea ice encompasses many of the same properties as liquid ocean. However, sea ice achieves and expresses these properties through a different form of encounter. Thus sea ice too, may be thought of as ocean in excess.

In turning to the ways in which water exceeds its liquid form, we are reminded of Alok Jha's description of water as the "weirdest liquid on the planet" and as a substance that "bends all the rules" (2015, n.p.). Chemically, in a pure sense, water consists of two hydrogen atoms and one oxygen atom. Water changes state with alterations in temperature, its structure 'bending' so that H<sub>2</sub>O compounds hang together more tightly (with a drop in temperature) or more loosely (with a rise in temperature). This change in material physical form, or change in state – to ice, or to condensation – allows us to witness the ocean as 'beyond' itself (as described by Anderson and Wylie, 2009: 323). In this state of excess, relations with the ocean change for those who encounter it. Moreover, amidst this transformation, there is also a change in who or what encounters the ocean through its altered physical form and reach.

The example of Fridtjof Nansen, the Norwegian explorer, demonstrates how relations alter amidst the experience of an ocean in excess of any singular physical form. In the race for the 'terra' incognita of the North Pole at the end of the 19<sup>th</sup> century, Nansen led an expeditionary team on the vessel *Fram* to achieve this aim. It was a voyage that would not simply take the crew through hostile liquid seas, but through a material sea that appeared to be beyond the sea itself. It was a 'voyage' – by ship – through what was apparently 'land' – a mass of solid ice. The ship had long been a technology that connected the world with increased speed, in an age prior to the development of the airplane (Anim-Addo et al., 2014). It was a means of creating conduits that linked distanced lands, cutting through the oceans to bring land masses into touch for capitalist gain (see Steinberg, 2001), for scientific discovery (Sorrenson, 1996), and imperial rule (Law, 1986). Yet Nansen's voyage defied the 'typical' ocean-going journey through liquid seas. His was a voyage through a very different kind of ocean environment, and it required a different kind of maritime mobility.

When a ship is 'stuck in the doldrums' it is in a state of bobbing around a liquid sea with no wind – in other words, with no means to elementally proceed through such a fluid realm (see Peters, 2015). For Nansen, the ocean as ice created a different haptic and practical experience. Not stuck in the doldrums in a traditional sense, he and his crew were nonetheless stuck, or 'frozen in', with no elemental form other than the slow drift of pack ice to move them. They were reliant on the solid sea moving within a liquid sea current. They were reliant on an ocean of 'multiplication' (Anderson and Wylie, 2009: 323), where layers of ocean in excess to liquid were essential to movement. Thus, although "ice had previously been understood as a stable, unmoveable solid, rather than part of a motionful sea" (Peters, 2015: 167), Nansen's mode of navigation was premised on the understanding that ice was indeed ocean, but an ocean that was simultaneously present in multiple differing states.

This more-than-wet ocean – this solid-liquid, layered, slowly-moving ocean ‘beyond’ liquidity – was to generate sailing sensations that were radically different than those produced by the sea as supposedly undifferentiated ‘wet’ matter. Once adrift in the sea ice of the Arctic Ocean, Nansen’s journey was laboriously slow and characterised by boredom (Peters, 2015: 267). The style of this oceanic motion – on days barely even perceptible – was slow, sluggish, and unhurried. Nansen described this ‘dry’ ocean as one that he was literally ‘bound’ to, the *Fram* entangled deeply in the frozen ice (1897: 257). The style of movement in this sea of excess, this icy ocean, was depressing and disappointing for Nansen. This more-than-wet ocean altered senses of time for Nansen too, as day emerged into day amidst seemingly unchanging conditions. As Nansen noted in his diary,

Sunday, November 5th ... So it is Sunday once more. How the days drag past! ...  
Thought follows thought – you pick the whole to pieces, and it seems so small ...  
Why did you take this voyage? (Nansen, 1897: 260-263)

Nansen’s experiences alert us to how it is not only the ocean as ‘wet’ that can enable us to reconceptualise the workings of space, time, and motion. The sea as ‘more-than-wet’ presents a more radical realisation of the work of oceanic driven ontologies when the ocean is in excess. Here the space of the ocean is transformed as solid; time is slowed; motion is stilled and stilted.

As Nansen’s diary entry reveals, the frozen ocean is not a space without temporal or spatial differentiation (Schmitt’s (2014) admonition notwithstanding). However, the temporality of sea ice is neither the relative stability of the land nor the rhythmic and relatively rapid mobility of the liquid sea. Rather, the frozen sea has its own temporality, which, in turn, is incorporated in the temporalities and spatialities of those who inhabit and move across its surface. Since Nansen’s time, extensive research on Inuit movements on and with sea ice has revealed an attentiveness to the ways in which ice’s dynamism, in both time and in space, creates an ideal surface for travel (Aporta, 2011; Krupnik et al., 2010). Inuit ice trails account for the textures and variations that occur within ice, between ice and land, and between ice and water, both temporally and spatially (Aporta et al., n.d.). Indeed, a key argument made by northern indigenous peoples when denouncing the impacts of climate change is that a decline in sea ice will expose them to a different kind of sea that is less conducive to the linked mobilities of ice floes, humans, and prey that historically have sustained Arctic ecosystems and lifeways (Inuit Circumpolar Council, 2008).



Our point here then is not that sea ice is either more or less ‘wet’ than liquid ocean in an ordinal hierarchy. Rather, we hold that in a sea ice environment, as in the body, the ocean is present in excess, beyond a singular physical materiality. The ocean exists as a multiplicity of spatialities and states that exceed the liquid and that exceed liquid encounters alone. Put another way, if we argued in our original elaboration of a ‘wet ontology’ (Steinberg and Peters, 2015) that ‘wetness’ is about the ways in which static understandings of surface and underlying volume are complicated through attention to the tumultuous world of the ocean as configured of intersecting spatialities, materialities, and temporalities, then the discussion presented here adds a new dimension to this challenge. The example of sea ice, along with other material states of ocean-ness (sea spray, sea fog, and so on, as well as the tastes, smells, sounds, etc. that emerge from these various states), suggest that this challenge is posed not just by the ocean’s iconic presence as a volume of fluid liquid but also in the ways in which the ocean is *more than* this – as liquid, solid, and gas – and by how it is present within but also beyond the ocean’s typically conceived spatial boundaries and constitutive molecular entities.

Moreover, we may conceive of the ocean in ‘excess’ somewhat differently when we focus less on the changes of state of H<sub>2</sub>O and more on how the compound, in any state, is rarely ‘pure’. The mixing of ‘water’ with other elements and compounds means that ‘wet matter’ is always *more than* wet. Take sea water as a prime example. The liquid mass that is our oceans is not simply a chemical formula of H<sub>2</sub>O. It is almost always beyond this. It is most commonly a formula of hydrogen and oxygen mixed with (but not combined with) sodium chloride – NaCl – or salt. Salt is a solid, and dissolved in water it alters the structure of the liquid mass of ocean, making it more dense, altering the capacity of buoyancy and movement in the water. Returning to sea ice, an initial complication is that it is never simply a static mass of frozen salt water either. As sea ice forms, brine is rejected into the surrounding ocean, a process that continues long after the sea ice has formed so that the salinity of multi-year sea ice may approach that of fresh water. The ocean is in ‘excess’ of its saltwater character.

Yet the ocean does not simply consist of – and carry – elements and compounds in excess of its chemical material structure. It also carries with it and in turn transforms and leaks into artificial matter beyond the ‘earthly’. Discarded trash and remnants of shipwrecks (or plane wrecks) circulate the oceans following the force of currents. When beached, these items of flotsam and jetsam carry with them the oceans through which and with which they have journeyed. Seaweed is wrapped around rejected doors that wash up on shore (see

Sprackland, 2012). Barnacles are encrusted onto metals, and sea water drips from bottles. The detritus of the ocean, can be reconfigured as the ocean – an ocean articulated differently – beyond its chemical materiality to a more-than-planetary, artificial materiality. Consider, for instance, how fragments of sea glass or driftwood are displayed in maritime museums to evoke an apparent oceanic essence.

At a larger scale, the extension of the ocean beyond its characteristic designation as ‘water’ can be seen in the ways in which we encounter the detritus from wrecked shipping containers. Although the vast majority of shipping containers arrive safely at their destination, the World Shipping Council (2017) has calculated that on average 1,582 containers are lost at sea every year. Put another way, over four containers go overboard every day. One such incident occurred in 1997 when the *MV Tokio Express* was caught in storm conditions off the coast of Lands’ End, England. In an unmistakably wet, liquid, motionful sea, the vessel tilted dangerously at angles that caused it to shed 61 of its containers, tipping the giant, metal boxes deep into the ocean. Following the spillage of cargo, items from the containers began to wash ashore. In the coastal town of Perranporth, on the northern coast of Cornwall, local residents began to find pieces of Lego on their beaches. More Lego appeared than could be explained by a child leaving behind a toy after a family day out. The Lego was, ironically, of a certain theme, consisting of divers’ flippers, octopuses, rigging nets, scuba equipment, and so on. The Lego was the load of the *Tokio Express*. The goods carried had not just sunk with the weight of the containers that held them. Pieces escaped. Light enough to float, they began to travel with the movements of the ocean, becoming *part* of the ocean. Lego washed up not only at Perranporth, but worldwide. Pieces linked to the *Tokio Express* were to be found on beaches in Melbourne, Australia, and Galveston, Texas, USA.

In respect of the washed up Lego, the oceanographer Curtis Ebbesmeyer remarked,

...those pieces could have drifted 62,000 miles ... It's 24,000 miles around the equator, meaning they could be on any beach on earth. Theoretically, the pieces of Lego could keep going around the ocean for centuries ... The incident is a perfect example of how even when inside a steel container, sunken items don't stay sunken. They can be carried around the world, seemingly randomly, but subject to the planet's currents and tides. (Ebbesmeyer, as quoted by Cacciottolo, 2014: n.p.)

Through the properties of the ocean – its ability to hold, contain, move, *subsume* – the ocean exceeds its characteristic liquidity: it is beyond liquid. This ‘plastic ocean’ was mutated, in excess of its ‘wet’ matter alone, when constituted of such other non-human, non-lively matter. It is not enough, then, to say that the Lego pieces were *deposited* by the ocean; in fact the Lego *was* the ocean, reproducing traces of a liquid ocean once ‘there’ but now ‘gone’. The Lego in Perranporth appeared in heaped collections and in lines, reflecting the ocean’s ebb and flow on the shoreline and connecting the views of land-based beachwalkers with the waters beyond the horizon, and with ocean events that had occurred years earlier. The ocean remained ashore even in its retreat, in coastal dwellers’ memories of the past and in their imaginations of the future.

### **The ocean imagined**

The ‘within’ and ‘beyond’ in the examples above are not discrete but are themselves connected. Nansen’s voyage on an ocean beyond liquid was experienced deep within his being. Pi’s embodied experience of more-than-wetness was dependent on water being recombined with salt and energised as spray. Yet in these and other examples that we elaborate above, there remains a tenable link to the sea as a *physical* space. Smells derive from the biological properties of the ocean and the winds that carry with them oceanic gases. Taste can be traced often to the fruits of the ocean itself.

The physicality of the ocean notwithstanding, the reach of the sea can extend beyond the ‘actual’ liveliness of the sea and its natural properties and capacities. In previous writings, we have shied away from the reduction of the sea to nothing more than a metaphor or representation (see particularly Steinberg, 2013; see also Blum, 2010; Helmreich, 2011; Serres, 1996). Indeed, many writings dilute the sea, utilising it as a vehicle to make sense of socio-spatial, embodied, and political experience – in turn reducing the actual ocean to an abstraction (see Gilroy, 1993; Irigaray, 1993). However, as Michel Serres notes, the ocean is “not a matter of phenomenology [but] a matter of being itself” (1996: 13), a volume of vibrant matter that is enlivened and made forceful through its relation with human life (Bennet, 2010; Whatmore, 2006).

That said, the sea’s physicality extends beyond the material, reaching past its geophysical boundaries to facilitate imaginative transformation. As philosopher Hans Blumenberg (1997) notes in his essay *Shipwreck with Spectator*, the power of the marine metaphor lies not just in the ways in which it encompasses a ‘foreign’ space (the ocean) or the encounter with it (the shipwreck) but also in how it places and displaces the outsider who

looks in, seeking both to voyage and to return home (the spectator). In Blumenberg's work, and in literature more generally, the ocean extends beyond its borders not just in elemental mutation (as in the previous examples of smell, sound, and taste) but as representation. The view of the ocean, and the use of the ocean as a metaphor, contains images of distancing from a (dangerous or liberating) oceanic other, but it also brings the ocean into our land-based lives.

For instance, in *The Land as Viewed from the Sea* (2005) author Richard Collins evokes the waters of Cardigan Bay, adjacent to the shore of Aberystwyth, Wales. The tale – a dark, complicated love story that traces the meeting and parting of a couple in the seaside town – generates for the reader a representation of the ocean itself, weaving into this the use of the ocean as metaphor also. On the one hand, the physical ocean reaches from the pages through Collins' rich exploration of sailing along the coastline. The reader can feel the movement of the boat through the pages and through the protagonist's narrative. Yet the ocean is also evident as metaphor. The struggle of maintaining the boat against the elements comes to stand for the struggle of the characters against the forces threatening their relationship. The ocean as stormy mirrors the tempestuous nature of their union. The ocean as glittering calm comes to represent the opposite.

Books such as this (and countless others, too extensive to list here) are a significant way in which the ocean is 'more-than-wet', its reach facilitated by its presence as more-than-water. These representations of the ocean and the ocean's use as metaphor, like the material examples elaborated on above, extend the reach of the ocean beyond its liquid form. The ocean as imagination may be no less forceful than the stubbornly material sea. Collins' *The Land as Viewed from the Sea* is still able to generate a range of embodied sensations driven through ocean engagement. As the final scenes of the story unfold, a tragic realisation and deep heartache is felt by the reader as the darkness and loneliness on the small boat enfolds both protagonist and audience, generated by the demise of the sanity of the character, in unification with the demise of conditions at sea.

The power of the marine metaphor and, more broadly, the ocean imagined, becomes particularly significant as we consider the political implications of our 'more-than-wet' perspective. The ocean's significance lies not just in how it enables inexpensive transportation, regulates global climate, sustains livelihoods, facilitates interactions, and anchors cultures. It also charges and complicates desires through its promise of an encounter that can never be fully realised: an encounter, and an embodiment, that is simultaneously about its characteristic wetness *and* about so much more. Hypersea, as we have noted, exists

in a cacophony of scales and objects (an ocean of excess) that, to some extent, can *only* be understood through recourse to the imagination. As such, by relying on our understanding of the ocean in all its complexity to connect the biological, the material, the environmental, and the atmospheric, we nourish an imagination that destabilises not just our fantasies of stable, place-based land but also the counter-fantasy of a repetitive, rhythmic, dynamically liquid ocean of flows. Imagining a more-than-wet ontology forces us to confront the realities that permeate a relational world of material and subjective co-constitution. It also forces us to confront the limit of analytic prose to describing such a destabilising ontology, a limit that we confront here only indirectly, through our consideration of oceanic inscriptions on bodies and beaches and in poems and diaries, but that we take on more directly in the multiple formats of our original ‘wet ontology’ trilogy (Peters and Steinberg, 2014, 2015; Steinberg and Peters, 2015).

### **The ocean in excess**

In this paper we have built upon previous assertions that the ocean provides a fertile environment for reconceptualising understandings of space, time, movement, and, connectedly, our experiences of being in this transformative and mobile world. The ‘wet ontology’ perspective developed in our earlier work contended that it is the very liquid quality of the ocean that enables us to ‘unearth’ static and bounded ways of thinking about our world. Here, however we have contended that the ‘wet ontology’ perspective – our use of the ocean for thinking geographically – remains incomplete. In this paper we have taken this approach one stage further, opening up new frames of thinking about spatial experience that derive from an ontology that builds on the character of the sea as a *more-than-wet* space. The ocean within, the ocean beyond, the material ocean, and the signifieds to which we connect all of these oceanic signifiers (the ‘imagined ocean’) become melded as one: a Hypersea, an ocean in excess, that transcends conventional distinctions between experience, perception, and environment; between ontology, epistemology, and phenomenology. We have thus written this paper to spur thinking about how the elemental changeability of the ocean, and its extended physical reach, can help us to understand the complex interplay of elements and spaces that are embodied in ever-shifting, socio-spatial experience.

As Mike Brown and Barbara Humberstone note, “diverse approaches to writing *about* or *of* the sea shape the way we engage with the sea and of our relationship with it” (2015: 1). We concur, but we argue that these diverse approaches shape how we engage and make sense not just of that sea but also of our much larger ocean-world. This larger ocean-world, or

Hypersea, shapes and is shaped not just by our perceptions of water, but by the ways in which the hydrosphere extends outward, far beyond the geographic or material limits of the liquid ocean. And it traces the Hypersea as it extends inward, to our very being.

By extending previous work on a ‘wet ontology’ to include the ocean as ‘felt’, to appreciate its numerous state changes and ‘impurities’, and to consider the ways in which the ocean is not *connected* but rather *extends* in excess, far landward of its shores, we offer a perspective, not as an answer but as a provocation. For if, as we previously contended, a ‘wet ontology’ offers “a way of thinking about the world that comes from a wet, watery perspective” for opening “new frames for thinking geographically” (Peters and Steinberg, 2015: n.p.), then a *more-than-wet* perspective offers further frontiers for understanding a world beyond the static simplicity of landed place.

### **Acknowledgments**

This paper was workshopped at the Seascapes conference organised by the University of Waikato’s Wilf Malcolm Institute of Educational Research (Hamilton, New Zealand) and the Oceanic Ecologies and Imaginaries conference organised by the University of California Humanities Research Institute (Irvine, California). We are grateful to Mike Brown and Elizabeth DeLoughrey for organising these two pathbreaking gatherings, as well as to fellow workshop participants who provided critical input. Thanks also to Rob Kitchin and *Dialogues in Human Geography* for organising the Royal Geographical Society meeting plenary where we presented this paper, and to all those who attended the session including, especially, the respondents whose comments appear here.

### **References**

- Anderson B and Wylie J (2009) On geography and materiality. *Environment and Planning A* 41(2): 318-335.
- Anderson J (2012) Relational places: the surfed wave as assemblage and convergence. *Environment and Planning D: Society & Space* 30(4): 570-587.
- Anim-Addo A, Hasty W and Peters K (2014) The mobilities of ships and shipped mobilities. *Mobilities* 9(3): 337-349.
- Aporta C (2011) Shifting perspectives on shifting ice: documenting and representing Inuit uses of sea ice. *The Canadian Geographer* 55(1): 6-19.

- Aporta C, Bravo M and Fraser T (n.d.) Pan-Inuit trails at <http://paninuittrails.org> (accessed 8 August 2018).
- Barthes R (1972) [1957] *Mythologies*. London: Paladin.
- Bear C (2017) Assembling ocean life. *Dialogues in Human Geography* 7(1): 27-31.
- Bennett J (2010) *Vibrant Matter: A Political Ecology of Things*. Durham NC: Duke University Press.
- Blum H (2010) The prospect of oceanic studies. *Proceedings of the Modern Language Association* 125(3): 670-677.
- Blumenberg H (1997) [1979] *Shipwreck with Spectator: Paradigm of a Metaphor for Existence*. Cambridge, MA: MIT Press.
- Brown M and Humberstone B (2015) Introduction. In: Brown M and Humberstone B (eds) *Seascapes: Shaped by the Sea*. Ashgate: Farnham, pp. 1-11.
- Cacciottolo M (2014) The Cornish beaches where Lego keeps washing up. *BBC*, 21 July. Available on the BBC website <http://www.bbc.co.uk/news/magazine-28367198> (accessed 8 August 2018).
- Clark N (2010) *Inhuman Nature: Sociable Life on a Dynamic Planet*. Thousand Oaks, CA: Sage.
- Coleridge ST (1834) *The Rime of the Ancient Mariner*. Available on the website of the Poetry Foundation, <https://www.poetryfoundation.org/poems/43997/the-rime-of-the-ancient-mariner-text-of-1834> (accessed 8 August 2018).
- Collins R (2005) *The Land as Viewed from the Sea*. London: Seren.
- Da Cunha D (2018) *The Invention of Rivers: Alexander's Eye and Ganga's Descent*. Philadelphia: University of Pennsylvania Press.
- FAO (2018) *The State of World Fisheries and Aquaculture 2018: Meeting the Sustainable Development Goals*. Rome: Food and Agriculture Organization of the United Nations.
- Feagan R (2007) The place of food: mapping out the 'local' in local food systems. *Progress in Human Geography* 31(1): 23-42.
- Gilroy P (1993) *The Black Atlantic*. London: Verso.
- Helmreich S (2011) Nature/culture/seawater. *American Anthropologist* 113(1): 132-144.
- Ingold T (2007) *Lines: A Brief History*. London: Routledge.
- Ingold T (2008) Bindings against boundaries: entanglements of life in an open world. *Environment and Planning A* 40(8): 1796 – 1810.

- Ingold T (2011) *Being Alive*. London: Routledge.
- Inuit Circumpolar Council (2008) *The Sea Ice is Our Highway: An Inuit Perspective on Transportation in the Arctic*. Ottawa: ICC-Canada.
- Irigaray L (1993) [1980] *Marine Lover of Friedrich Nietzsche*. New York: Columbia University Press.
- Jha A (2015) Water: the weirdest liquid on the planet. *The Guardian*, 11 May. Available on the Guardian website, <https://www.theguardian.com/global/2015/may/11/water-weirdest-liquid-planet-scientists-h2o-ice-firefighters> (accessed 8 August 2018).
- Krupnik I, Aporta C, Gearheard S, Laidler GJ and Holm LK (2010) *Siku: Knowing our Ice: Documenting Inuit Sea Ice Knowledge and Use*. Berlin: Springer.
- Langewiesche W (2004) *The Outlaw Sea: Chaos and Crime on the World's Oceans*. London: Granta.
- Law J (1986) On the methods of long-distance control: vessels, navigation and the Portuguese route to India. In: J Law (ed) *Power, Action and Belief: A New Sociology of Knowledge?* London: Routledge, pp.234-263.
- Lévi-Strauss C (1973) [1955] *Tristes Tropiques*. London: Jonathan Cape.
- Linton J (2010) *What Is Water? The History of a Modern Abstraction*. Vancouver: University of British Columbia Press.
- Martel Y (2001) *Life of Pi*. Orlando, FL: Harvest.
- McMenamin D and McMenamin M (1996) *Hypersea: Life on Land*. New York: Columbia University Press.
- Nansen F (1897) *Farthest North: The Voyage of the 'Fram', 1893-96, Volume 1*. Westminster: Constable & Co.
- Neimanis A (2017) *Bodies of Water: Posthuman Feminist Phenomenology*. London: Bloomsbury.
- Nicolson A (2004) *Seamanship: A Voyage Along the Wild Coasts of the British Isles*. New York: HarperCollins.
- O'Connell S (2009) The science behind that fresh seaside smell. Available on the Telegraph website, <http://www.telegraph.co.uk/news/science/6044238/The-science-behind-that-fresh-seaside-smell.html> (accessed 8 August 2018).
- Peters K (2015) Drifting: towards mobilities at sea. *Transactions of the Institute of British Geographers* 40(2): 262-272.
- Peters K and Brown M (2017) Writing with the sea: reflections on in/experienced encounters with ocean space. *cultural geographies* 24(4): 617-624.



- Peters K and Steinberg P (2014) Volume and vision: toward a wet ontology. *Harvard Design Magazine* 39: 124-129.
- Peters K and Steinberg P (2015) A wet world: rethinking place, territory, and time. Available on the Society & Space website, <http://societyandspace.org/2015/04/27/a-wet-world-rethinking-place-territory-and-time-kimberley-peters-and-philip-steinberg> (accessed 8 August 2018).
- Probyn E (2016) *Eating the Ocean*. Durham, NC: Duke University Press.
- Probyn E (2018) The ocean returns: Mapping a mercurial Anthropocean. *Social Science Information* 57(3): 386-402.
- Ruzek M (2013) Earth system science in a nutshell. Available on the Starting Point website, <http://serc.carleton.edu/introgeo/earthsystem/nutshell/index.html> (accessed 8 August 2018).
- Ryan A (2012) *Where Land Meets Sea: Coastal Explorations of Landscape, Representation and Spatial Experience*. Farnham, UK: Ashgate.
- Safina C (1997) *Song for the Blue Ocean: Encounters Along the World's Coasts and Beneath the Seas*. New York: Henry Holt.
- Schmitt C (2003) [1950] *The Nomos of the Earth in the International Law of the Jus Publicum Europaeum*. New York: Telos.
- Schmitt C (2014) [1942] *Land and Sea*. Available on the Counter-Currents website, <http://www.counter-currents.com/2011/03/carl-schmitts-land-sea-part-1/> (accessed 8 August 2018).
- Serres M (1996) [1982] *Genesis*. Ann Arbor: University of Michigan Press.
- Sorrenson R (1996) The ship as a scientific instrument in the eighteenth century. *Osiris* 11(1): 221-236.
- Spence E (2014) Towards a more-than-sea geography: exploring the relational geographies of superrich mobility between sea, superyacht and shore in the Côte d'Azur. *Area* 46(2): 203-209.
- Spinoza B de (1996 [1677]) *Ethics*, E Curley (trans). London: Penguin Classics.
- Sprackland J (2012) *Strands: A Year of Discoveries on the Beach*. London: Vintage.
- Steinberg P (2001) *The Social Construction of the Ocean*. Cambridge: Cambridge University Press.
- Steinberg P (2008) It's so easy being green: overuse, underexposure, and the marine environmentalist consensus. *Geography Compass* 2(6): 2080-2096.
- Steinberg P (2013) Of other seas: metaphors and materialities in maritime regions. *Atlantic*

*Studies* 10(2): 156-169.

Steinberg, P (2018) The power of water. In: M Coleman and J Agnew (eds) *Handbook on the Geographies of Power*. Cheltenham, UK: Edward Elgar, pp.217-228.

Steinberg P and Kristoffersen B (2017) “The ice edge is lost...nature moved it”: mapping ice as state practice in the Canadian and Norwegian North. *Transactions of the Institute of British Geographers* 42(4): 624-641.

Steinberg P, Kristoffersen B, and Shake K (2020) Edges and flows: exploring legal materialities and biophysical politics of sea ice. In: I Braverman and ER Johnson (eds) *Blue Legalities: The Life and Laws of the Sea*. Durham, NC: Duke University Press.

Steinberg P and Peters K (2015) Wet ontologies, fluid spaces: giving depth to volume through oceanic thinking. *Environment and Planning D: Society and Space* 33(2): 247-264.

Whatmore S (2006) Materialist returns: practising cultural geography in and for a more-than-human world. *Cultural Geographies* 13(4): 600-609.

Winder GM and Le Heron R (2017) Assembling a Blue Economy moment? Geographic engagement with globalizing biological-economic relations in multi-use environments. *Dialogues in Human Geography* 7(1): 3-26.

Wordsworth W (n.d.) *The Sea Shell*. Available on the Bartleby website, <https://www.bartleby.com/360/5/306.html> (accessed 8 August 2018).

World Shipping Council (2017) *Containers Lost at Sea: 2017 Update*, [http://www.worldshipping.org/industry-issues/safety/Containers\\_Lost\\_at\\_Sea\\_-\\_2017\\_Update\\_FINAL\\_July\\_10.pdf](http://www.worldshipping.org/industry-issues/safety/Containers_Lost_at_Sea_-_2017_Update_FINAL_July_10.pdf) (accessed 2 June 2019).