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## REGULAR PAPER



# Becoming an island: Making connections and places through waste mobilities

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Islands, long portrayed in the Western imaginary as remote, static, and bounded entities, have increasingly come to be viewed as places constantly in the making: as connected sites formed by complex and shifting relations and assemblages of people and things. This paper considers the role that waste plays in this process through exploration of how discarded and unwanted matter decays, moves, and comes to rest in relation to a small island in the Maldives. It shows how thinking about the island through waste and its circulation via the actions of human and non-human agents reveals the ways in which the island is constituted and connected to other places. The paper also examines people's daily, practical engagements with the island's waste, and how these ongoing interactions and encounters shape the ways in which the island is being made, materially and aesthetically. In these ways, we show how thinking through waste contributes to how we understand place-making and specifically to the making of islandness.

## KEYWORDS

connections, islandness, Maldives, mobilities, place-making, waste

## 1 | INTRODUCTION

This paper examines the role that waste plays in an island's process of becoming. In recent decades, critical social theory – including in Geography – has increasingly viewed “existence,” not as a world constituted by static bodies bounded in time and space, but in terms of intermediateness, connectivity, and emergence (Weinbaum, 2015). As such, islands, long portrayed in the Western imaginary as remote, static entities – disconnected pieces of land bounded and confined by surrounding waters – have progressively been viewed as places connected by the movements of people, ships, and trade, joined together through complex and shifting relations and assemblages (Pugh, 2016). These “cross-currents and connections” create island spaces that are inter-related, mutually constituted, and co-constructed (Stratford et al., 2011, p. 125), always in production and coming into being. Moreover, the borders of islands, rather than being viewed as fixed, are instead seen as permeable and constantly shifting, depending on the winds, currents, and tides, and a range of human activities (Beer, 2003).

While such ideas concerning the making of island places are now relatively well established, little scholarly consideration has been given to the role that waste plays in this process. Waste, as discarded or unwanted matter that is “out-of-place” and “out-of-time” (Viney, 2015), is commonly recognised as unsightly and problematic, a pre-defined category of matter that has outlived its usefulness to people. In this paper, while recognising the problematic nature of waste, and its

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troublesome capacity to linger and to haunt places, our main concern is to attend to waste's materialities and movements, the connections that it makes as it travels, and people's regularised engagements with it (Pétursdóttir, 2019).

These are important considerations given the significance of waste to the geographical focus of the paper, the Maldives, an archipelagic country located in the Indian Ocean. The Maldives consists of about 1,200 coral reef islands, of which around 200 are “inhabited” and a further 130 “uninhabited” islands are locations for holiday resorts. The country is well known as a high-end destination for international tourists and has been identified as a country that is highly vulnerable to climate change and sea-level rise (CDKN, 2014). It also faces a series of ongoing political, economic, and social challenges as well as environmental problems regarding waste generation and management (Debattista, 2017). Indeed, the Maldives has recently been subject to negative international publicity concerning the now infamous Thilafushi, or “rubbish island,” a large artificial island created as a landfill situated to the west of the country's capital, Malé. There is also growing scientific and public awareness nationally about the seemingly relentless accumulation of waste materials, especially plastics, along the country's shorelines. These issues have pushed problems of waste and its management up the national political agenda in the past five years.

With these issues in mind, we consider the waste that is present on a beach on a small Maldivian island, as well as how it moves to, from, within, and beyond the island. We examine how waste is always changing and the human and non-human agents that are ceaselessly involved in its circulation. We consider how a multitude of forms of waste come to mingle on a shoreline, creating connections such that a single island-based encounter extends beyond a particular space and time (Phillips, 2017). Additionally, we are concerned with people's daily engagements with waste, as islandness is made through everyday practice (Vannini & Taggart, 2012). As such, we reveal the often unacknowledged human and non-human interactions with these materials that are perceived as being “out-of-place.” Such interactions include the toing and froing of the waves that deposit unwanted, lost matter onto the shoreline, and the periodic actions of micro- and macro-fauna that act to break it down. Humans and non-humans thus act on waste in temporal patterns or “taskscape” (Ingold, 2000) that connect with the rhythms of daily life, forming an essential part of the island's coming into being.

This paper is structured as follows. The next section explains the local context in which the research was carried out and the methods employed to reveal the significance of waste in making islandness. Section 3 brings together the literature on becoming, islandness, and connectivity with the literature on waste to show how discarded and lost matter comprises part of an island's physical constitution, its inhabitants' sense of place in the world, and their practical, everyday engagements. In examining the agencies and affordances of waste in this manner, it is not our intention to make any particular judgements about waste, the places containing discarded matter, or about those who generate, receive, and live with it. Neither are we trying to be idealistic about waste. Rather, we suggest that thinking through waste can contribute to how we understand the making of an island.

## 2 | LOCATING THE ISLAND: EXPLAINING THE RESEARCH APPROACH

To explore the dynamics of waste, we carried out empirical work on a small island in the Maldives, located in North Malé atoll, about 45 min by speedboat from the capital, Malé. Although the Maldives exhibits a high degree of human development (UNDP, 2018), much of the country's wealth is based on tourism, which is subject to the vagaries of changing demographics and tastes, as well as shifts in the global economy. Levels of inequality are high, especially between Malé and islands located away from the capital. In recent years, the government has attempted to address economic inequality through the “democratisation” of its tourism sector (Scheyvens, 2011). By law, resorts were only allowed to be established on uninhabited islands. Since 2009, however, the government has permitted the development of small guesthouses on inhabited islands. There are now around 460 such establishments, providing some 8,000 beds per night, and this number is rapidly increasing. While guesthouse development is generally supported by local residents as a source of employment and income generation, the presence of foreign tourists on inhabited islands has caused some concerns, particularly in relation to the way that Western (female) tourists dress (Shakeela & Weaver, 2018). For this reason, most island councils have designated certain sections of their coastline as a “bikini beach” in an effort to separate international tourists from the local population.

These changes and challenges are evident on the island where the empirical work for this paper took place. The island is approximately one kilometre in length and about 280 metres in width at its widest point, while the newly constructed harbour and industrial area extend another 250 metres eastward, jutting out into the barrier reef. The island's population is around 1,300 people, the majority of whom are employed in the tourist sector, although skipjack tuna fishing is also an important source of income. Some of the island's residents are employed in the international resort that is located on a nearby separate island, 300 metres to the north. However, the guesthouse industry on the inhabited island is expanding

rapidly, with a total of 11 establishments constructed, and another seven being planned or under construction. As a result, local guesthouses, rather than resorts, now represent the most important source of employment on the island. The section of the beach that forms the focus of this paper is situated on the entire length of the island's western side. The northern and southern extremities of this beach are designated tourist areas, whereas its middle portion is predominantly used by the local population for recreation and fishing, although there is also some guesthouse development occurring here.

On this island, as on other Maldivian islands, the production and appearance of waste takes multiple forms and follows many routes. There is the waste produced on the island by the local population, as part of everyday activities, and by temporary inhabitants, such as tourists, who introduce a range of unwanted materials. There is also waste that is generated from beyond the island, from other islands or passing ships, which is then washed up onto the shoreline. While resorts are particularly keen to maintain clean beaches for their high-paying guests and have the resources to undertake litter pick-ups on a daily basis (Kothari & Arnall, 2017), this activity occurs much less regularly on inhabited islands (Mohee et al., 2015). For this reason, it is not unusual for large quantities of waste to accumulate on the shorelines of inhabited islands.

Four separate trips were undertaken at different times of the year from 2017 to 2019 during which we “got to know” the island, the beach, and its waste. This process involved walking and talking, witnessing and encountering, and identifying and uncovering waste. We spent time with the island's inhabitants as they worked, played, and rested, and as they picked up, moved, inspected, talked about, and ignored waste. In total, we interviewed 25 people living on the island, including council leaders, fisherfolk, guesthouse owners and workers, Bangladeshi migrant workers, and volunteer waste collectors. This provided us with a variety of views and perspectives on the appearance, disappearance, and clean-up of waste. We spent time at waste management centres, rubbish tips that were perpetually burning, and landfill sites that were half-buried in the island's coral sand. We walked along the island's perimeter on numerous occasions, observing and recording where waste was being washed ashore, where it was accumulating, and whether it was being moved, removed, or subject to human management. We accompanied waste collection teams as they moved across the island, stopping house by house to collect household refuse. We travelled to Thilafushi, to uninhabited sandbanks to witness the accumulation of waste, and to resorts to discuss their waste management practices and challenges.

Through these activities, we gained a detailed picture of how waste moved, settled, and decomposed, how it connected the island to other places, and how people interacted with it, and thus an understanding of how waste is inextricably part of the island's process of becoming. We wanted to know not just what kinds of waste were present on the island, and how they moved, but also what the waste looked, smelled, sounded, and felt like as it washed ashore and back out to sea, and as it was collected, transported, sorted, and burned. While providing less quantitative information on flows and types of waste than would be provided by more traditional “inventory”-style approaches, our methodological approach allowed us to “attune ourselves” to waste (Campbell, 2016), to gain insights into its relational, situational character, as well as what island inhabitants thought and felt about its appearance and presence in their environment.

### 3 | BECOMING AN ISLAND THROUGH WASTE

In this section we bring together understandings of seascapes and landscapes to study the role that waste plays in making island places.

#### 3.1 | Becoming, islandness, and connectivity

According to Steinberg and Chapman, “a dominant theme – perhaps *the* dominant theme – in critical social theory over the past decades has been the continual questioning of a world in which fixed and stable entities interact with each other in social, political, economic, and cultural practice” (2009, p. 283). Instead, existence has increasingly been viewed as a process of becoming, whereby change, heterogeneity, and novelty are seen as the norm while static, transcendent essences are seen as secondary (Weinbaum, 2015). Such an ontology seeks to replace notions of being, separation, and locatedness with those of becoming, connection, and betweenness. For example, with regard to the geographical exploration of space, Massey (2005) suggests that we abandon it as a “stabilizing dimension that exists independent of, and in opposition to, time and instead conceive of spaces as inseparable from the processes that continually occur in and produce space” (Steinberg & Chapman, 2009, p. 283).

This ontological shift is reflected in recent work on islands and islandness but has a longer postcolonial history. Authors, poets, playwrights, and academics from islands in the “Global South,” such as Kincaid (1988), Walcott (1992), and Hau'ofa (1994), argued against colonial perceptions that portrayed their islands as inward-looking and instead revealed their historical and geographical connectedness. Moreover, the relational turn in island studies has existed outside of

“mainstream” academic debates, including those in Geography, for some time now. For example, journals such as *Island Studies* and *Shima*, and academics such as DeLoughrey (2011), Baldacchino (2004), Pugh (2013), and Hayward (2012), have long promoted these ideas in ways that have only recently become commonplace. Thus, while islands in the Western imaginary have traditionally been seen as isolated and remote, representing an insular, slow, and unchanging world, it is now widely accepted that they have long been connected through innumerable links forged through movements. Rather than being isolated, immutable, and homogenous places, islands are commonly “animated by enhanced mobility at different scales” (Bernardie-Tahir & Schmoll, 2014, p. 44). As such, they encompass, and are shaped by, “both the large-scale movements of people, objects, capital and information across the world, as well as the more local processes of daily transportation, movement through public space and the travel of material things within everyday life” (Hannam et al., 2006, p. 1). These ideas have led Bernardie-Tahir and Schmoll to examine “movement (vs. immobility) and articulation of scales (vs. isolation)” (2014, p. 44) to characterise small islands and island societies. In these ways, islands, from their tides and currents to the coming and going of their ferries and dwellers, never cease to move, and it is these movements and the encounters forged through them that make up what an island is and how it is sensed. Mobility, then, is the basis for an island's existence as this occurs only in its continual reconstruction through flows of connectivity (Steinberg, 2013).

In addition to emphasising connectedness, recent scholarship has viewed islands as embedded within complex, dynamic, and multi-relational systems, the products of unstable and shifting assemblages (Pugh, 2013). In this sense, the collections of buildings, land-use patterns and arteries of communication that make up an island cannot emerge fully formed out of nothingness and stop, grow rigid, indelibly etched in the once natural landscape, but rather should be viewed as a constantly becoming human and non-human product (Pred, 1984). Thus, islands are interconnected sites within circulatory frameworks “that are lived, practiced and structured through patterns of human and non-human mobilities”; islands “exist not in space but as nodes in a matrix of movement” (Ingold, 2000, p. 219).

These insights into connectivity and situatedness have implications for how we view an island's edge, which has become central to constructions of islandness (Hay, 2006). Islands do have a certain spatial boundedness and finiteness to them (Conkling, 2007), as, for example, demonstrated by their use in the incarceration of prisoners and exiles (Kothari, 2011). Thus, we need to be careful of dissolving islands “into a terrain-denying mesh” (Hay, 2006, p. 23). Nevertheless, representations of the island border as a clearly delineated boundary differentiating the land from the sea underplays its permeability and fluidity. Instead, the island border is in “dynamic flux” (McMahon, 2013, p. 64), a zone of “shifting liminality” with a vibrant edge (Beer, 2003, p. 33), an ever-shifting perimeter that defies attempts to “fix” it in one place, and a “natural delimiter” that never fully delimits (McCall, 1994, p. 3). As such, the shoreline is “a place of uncertainty and instability. It is visibly a movable space, geologically and morphologically changeable due to shifting dunes, eroding cliffs, vicissitudes of wind and weather, and changing tides” (Ledwell, 2002, p. 4).

In coastal zones, non-human processes, including meteorological conditions, “shape and reshape place, and, in turn, shape the idea of place felt by those who live in its vicinity and regularly visit it” (Weston, 2015, p. 276). There is also substantial influence of human activities on coastlines. For example, the building of seawalls and groynes has become increasingly common on small islands in the face of the erosive force of the sea (Yarina & Takemoto, 2017). As a result, coastal regions have become intensified contact zones between land and sea, where different ecologies and technologies are entangled (Peters et al., 2018). And the beach itself, continuously appearing and disappearing with the movements of the tides or the mining of sand (Kothari & Arnall, 2020), undermines attempts to fix and solidify the edge. These understandings challenge us to scrutinise the landward bias in understanding territories and landscapes and instead look at surfaces and assemblages that are additional to earth terrain (Peters et al., 2018). Such a rebalancing of perspectives towards the sea is a reminder of the importance of the oceanic movements that are ever present in small-island life (Steinberg, 2001).

These ideas concerning island connectedness, embeddedness, and borders are now relatively well established in the field of critical island studies. What is underappreciated, however, is the role that waste plays in these processes. Below, we explore how the production, circulation, movement, and stillness of waste contributes to these ceaseless, relational processes. We begin with a discussion of how waste is understood and categorised, what it is made up of, and how it moves and changes.

### 3.2 | Understanding waste

Understandings of what waste is, and why it matters, vary and have changed over time. Often waste is objectified and essentialised, viewed as something separate from, but acting upon, people. According to this perspective, waste is pre-determined, a self-evident category of matter subject to management systems that contain, control, and dispose of it, or transform it into something useful again. More recently, waste has also been understood as something “historically mutable,

geographically contingent, and both expressive of social values and sustaining to them” (Gregson & Crang, 2010, p. 1026). In other words, waste is something that is socially constructed, as arising due to its situational and relational character within society (Gille, 2010). These insights highlight the value of seeing waste, such as ocean plastics (Phillips, 2017), from multiple vantage points and from perspectives that recognise its potential to connect land and sea (Somerville, 2017). Waste also has a political character. These politics concern “ways of interrogating waste that engage with the modernist shibboleths of cleanliness, hygiene, and sanitation, and the often unjust and highly exclusionary socio-spatial orders produced through them” (Moore, 2011, p. 2).

While waste is commonly understood as matter that is no longer used or useful, or has no economic or symbolic value, there exist more specific spatially and temporally based understandings. Pikner and Jauhiainen (2014), for example, contrast matter-in-place with matter that is out-of-place. Matter-in-place refers to things that have a socially defined “correct” place and are in that place. In contrast, matter-out-of-place signifies “litter” or “garbage,” disposed objects that have no place or are in an incorrect place, and “rubbish” or “trash,” objects that are in an appropriate location but of which no use can be made. Moreover, we can view waste as “matter out of time” (Viney, 2015). Thus, if waste is the product of a process, and “signals the aftermath of an occurrence” (Dini, 2016, p. 3), we need to understand its multiple temporalities as it transforms from having a use value to becoming of no use. Indeed, as Viney states, “with our recognition of waste comes an acknowledgement of time's passing, its power to organize notions of wearing, decay, transience and dissolution” (2015, p. 3).

Some forms of discarded matter, such as organic material, break down relatively quickly. Others, such as plastics, are highly resistant to degradation and remain in the environment for long periods of time (Davies, 2012). This is not to say, however, that even the most resilient of materials are completely immune to the effects of time's passing. For example, at sea, the actions of photo-degradation and abrasion through wave action make plastic items brittle, causing them to break down into ever-smaller fragments (Barnes et al., 2009). Furthermore, distinctions between “old” and “new” waste are evident through the extent of their weathering and state of decomposition. There is also the notion of the circular economy, and discourses and practices of renewal, repair, and revival of things nearing their end (Lepawsky & Mather, 2011). These things, rather than becoming matter with no place, might instead take on new, imagined lives that are projected into the future, thus re-finding their place, and having a social and material life beyond their initial production and sale (Larsen et al., 2011). In these ways, things, such as consumer objects, are always in the process of decaying but also always becoming (Larsen & Christensen, 2015).

In addition to its ceaselessly changing constitution, waste is matter that is constantly “on the move.” In the context of small islands, Anderson and Peters (2014) point out that the surrounding ocean is not a material void, but alive with non-human agencies. Thus, once at sea, marine debris is redistributed due to a variety of interconnected forces, such as wind, surface circulation, bottom currents, biofouling and photodegradation, which affect its lateral transport, buoyancy, and degradation (Galgani et al., 2015). This is a form of dispersion by drifting, a particular style of mobility characterised by smoothness, slowness, and a lack of friction (Peters, 2015). Drifting can be a wandering motion, without a route, destination, or direction, or it can follow set patterns and directions repeatedly. Drifting reminds us that the ocean is not just a space that merely facilitates movement but is also a relational space that is constituted by movement itself (Steinberg, 2013). These movements derive from “forces external to the water: the wind, the temperature, the gravitational pull of the sun and moon, the solid seabed and its depth” (Peters, 2015, p. 266).

Besides these movements, central to waste's place-making qualities are the ways in which discarded and lost matter slows, settles, and comes to rest in a variety of places for different periods of time and in diverse states, residing in them, haunting them, and producing effects on those who generate, live with, and dispose of waste. Waste can gather in the open ocean (Barnes et al., 2009), on the seabed in deep ocean canyons (Pham et al., 2014), and on the shoreline. Sometimes the sea “swallows all that it's offered, without discrimination, and can keep it for decades, even centuries, drawing it into its own private system of currents” (Sprackland, 2013, p. 174). Other times, waste possesses an unsettling capacity to return (Gregson & Crang, 2010). In this respect, there is much work on the appearance and type of debris on shorelines, given the visibility of these zones to people and their important economic and recreational uses. Sandy shores, in particular, are noted as important “sinks” for floating debris (Williams & Tudor, 2001). In these areas, anthropogenic factors, such as vicinity to urban centres, population density, beach visitors, and marine traffic, play an important role in beach debris abundance and composition (Leite et al., 2014). The shoreline is thus where the outside world and island life meet and, as such, “beaches can be intensely cosmopolitan places” as “the whole world” comes to a beach (Sprackland, 2013, p. 236). In addition to human populated areas, the accumulation of marine debris can occur in seemingly remote places (Lavers & Bond, 2017). These include uninhabited islands in the Maldives, some of which have been found to have high levels of plastic on them (Imhof et al., 2017). Here, waste is connecting places where people or ships have rarely been.

When debris arrives on the shoreline, it might settle, depending on beach orientation and morphology, the presence of vegetation and animals, the shoreline's proximity to urban and touristic centres, and the characteristics of the matter itself (Prevenios et al., 2018). For example, Imhof et al. (2017) showed that long-term waste accumulation sites on a small island in the Maldives did not occur on the steep beach slope but behind sand barriers further up the shoreline, which was flooded during high tide. In this latter zone, a combination of vegetation and hollows in the sand caused the accumulation of marine debris, preventing the export of matter back to the sea and creating a highly patchy distribution of objects. Debris that settles on the beach might remain on the surface, entangle with other debris (organic or inorganic), or become partially or completely buried in sand. In these ways, waste permeates and reconstitutes the shoreline. Moreover, as we show below, some of the debris arriving on the shoreline does not necessarily remain on the beach, but can be removed, while other waste cycles continually, neither settling on the beach nor being carried back out to sea, thus creating a rhythmic interplay between floating and beach-based matter.

As a material commonly seen as out-of-place, the accumulation of waste on the shoreline is typically understood to signify loss: to represent the passing of objects that have gone beyond their usefulness to humans and that now symbolise ecological degradation. People's responses to shoreline waste, then, are often curative: to reverse the mess, to restore and clean up. However, as Pétursdóttir argues, "While indisputably representing a genuine care for things, their well-being and future, this attitude seems underpinned also by a certain disbelief in and hopelessness for the prospects of things – the future of things – as well as a disregard for the wealth of stories their endurance and drift is (and will be) able to afford" (2019, p. 6). The answer, according to Pétursdóttir, while acknowledging the seriousness of waste and its apparently relentless accumulation, lies in asking what may be learned "from seriously considering the being and nature of drifting things" (2019, p. 6). Central to this task are the notions of vibrant materiality and "thing-power": the "curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle" (Klocker & Mbenna, 2018, p. 304). Thus, things and objects are not secondary or dead matter since they "vibrate" through multiple relations with other forces, material and immaterial, along complex "lines of affect," following "trajectories, transformations and connections" (Muecke, 2013, p. 6).

Arguing the importance of studying waste, Campbell states that "through attention to the overlooked small things, our careful attunement to their relative relations, flows, and surprising presences, we are drawn nearer to the multiple processes that constitute the world" in everyday life (2016, p. 98). This includes looking past the moral imperative to do away with waste by also paying attention to the diverse encounters that humans and non-humans have with it, and waste's capacity to "evoke a complex range of emotions: embarrassment, guilt, regret and disgust" (Klocker & Mbenna, 2018, p. 304). Waste is also centrally involved in people's practical and daily engagements with place, often through processes of removal and management. In these ways, the becomingness of the island is constituted, not only by the materialities and movements of waste, but also by people's everyday interactions with it, through which islanders assemble "together an island by way of making use of whatever is at hand, solving going concerns as they present themselves" (Vannini & Taggart, 2012, p. 225). It is through these movements and actions, of waste and the people who interact with it, that a sense of islandness is also generated.

Overall, by exploring how islands come into being through the presence, movement, and management of waste, this paper contributes to scholarship on the geographies of waste. The multiscale wastescapes that influence how islands literally and metaphorically take shape respond to the call for geographical studies of waste to "move beyond their traditional locus of the municipality, the region and the nation-state" (Gregson & Crang, 2010, p. 1031). Indeed, waste mobilities are central to geographical enquiry since waste moves through time and space and, as we show below, plays a central role in place-making.

#### **4 | RESTFUL AND MOBILE WASTE: CONSTITUTING, CONNECTING, AND MANAGING THE ISLAND**

Drawing on the various insights provided above, we now consider three main ways in which waste contributes to the becomingness of the Maldivian island. In doing so, we utilise the data collected as part of our effort to become "attuned" to the island's waste, exploring its multifaceted and multisensory nature, as described in section 2. First, we explore how waste, primarily through its movements and ongoing processes of decay, relentlessly shapes how the island is apprehended and how it is materially composed by its human and non-human actors. Second, we illustrate how waste contributes to how the island is connected to other places, shaping islanders' perceptions of who they are and their position relative to a world beyond their island. Third, we consider the role of waste in people's practical, daily lives, and how these ongoing engagements and encounters with waste shape how the island is continuously being forged and organised. Together, these dimensions contribute to the becomingness of the island.



## 4.1 | Constituting the island: waste and its movements

As we explore and examine the island's perimeter, we encounter a collection of expelled, discarded, broken, and decayed things all in various stages of un-becoming, decomposition, and intactness (Figure 1). This is a jumble of items that are recognisable and distinguishable, even when they are broken or have become detached, such as a bottle cap that has become separated from its bottle or a wheel that has detached from a wheelbarrow. However, much on the beach is unrecognisable because the sea and the tides reshape and recompose the debris, as do the activities of humans in the process of disposing of their waste. Some objects are hidden from view, buried deep down or just beneath the surface, but are revealed when we disturb the sand. Other waste will be imperceptible to the human eye (Ogonowski et al., 2016): micro-particles and fragments of unidentifiable objects that are indistinguishable from, and have become incorporated into, the broken-down shells and coral that comprise the sand. Thus, the lines between human and non-human attribution are blurred and the sand, beach, and waste become mutually constitutive.

In these ways, the indiscernible, concealed, and disguised along with the visible combine to evoke the senses and create the particularities that make up this beach. Unseen chemicals linger, yet their presence can be smelled. The odours of rotting food and soured milk mingle with the smell of seaweed and the enduring aroma of empty perfume and chemical bottles and sometimes sewage. As stated by Arifa, who lives beside the shoreline and picks up waste from the sand on a daily basis, “the beach can get very smelly at times. It is discouraging when the beach is like this.” A multitude of “natural” and manufactured colours, and dulled, shiny, and reflective surfaces, illuminate the sand. The firm, soft, rough, smooth, springy, squishy, soggy, slimy, and grainy textures can be sensed underfoot or in the hand when picked up. And the sound of the waves, the crunch of broken glass, the engine of a passing boat, the rustle of palm fronds, and the activities of a multitude of non-human creatures combine with the other senses to make this beach. These findings illustrate the important temporal dimensions of waste. They reflect Viney's (2015) idea of waste as “matter-out-time,” and the significance of discarded objects passing from having a familiar shape, colour, and use to becoming unrecognisable, hidden, or invisible. As stated in section 3.2, even materials that appear highly resilient to degradation, such as plastics, break down eventually, becoming another material constituent of the island's fabric (Barnes et al., 2009).

Waste on the beach may appear as a random jumble, serendipitously brought together, or arbitrarily entangled and erratically buried. However, our time spent “getting to know” these items revealed that human and non-human actions shape where and when things come to rest, how they are placed, and their distribution. This “ordering” is further influenced by the buoyancy, size, dimensions, texture, and weight of the waste itself. Thus, we observed waste on the beach that is buried, entwined, and moved by the wind, tides, tree roots, leaves, crabs, sea grass, and seaweed. The debris settles in certain parts of the beach according to tidal patterns, changes in low and high tides, wind direction, and surges. Some debris becomes stranded by a high tide or continues bobbing on the water's edge until a larger wave washes it ashore. Its journey can be disrupted as exposed tree roots entrap lengths of rope, a glass bottle is brought to nestle in the hollow trunk of a tree, and a plastic coat hanger, entangled in a creeper, is left high and dry. Larger objects block the path of smaller, lighter ones, and as water and sand seep into plastic bottles they become heavy, less mobile, and lose their buoyancy. And the



**FIGURE 1** Waste on the beach. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

sand, shells, crabs, whole or fragments of objects, and branches of trees provide surfaces where other itinerant and wayfar-ing things might rest, linger, or get snared.

We also observed how human activities shape the placing and distribution of waste on the beach. People walking on the shoreline might pick up a shiny object, perhaps setting it down elsewhere along the beach. Others drop litter, forget their flip flops after a swim, or untangle a fishing net from an exposed tree root to mend and reuse. A deflated ball picked up and played with by children may subsequently be abandoned further along the shore or jettisoned back into the water. Waste gets buried when stepped on or becomes uncovered when the sand is disturbed. Or waste collects around a bench at a scenic spot where people stop, sit, and linger, possibly to smoke a cigarette, as evident from the number of butts that amass there and encircle the seat. Furthermore, waste accumulates in particular places depending on the proximity of the beach to guesthouses and homes, the main generators of waste on the island. This phenomenon of local accumulation was commented on by a member of the island council, Umar, who said, “there are some areas of the beach where the waste is particularly bad. Wherever there are more people [congregating] there is more waste coming from inside the island. Guest-houses clean the beach, but they also produce waste.” In these ways, the beach, the shoreline, and the island do not hold still. Instead, they are places always being made, marked by the “throwntogetherness” of people, things, and the ocean, and by the “potential for the happenstance juxtaposition of previously unrelated trajectories” (Massey, 2005, p. 94).

Waste is part of a larger process of the circulation of discarded matter to and from the beach. The arrival of debris from beyond the island was described by Mohamed, one of the island residents, who stated, “If I collect waste today, by tomorrow, there will be just as much rubbish again ... If I clean today, within two days, large bags will have been washed up on the shoreline again.” The matter washing up comes to rest along the entire length of the shoreline throughout the year. However, there are times of year when large quantities of debris accumulate in particular places, depending on non-human forces such as prevailing currents. Island residents frequently pointed out that the arrival of waste is especially problematic on the western side during the southwest monsoon season because, on this side, the island's semi-circular lagoon acts like a giant waste trap, collecting the passing flow of debris and funnelling it towards the western beach. These different, inter-locking rhythms of waste, driven by the seasonal monsoon, the motion of waves, and the daily tides, combine to give this island's shoreline its particular feel and characteristics. Human influences also play a role in how waste drifts as it approaches the island. For example, island residents explained to us how recent coastal modifications, such as the development of the harbour and artificial beaches, have acted to divert sand to the island's northern and southernmost points. These changes have effectively enlarged the width and depth of the western-side waste trap, thus increasing the amount of debris that it captures from the lagoon that encircles the island.

Besides the debris washing onto the shoreline from the sea, waste generated on the island through industrial and domestic activities also finds its way onto the beach. Our exploration of the island's perimeter revealed how human and non-human actors play a role in this process. Sometimes waste is dropped directly onto the beach or travels from the island's interior to the beach via the actions of the wind and rain. For example, one island resident showed us a number of channels formed by the rain that act as conduits for the washing of waste from the interior of the island onto the beach and into the sea. Waste can be inadvertently dropped or intentionally discarded. Organic waste, such as leaf litter, is often purposefully discarded onto the beach. This biodegradable waste does not linger for long and has a temporality and pattern of circulation different from non-biodegradable materials. Nonetheless, it still mingles and combines with non-organic materials, beach vegetation, and sand to form the substance of the shoreline, helping to create the complex mosaic of matter that runs along the coast. Although inorganic waste has a longer lifespan than organic material, its arrival on the beach can be temporary. For example, one guesthouse manager explained to us how bulky waste materials resulting from guesthouse construction might be piled up on the beach for a few days or weeks before they are removed to an official waste management facility. In other cases, waste that is only originally intended to be left on the beach on a temporary basis is abandoned or forgotten, thus becoming a longer-term feature of the beach.

In these ways, the waste deposited on the beach by people, tides, rain, and wind has multiple trajectories and different temporalities. Some waste is stilled for a while, being stranded further up the shoreline, becoming entangled with seaweed or other waste, or getting buried beneath the sand. Here it might remain for years, months, or days. Indeed, we observed that some of the bulkier waste materials, such as rubber tyres, had apparently been resting on the beach for a number of years, judging by their semi-decomposed state. For other objects, however, their repose is much shorter, and they quickly depart from the beach due to a strong wave or gust of wind, or are carried away by crabs. From here, the waste sets off on another journey, drifting into the ocean to perhaps settle on another beach, or only floating as far as the lagoon where, impeded by the coral reef, it will become trapped in seaweed and sink to the seabed (Pham et al., 2014). In these ways, via continual movement, accumulation, and decay, waste itself comes to constitute and help shape the island, building up in some areas, leaving traces in and departing from other areas, but all the time breaking down and mixing with sand, water,

and organic matter in the process. Looking at waste in this manner corroborates Steinberg's (2013) notion of the sea as a relational space and the ways in which the sea connects to, and intermingles with, the land. Overall, these findings demonstrate the ways in which islands are shaped by the large- and small-scale movement of things (Hannam et al., 2006), including waste, and thus how the movement of waste itself forms a basis of the island's existence.

## 4.2 | Connecting the island: waste and other places

The debris that continually arrives on the island via the sea originates from, and connects, multiple locations, including other inhabited islands, resorts, fishing and cargo vessels, and safari boats (small cruise ships used to provide tourists with access to high-quality diving and snorkelling sites). Although these sources of “foreign” waste can be difficult to discern, our discussions with island dwellers indicated that the objects washing up onto the beach still provide information about other people and places. For example, Aishath, who regularly organises island litter pick-ups, stated,

Previously, there was just organic waste on the beach, but nowadays there is so much plastic and other items. There is much plastic in the world now, everyone seems to use it, and lots of it comes here to our island ... Mostly it is plastic bottles and bags, bits of plastic that we don't recognise. When we were young, many of these items did not exist in the Maldives but now they are everywhere.

Whereas much waste is anonymous, some items on the beach are marked with clues as to their provenance, like branded food packets, plastic containers, or medicine bottles with “made in” stamps on them. This information does not necessarily indicate where the waste has come from, but it may reveal where it was produced and the possible trading routes through which it has passed. Other items, however, are much more readily traceable due to resort logos stamped on hotel slippers or water bottles, or the appearance of “exotic” foodstuffs, such as pineapple skins, that are not normally consumed by local populations but are popular among tourists. The appearance of resort waste on the shoreline is particularly vexing for local residents. Many disapprove of the lavish lifestyles that tourists appear to adopt in resorts, particularly with regard to the copious consumption of alcohol, as evidenced by the frequent washing up of empty bottles of wine, spirits, and beer on the shoreline. To illustrate, Niuma, an island resident, commented: “There is a lot of alcohol being consumed in the resorts. This is against our Muslim culture and something that is not approved of on our island.” There is also disquiet that tourists and resort workers have little apparent concern for where their waste ends up. For example, Yoosuf stated, “Every day I pick up black refuse bags. The resorts are dumping them into the ocean. Even when we go fishing inside the atoll, we see large bin bags drifting towards our island ... That is how people are on resorts, they always throw things away. They don't care.”

When the island council finds resort-branded waste on their shoreline they take photographs of it and post the pictures on their Facebook page to publicise the problem and shame the resort into changing its ways. These pictures, depicting a variety of waste items, are shared via social media with council leaders from other islands, leading to the forging of new, albeit virtual, connections with other communities and locations. The council reported that this has led to a temporary decrease in the quantity of marine litter from the resort washing up onto their shoreline, yet has also soured relations between the resort and the island council. Interactions such as these remind us of the political character of waste, as well as the range of emotions that it is capable of evoking (Klocker & Mbenna, 2018). Such interactions support Moore's (2011) assertion outlined above that waste, and the ideas connected with it concerning cleanliness, hygiene, and sanitation, illuminate the often unequal power relations between the different groups that are expected to monitor and manage it on a day-to-day basis.

In addition to coming from other islands, waste connects the island to sea-going vessels. As Fathimath said, “All the vessels that use the ocean throw rubbish into it. Ferry boats, vessels carrying cargo, yellowfin tuna fishing boats, people who go fishing recreationally, everyone throws rubbish into the sea.” Safari boats in particular are singled out by island residents as a worrisome source of marine litter. Many boats do not have sufficient storage capacity to cover the entirety of their cruises and subsequently dump their refuse directly into the sea. This provides further evidence to island communities of the profligate nature of tourists' lifestyles and the apparent disregard that tourism operators have for island environments. For example, Umar, a local primary school teacher, said, “The safari boats can be a big problem for us. The tourists on board produce so much waste, including food, drinks items, and toiletries. The people operating the boats do not seem to care where these items end up. Much of it gets chucked overboard.”

In contrast to these nearby sources of waste, other items washing ashore from ships, such as fishing nets, are likely to have come from much further afield. As Nizam explained, “We don't use nets for fishing in the Maldives, but yet we find

whole nets washed up on the beach ... They probably come from Sri Lanka.” These items are typically found further down the shoreline, closer to the sea, where they easily become entangled with the roots of palm trees. Along stretches of the island's western coastline, large multi-coloured clumps of netting are accumulating in this way, forming the main material demarcating the land–sea interface. Like the waste washing up from resorts, fishing nets are easily identifiable by island communities as “foreign” waste, although in this case their exact provenance cannot be determined with any accuracy. Many island inhabitants expressed dismay at the arrival of these nets, viewing them as evidence of unsustainable fishing practices in the Indian Ocean. Other inhabitants however pointed out that, while unsightly, the stranded netting was proving useful in helping to shore up the coastline in the face of the ocean's encroachment. This was particularly the case given that much of the sand was being washed away, but that the plastic netting seemed immune to this process, combining with seaweed, palm tree roots, and inorganic debris to form a stable barrier to the ceaseless actions of the waves and currents.

Taken together, these connections made by waste demonstrate that, far from existing in isolation, the island is intimately connected to activities and movements taking place in other parts of the world, from the global cycles of international commerce to the motions of a passing fishing vessel, and from the ceaselessly shifting winds and ocean currents to the rhythmic actions of waves. This observation concurs with Hannam et al. (2006) understanding outlined above of islands being shaped by both large-scale and more localised processes. In these ways, waste endlessly creates and remakes a sense of what the island is, where it is, and how it is positioned relative to other people and places. Through its “thing-power” (Klocker & Mbenna, 2018), waste provides information on, and insights into, ways and practices of living in other places. This reflects Pétursdóttir's notion outlined above of the “wealth of stories” afforded by waste via its endurance and “from seriously considering the being and nature of drifting things” (2019, p. 6). In these ways, different types of waste contribute to the island's continual process of becoming and to a sense of what islandness means.

### 4.3 | Making islandness through everyday practices: collecting and managing waste

In addition to “getting to know” waste, our interactions, conversations, and interviews with island dwellers revealed how, through their day-to-day, practical engagements with waste, they are actively involved in creating the feel and look of the island, attempting to make it a more liveable, aesthetically pleasing place that is also attractive to international tourists. As outlined above, there are a number of ways in which this place-making is occurring, with different waste management systems and approaches operating concurrently. Often such interactions take place in the island's coastal zones, areas of intense ecological and technological entanglement (Peters et al., 2018). Some residents, for example, collect and remove debris from the section of beach directly in front of their homes many times a day, whereas others take it upon themselves to clear larger sections of the island. As Shifa explained, “I pick up rubbish on the beach and in the sea. I also hire Bangladeshi expatriates, who I pay myself, to collect rubbish. If we don't collect the rubbish every week then there is too much plastic in the island and on the beach.”

Guesthouse managers are also involved in crafting the island and are keen to be seen as actively taking care of and managing the shoreline. Some organise regular large-scale clean-up operations, involving guesthouse employees, local residents, and even international waste management consultants. Taken together, these practices reflect how the appearance and accumulation of waste has to be continuously managed so as to create and maintain a particular kind of place, one that islanders aspire to live in and present to others. The ongoing necessity to collect and manage waste demonstrates its profound ability to alter, blemish, or hamper this desirous sense of place.

The place-making qualities of waste are further evident following its removal from the beach. Residents, often Bangladeshi migrant workers, use small hand-pulled carts or motorised vehicles to transport the out-of-place matter to the island's waste management centre, a large compound surrounded by a brick wall. They do this at certain times of the day, two hours in the morning and two hours in the early evening, thus creating a fixed waste-based “taskscape” (Ingold, 2000) that is carried out during the cooler periods of the day and minimises disturbance to other residents. Once at the centre, combustible materials are thrown onto one of two large metal frames where they are burned, after which the remaining ashes are buried in the ground close to the compound's wall (Figure 2). Recyclables, such as glass bottles and tin cans, are separated out and stored in small sheds, from where they are later collected by waste management companies from outside the island and transported by ship to be recycled in depots near Malé. Non-recyclables, such as televisions and white goods, are collected and taken to Thilafushi. Thus, in addition to processes of decomposition and decay, these practices add another temporal dimension to the circulation of the island's waste, as previously unwanted, out-of-place goods are brought back into the economy (Lepawsky & Mather, 2011).

While much waste is permanently removed from the island, some discarded matter returns to the shoreline, as human processes of waste disposal are continuously interrupted by non-human agents. For example, most organic food waste is



**FIGURE 2** The waste management centre. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

dumped into the lagoon, where it decomposes or is eaten by marine animals. However, some of this biodegradable waste, such as fish bones, can persist over the medium term and find its way back onto the beach through the action of tides. In recognition of this problem, efforts are being made by the island population to discard their organic waste further offshore. However, these attempts are not always successful. For example, Arifa explained, “Now we take a dingy boat and throw all fish waste and bones further out into the sea. The problem is that the currents can still bring the rubbish back onto the shoreline.”

Inorganic debris also commonly returns to the beach, often as part of the island's waste management system. For example, some objects are inadvertently dropped onto the beach during the initial picking-up process, even before they have made it into the collection sacks. Other times, waste that has been deposited into litter bins, thus marking the beginning of its journey into the island's waste management system, finds its way out again. This is because bins are infrequently emptied and quickly begin to overflow, or waste is blown out of the container by the wind. As Abdulla explained,

People from the guesthouse ... don't always empty the bin on the beach. Some guests complain saying, ‘I have been here for one week and the dustbin is still full.’ Sometimes the guesthouse only empties it when guests complain. Recently, I cleaned that place myself. I picked up everything, including from under the trees, and emptied the dustbin because its contents were overflowing back onto the beach.

During the transportation of waste by cart or motor vehicle, trailers are often fully loaded and collected matter falls out en route to the waste management centre. Once at the centre, waste can be blown over the compound wall and back onto the beach, especially during the burning process when a strong updraft of air pushes plastic bags and other buoyant items up into the air where they meet the ocean breeze. On some days, when the wind is blowing in an easterly direction, waste can return to haunt nearby residents in the form of smoke. Moreover, waste that is being transported from the island to Thilafushi by ship can inadvertently fall back into the sea or even be illegally dumped, only to wash back onshore again, or perhaps drift onto a different island.

These examples demonstrate the ongoing circulation of waste through the combined actions of human and non-human agents, as well as waste's unsettling capacity to return (Gregson & Crang, 2010). While much of this arriving, departing, and returning matter is unwanted, waste also circulates and re-finds a place in island society through processes of reinvention and revival. People often pick up discarded objects and find new uses for them. To illustrate, Nizam explained how he occasionally picks up bottles washed onto the shore to use them for transporting kerosene. And there are places where waste has been transformed into something else, such as the swing hanging from a tree that has been made out of pieces of rope and a plank of wood found on the beach. In other areas of the island, bulkier forms of waste, such as unwanted construction materials, are placed along the shoreline in an attempt to slow down coastal erosion. Non-humans are also involved in the reinvention of waste as crabs find a new home in washed-up insulating foam, tiny crustaceans shelter under discarded wooden boards, and barnacles cling to large chunks of concrete that are half-submerged along the shoreline.

These examples of the lives of objects beyond their originally intended uses corroborate Larsen and Christensen's (2015) argument concerning how consumer items, once discarded, are in a process of decaying but also of becoming.

These activities, of collecting, transporting, unloading, burning, sorting, and reinventing waste, are central to daily life on the island. From the clatter of carts transporting debris to the recycling centre and the shouts of waste collectors passing each other on the road, to the heat emanating from the burning rubbish, to the sight and smell of the smoke as it drifts out to sea or seeps into people's homes, all of these human and non-human phenomena contribute to how the island is constituted, sensed, and experienced. Taken together, they reflect Vannini and Taggart's (2012) understanding of the becomingness of an island as created through the practical engagements of those living on it. Such findings reveal how the rhythms and routines of people's engagements with waste are folded into the everyday in complex and dynamic ways (Ross, 2015).

## 5 | CONCLUSION

In this paper, by paying close attention to the "thing-power" of waste (Klocker & Mbenna, 2018), we have revealed the different ways in which discarded and lost matter contributes to the making of an island place. As suggested by Hay, islands are "special places, paradigmatic places, topographies of meaning in which the qualities that construct place are dramatically distilled" (2006, p. 26). This is particularly with regard to the coastline, which represents a focal area of interaction between the land and sea, the waste accumulating along its length "an open book in a babble of different languages: an account of what the world desires, and then wishes to be rid of" (Sprackland, 2013, p. 236). While the focus of this paper has been a small island in the Maldives, thinking about the relationship between waste and place-making is also applicable to other island environments that have conventionally been portrayed as isolated, but which are also involved in the movement and circulation of waste. This is even more so given the present-day abundance of waste in ocean environments, particularly plastics, as well as the discovery of drift matter in locations once thought of as highly "remote" (Lavers & Bond, 2017).

As we have shown in this paper, the materialities and mobilities of waste, the connections that it creates between places, and people's daily, practical interactions with it, are important dimensions in the construction of the island place. Via processes of decomposition and decay, and through its movements, waste can physically demarcate the shifting borders of an island. The movements of waste and the connections that it affords combine to form a dynamic island edge. In following and shaping the contours of the island's beaches, waste demarcates a boundary between land and sea, but at the same time, through its continuous movement and circulation, is evidence of the shifting, fluid, and ever-changing nature of the island's borders. The shoreline then, although often seen as a marker, a distinct place separating the water and the land, is not fixed but a dynamic zone, porous and connected to other places. The constitution and mobilities of waste make comprehensible this relationship between islands and the waters that surround them, connecting different people, places, and things. A focus on the movement and circulation of waste thus challenges terra-centric perspectives because watery mobilities enabled through the rhythms of waves, tides, and seasons are central to the constitution of islands, their connections to other places, and hence their becoming (Peters et al., 2018).

While at first glance organic and inorganic waste appears randomly scattered across the sand, on closer inspection it is evident that it is distributed according to beach morphology, the actions of winds, currents, and tides, the size and composition of the waste, and the interventions of human actors. Waste moves in complex ways. It is capable of travelling great distances, but also of coming to rest. It drifts, bobs, sinks, rises, scatters, shifts, and stills, moved according to intertwined human and non-human rhythms and patterns. Waste may be buried for a long time or might move quickly on. In these ways, as waste is deposited, and as it decays, it continually constitutes and delimits the shoreline, as visible, hidden, and invisible matter intermingles with, and is buried within, grains of sand and marine flora and fauna, or is piled up to help prevent erosion.

Waste also shapes how the island smells, feels, and sounds and is experienced by those who live in or visit it. Because of the "identities and exchanges of identity that are played out at or near the shore" (Ledwell, 2002, p. 1), waste forms an important element of what the beach represents to island inhabitants and its visitors, as demonstrated by people's ongoing attempts to keep it clean and prevent the accumulation of waste. Some of these notions of how a beach should be constructed as a place are linked to tourists' expectations of islands as "pristine nature," places untouched by human intervention (Hennessy & McCleary, 2011), whereas other notions are linked to inhabitants' desires to fashion a place that is liveable. In these ways, waste forms a central part of people's everyday practices as they go about collecting, organising, and moving discarded, abandoned, and lost matter. The island is continually being made through the flows and connections afforded by waste, and by the human and non-human actors that incessantly interact and intermingle with it.



Overall, this paper, by focusing on the dynamism of waste and its shifting geographies (Davies, 2012), contributes to geographical debates about mobilities. Specifically, we draw on and extend Cresswell's (2010) concept of the mobility constellation by examining the multiple ways in which waste moves and settles, how such movements are understood, and the human and non-human practices associated with them. We also focus on how waste in movement plays a central role in place-making, as it changes, and is changed by, the many and varied environments through which it passes and comes to rest. In the case of the Maldives, trans-scalar, networked flows of waste converge at island hubs, forming a central process in the becomingness of those places. Through this study, this paper brings together island geographies with wider contemporary debates on mobility, encounter, and displacement, thus further underpinning the contention that the spatialities and temporalities of waste are central geographical concerns.

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## DATA AVAILABILITY STATEMENT

The data used in this paper cannot be made available for ethical reasons. Further information about the data is available from the corresponding author at the University of Reading.

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## REFERENCES

- Anderson, J., & Peters, K. (2014). *Water worlds: Human geographies of the ocean*. Abingdon, UK: Routledge.
- Baldacchino, G. (2004). The coming of age of island studies. *Journal of Economic and Social Geography*, 95, 272–283. <https://doi.org/10.1111/j.1467-9663.2004.00307.x>
- Barnes, D. K. A., Galgani, F., Thompson, R. C., & Barlaz, M. (2009). Accumulation and fragmentation of plastic debris in global environments. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364, 1985–1998. <https://doi.org/10.1098/rstb.2008.0205>
- Beer, G. (2003). Island Bounds. In R. Edmond, & V. Smith (Eds.), *Islands in History and Representation*. London, UK: Routledge.
- Bernardie-Tahir, N., & Schmoll, C. (2014). Opening up the island: A 'counter-islandness' approach to migration in Malta. *Island Studies Journal*, 9, 43–56.
- Campbell, N. (2016). *Affective critical regionality (place, memory, affect)*. Lanham, MD: Rowman and Littlefield Int.
- CDKN. (2014). *The IPCC's 5th assessment report: What's in it for small island developing states?*. London, UK: Overseas Development Institute and Climate and Development Knowledge Network.
- Conkling, P. (2007). On islanders and islandness. *Geographical Review*, 97, 191–201. <https://doi.org/10.1111/j.1931-0846.2007.tb00398.x>
- Cresswell, T. (2010). Towards a politics of mobility. *Environment and Planning D*, 28, 17–31. <https://doi.org/10.1068/d11407>
- Davies, M. (2012). Geography and the matter of waste mobilities. *Transactions of the Institute of British Geographers*, 37, 191–196. <https://doi.org/10.1111/j.1475-5661.2011.00472.x>
- Debattista, A. P. (2017). The Maldives: Islamic republic, tropical autocracy. *Political Studies Review*, 15, 676–677. <https://doi.org/10.1080/00856401.2016.1237274>
- DeLoughrey, E. (2011). Island writing, creole cultures. In A. Quayson (Ed.), *Cambridge history of postcolonial literature*. Cambridge, UK: Cambridge University Press.
- Dini, R. (2016). *Consumerism, waste, and re-use in twentieth-century fiction*. New York, NY: Palgrave Macmillan.
- Galgani, F., Hanke, G., & Maes, T. (2015). Global distribution, composition and abundance of marine litter. In M. Bergmann, L. Gutow, & M. Klages (Eds.), *Marine Anthropogenic Litter* (pp. 29–56). Cham, Switzerland: Springer.
- Gille, Z. (2010). Actor networks, modes of production, and waste regimes: Reassembling the macro-social. *Environment and Planning A*, 42, 1049–1064. <https://doi.org/10.1068/a42122>

- Gregson, N., & Crang, M. (2010). Materiality and waste: Inorganic vitality in a networked world. *Environment and Planning A*, 42, 1026–1032. <https://doi.org/10.1068/a43176>
- Hannam, K., Sheller, M., & Urry, J. (2006). Editorial: Mobilities, immobilities and moorings. *Mobilities*, 1, 1–22. <https://doi.org/10.1080/17450100500489189>
- Hau'ofa, E. (1994). Our seas of islands. *The Contemporary Pacific*, 6, 147–161.
- Hay, P. (2006). A phenomenology of islands. *Island Studies Journal*, 1, 19–42.
- Hayward, P. (2012). Aquapelagos and aquapelagic assemblages. *Shima: The International Journal of Research into Island Cultures*, 6, 1–11.
- Hennessy, E., & McCleary, A. L. (2011). Nature's Eden? The production and effects of 'pristine' nature in the Galapagos Islands. *Island Studies Journal*, 6(2), 131–156.
- Imhof, H. K., Sigl, R., Brauer, E., Feyl, S., Giesemann, P., Klink, S., Leupolz, K., Löder, M. G. J., Löschel, L. A., Missun, J., Muszynski, S., Ramsperger, A. F. R. M., Schrank, I., Speck, S., ... Laforsch, C. (2017). Spatial and temporal variation of macro-, meso- and microplastic abundance on a remote coral island of the Maldives, Indian Ocean. *Marine Pollution Bulletin*, 116, 340–347. <https://doi.org/10.1016/j.marpolbul.2017.01.010>
- Ingold, T. (2000). *The perception of the environment*. London, UK: Routledge.
- Kincaid, J. (1988). *A small place*. New York, NY: Penguin.
- Klocker, N., Mbenna, P., & Gibson, C. (2018). From troublesome materials to fluid technologies: Making and playing with plastic-bag footballs. *Cultural Geographies*, 25, 301–318. <https://doi.org/10.1177/1474474017732979>
- Kothari, U. (2011). Contesting colonial power: Politics of exile in the Indian Ocean. *Geoforum*, 43, 697–706. <https://doi.org/10.1016/j.geoforum.2011.07.012>
- Kothari, U., & Arnall, A. (2017). Contestation over an island imaginary landscape: The management and maintenance of touristic nature. *Environment and Planning A*, 49, 980–998. <https://doi.org/10.1177/0308518X16685884>
- Kothari, U., & Arnall, A. (2020). Shifting sands: The rhythms and temporalities of island landscapes. *Geoforum*, 108, 305–315. <https://doi.org/10.1016/j.geoforum.2019.03.006>
- Larsen, J., & Christensen, M. D. (2015). The unstable lives of bicycles: The 'unbecoming' of design objects. *Environment and Planning A*, 47, 922–938. <https://doi.org/10.1068/a140282p>
- Larsen, R. K., Calgaro, E., & Thomalla, F. (2011). Governing resilience building in Thailand's tourism-dependent coastal communities: Conceptualising agency in social-ecological systems. *Global Environmental Change*, 21, 481–491. <https://doi.org/10.1016/j.gloenvcha.2010.12.009>
- Lavers, J. L., & Bond, A. L. (2017). Exceptional and rapid accumulation of anthropogenic debris on one of the world's most remote and pristine islands. *Proceedings of the National Academy of Sciences of the United States of America*, 114, 6052–6055. <https://doi.org/10.1073/pnas.1619818114>
- Ledwell, J. (2002). *Afraid of heights, not edges: Representations of the shoreline in recent Prince Edward Island poetry and visual art*. Paper presented at the Islands of the World VII, Charlottetown PEI.
- Leite, A. S., Santos, L. L., Costa, Y., & Hatje, V. (2014). Influence of proximity to an urban center in the pattern of contamination by marine debris. *Marine Pollution Bulletin*, 81, 242–247. <https://doi.org/10.1016/j.marpolbul.2014.01.032>
- Lepawsky, J., & Mather, C. (2011). From beginnings and endings to boundaries and edges: Rethinking circulation and exchange through electronic waste. *Area*, 43, 242–249. <https://doi.org/10.1111/j.1475-4762.2011.01018.x>
- Massey, D. (2005). *For space*. London, UK: Sage.
- McCall, G. (1994). Nissology: A proposal for consideration. *Journal of the Pacific Society*, 17, 1–8.
- McMahon, E. (2013). Reading the planetary archipelago of the Torres Strait. *Island Studies Journal*, 8, 55–66.
- Mohee, R., Mauthoor, S., Bundhoo, Z. M. A., Somaroo, G., Soobhany, N., & Gunasee, S. (2015). Current status of solid waste management in small island developing states: A review. *Waste Management*, 43, 539–549. <https://doi.org/10.1016/j.wasman.2015.06.012>
- Moore, S. A. (2011). Garbage matters: Concepts in new geographies of waste. *Progress in Human Geography*, 36, 780–799. <https://doi.org/10.1177/0309132512437077>
- Muecke, S. (2013). The composition and decomposition of commodities: The composition and decomposition of coal and ivory. In S. Chaudhuri, J. McDonagh, B. H. Murray, & R. S. Rajan (Eds.), *Commodities and culture in the material world* (Vol. 20, pp. 1–11). London, UK: Routledge.
- Ogonowski, M., Schür, C., Jarsén, A., & Gorokhova, E. (2016). The effects of natural and anthropogenic microparticles on individual fitness in *Daphnia magna*. *PLoS ONE*, 11, e0155063. <https://doi.org/10.1371/journal.pone.0155063>
- Peters, K. (2015). Drifting: Towards mobilities at sea. *Transactions of the Institute of British Geographers*, 40, 262–272. <https://doi.org/10.1111/tran.12074>
- Peters, K., Steinberg, P., & Stratford, E. (2018). *Territory beyond terra*. London: Roman and Littlefield International.
- Pétursdóttir, P. (2019). Anticipated futures? Knowing the heritage of drift matter. *International Journal of Heritage Studies*, 26, 87–103. <https://doi.org/10.1080/13527258.2019.1620835>
- Pham, C. K., Ramirez-Llodra, E., Alt, C. H. S., Amaro, T., Bergmann, M., Canals, M., Company, J. B., Davies, J., Duineveld, G., Galgani, F., Howell, K. L., Huvenne, V. A. I., Isidro, E., Jones, D. O. B., ... Tyler, P. A. (2014). Marine litter distribution and density in European seas, from the shelves to deep basins. *PLoS ONE*, 9, e95839. <https://doi.org/10.1371/journal.pone.0095839>
- Phillips, C. (2017). Ghostly encounters: Dealing with ghost gear in the Gulf of Carpentaria. *Geoforum*, 78, 33–42. <https://doi.org/10.1016/j.geoforum.2016.11.010>
- Pikner, T., & Jauhainen, J. S. (2014). Dis/appearing waste and afterwards. *Geoforum*, 54, 39–48. <https://doi.org/10.1016/j.geoforum.2014.03.009>



- Pred, A. (1984). Place as historically contingent process: Structuration and the time-geography of becoming places. *Annals of the American Association of Geographers*, 74, 279–297. <https://doi.org/10.1111/j.1467-8306.1984.tb01453.x>
- Prevenios, M., Zeria, C., Tsangaris, C., Liubartsev, S., Fakir, E., & Papatheodorou, G. (2018). Beach litter dynamics on Mediterranean coasts: Distinguishing sources and pathways. *Marine Pollution Bulletin*, 129, 448–457. <https://doi.org/10.1016/j.marpolbul.2017.10.013>
- Pugh, J. (2013). Island movements: Thinking with the archipelago. *Island Studies Journal*, 8, 9–24.
- Pugh, J. (2016). The relational turn in island geographies: Bringing together island, sea and ship relations and the case of the Landship. *Social and Cultural Geography*, 17, 1040–1059. <https://doi.org/10.1080/14649365.2016.1147064>
- Ross, F. C. (2015). Sense-scapes: Senses and emotion in the making of place. *Anthropology Southern Africa*, 27, 35–42. <https://doi.org/10.1080/02580144.2004.11658014>
- Scheyvens, R. (2011). The challenge of sustainable tourism development in the Maldives: Understanding the social and political dimensions of sustainability. *Asian Pacific Viewpoint*, 52, 148–164. <https://doi.org/10.1111/j.1467-8373.2011.01447.x>
- Shakeela, A., & Weaver, D. (2018). “Managed evils” of hedonistic tourism in the Maldives: Islamic social representations and their mediation of local social exchange. *Annals of Tourism Research*, 71, 13–24. <https://doi.org/10.1016/j.annals.2018.04.003>
- Somerville, A. T. P. (2017). The Great Pacific Garbage Patch as Metaphor: The (American) Pacific You Can’t See. In B. R. Roberts, & M. A. Stephens (Eds.), *Archipelagic American Studies*, (320–339). Durham, NC: Duke University Press.
- Sprackland, J. (2013). *Strands: A year of discoveries on the beach*. London, UK: Vintage.
- Steinberg, P. E. (2001). *The social construction of the ocean*. Cambridge, UK: Cambridge University Press.
- Steinberg, P. E. (2013). Of other seas: Metaphors and materialities in maritime regions. *Atlantic Studies*, 10, 156–169. <https://doi.org/10.1080/14788810.2013.785192>
- Steinberg, P. E., & Chapman, T. E. (2009). Key West’s Conch Republic: Building sovereignties of connection. *Political Geography*, 28, 283–295. <https://doi.org/10.1016/j.polgeo.2009.08.001>
- Stratford, E., Baldacchino, G., McMahon, E., Farbotko, C., & Harwood, A. (2011). Envisioning the archipelago. *Island Studies Journal*, 6, 113–130.
- UNDP. (2018). *World development report*. New York, NY: United Nations Development Programme.
- Vannini, P., & Taggart, J. (2012). Doing islandness: A non-representational approach to an island’s sense of place. *Cultural Geographies*, 20, 225–242. <https://doi.org/10.1177/1474474011428098>
- Viney, W. (2015). *Waste: A philosophy of things*. London, UK: Bloomsbury.
- Walcott, D. (1992). *Collected poems, 1948–1984*. London, UK: Faber & Faber.
- Weinbaum, D. R. (2015). Complexity and the philosophy of becoming. *Foundations of Science*, 20, 283–322. <https://doi.org/10.1007/s10699-014-9370-2>
- Weston, D. (2015). Plots: The narratives of place in contemporary nature writing. In C. Berberich, N. Campbell, & R. Hudson (Eds.), *Affective landscapes in literature, art and everyday life* (pp. 173–88). Burlington, VT: Ashgate.
- Williams, A. T., & Tudor, D. T. (2001). Litter burial and exhumation: Spatial and temporal distribution on a cobble pocket beach. *Marine Pollution Bulletin*, 42, 1031–1039. [https://doi.org/10.1016/s0025-326x\(01\)00058-3](https://doi.org/10.1016/s0025-326x(01)00058-3)
- Yarina, E., & Takemoto, S. (2017). Interrupted atolls: Riskscapes and edge imaginaries in Tuvalu. *The Plan Journal*, 2, 461–495. <https://doi.org/10.15274/tpj.2017.02.02.15>

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