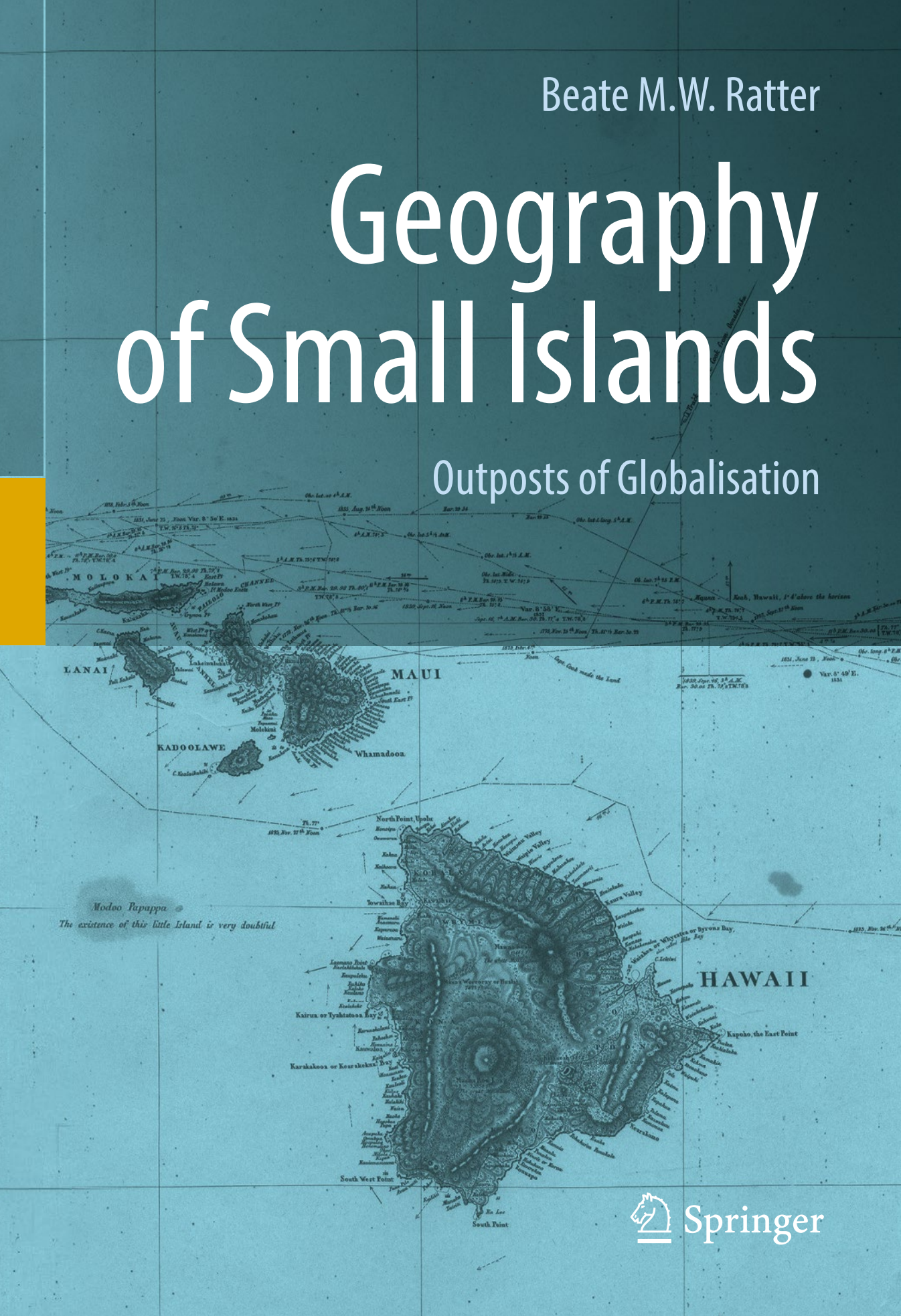
Beate M.W. Ratter

Geography of Small Islands

Outposts of Globalisation



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Mutabor – *‘I will be transformed’.*
From *The Story of Caliph Stork*, a fairy tale by Wilhelm Hauff

Foreword

A letter from 'a gentleman' in the Harz Mountains jolted Professor Ratter, not into becoming an island collector, but a person who does geographical research on and about small islands. This is not such a great stretch as an island is foremost a geographical feature, so it is geographers who naturally are drawn to them, like those who study mountain communities or river lands. As islands are 'land surrounded by water', this provides a natural focal point, even a demarcation zone for those with that temperament. This book is more about islands as they extend into the world, not as dots on a map or insects pinned to a collector's board: they are living, breathing entities that however remote, such as the Rapa Nui (Easter Island) I study, are joined in complex daily, if not hourly, ways. This is the motor for Beate Ratter's talisman, Mutabor, that infuses her introductory remarks: change and connections that move that mutation energy.

In the following seven chapters, Beate Ratter takes us through her experiences, direct and scholarly, modern and even classical, so that we can see from where her perspectives derive. The seven chapters paint a very broad canvas of the geographical and the imaginary feature in the earthscape that is the island, a place that people can enjoy and/or exploit, sometimes without even apprehending the details of the physical feature itself.

Each of these chapters begins with an informative abstract and keywords to reflect the orderly fashion that Ratter adopts in composing her volume as a whole. Throughout the book, the focus is on the connectedness of the islands presented. For example, the transformative tourism plans in the Maldives have led to the export (by personal means, to be sure) of an excess of foreign fighters in the destructive fields of the conflict in Syria; read it for yourself to see the impeccable logic of those relationships and how one local plan can influence events in distant lands.

As well as expertly taking us through key concepts in the study of islands as places and spaces, the book also introduces an analytical concept: *Gestaltwechsel* or a 'change in perspective of the epistemology of islands'. That is, instead of the hand-wringing of victimage, islands are to be seen as agents in the creation of themselves, even if this is done, to paraphrase a famous sentence, not in circumstances of their own choosing.

I may be forgiven, I hope, for including *Gestaltwechsel* as a seminal concept in my own proposal of a nissological approach, to study islands in their own terms.

Chapter 6 introduces the IIDAB or 'Integrated Island Database' to facilitate comparative island studies, a practical outcome of decades of research. IIDAB is an imaginative project that the corporate university would reject on economic rationalist grounds as not bringing in business money but that the scholarly university – and Hamburg must be one of those – will embrace and foster.

This is a serious scholarly book and that is obvious in the high level of discussion, citation of works and respectful overall construction. But, as part of this, there is a joy and a playfulness in the writing that does not detract at all from the more abstract work. Whilst scattered throughout the text, this is most obvious in the 'rewards', one might say, that are at the end of each chapter: 'Brain Teasers' about islands, a series of, usually, one-answer quizzes, identifying an island place, with the correct answer being available on a dedicated website. There are six of these that range from cold, northern ones to tropical Pacific ones. Most have been involved in trade and that is how they have become known. As well, there are 'Textbox' explanatory pieces that pepper the chapters: five in all that take up island terms that have become part of European languages as well as one (number three) about the most famous island that never existed (Utopia). Textbox 4, for example, goes into some detail about those islands exploited for their guano.

I think it is a book that can be read for pleasure, if you are interested in islands. It also is a solid reference work bringing together a number of studies from the twentieth and twenty-first centuries about islands. Because of its light didactic touch, this book also could be a very useful textbook, and students will be fortunate to have one so well composed.

'Islands are agents capable of creatively using their assets' is my standout sentence for this book. It figures at the end of the abstract for Chapter 6, the conclusions. And it serves to characterise the forceful optimism that pervades this delightful and very interesting volume.

Thanks to the bloke from Harz who wrote to the author all those decades ago and thanks to Beate Ratter for carrying that awakened passionate flame to produce the work presented here.

Sydney Grant McCall
June 2017

Preface

It is key events, usually unforeseen, that set one's course in life. Often, these watersheds are only recognised in retrospect, but it might just be possible to (re)construct why and when I became an island researcher. Although it is rarely a single event that leads to decisions, there is a certain contingency in events – as well as a great deal of randomness in assigning significance to them at a later stage and giving them more weight than could have been foreseen at the time. One of these bifurcation points occurred many years ago when I was a PhD student at Hamburg University working on my dissertation on the cultural resistance of small Caribbean islands to globalisation. Back then, an unassuming letter arrived, sent by an unknown gentleman from the Harz region and addressed to my supervisor. The letter contained a cover note written in shaky and old-fashioned handwriting and a stack of tightly written lists with island names. In the cover note, the gentleman explained that he had been compiling a list of the islands of the world for some time, a list he would now like to share with us as we were 'island researchers'. I will never forget our astonishment. Here was an elderly gentleman in the Harz mountains, reading atlases and world maps and compiling lists with island names.

I could never quite let go of that letter. It did not turn me into a collector of islands, even though I was able to discover that this species really exists. When my British colleague Stephen Royle meets our Japanese colleague Shunsuke Nagashima, they greet each other with '897' and '3897', respectively, indicating the total number of islands they have visited at that point. Island collectors are a strange and wonderful species, but although I never joined their ranks, the self-styled expert on the Caribbean did become an island researcher, whatever this may mean.

Three decades has passed since that letter first arrived. Numerous research trips, conference visits and private stays on islands have taken me to the Caribbean, Europe, Africa, Asia and Oceania, eventually leading me to write this book on the geography of small islands.

The objective of this book is to go beyond existing geographical research and present an extensive epistemology of small island studies. Taking a global perspective, and supported by specific case studies based on experience and my own work, the book focuses on the spatiality of islands – in other words, the role of islands in space and the place they represent to their inhabitants. Its specific contribution to the Geography of Islands is the perspective of spatiality and the spatial (re)construction on islands and with islands in a globalised world. Rather than a collection of islands, the book is thus a

geographical introduction to the world of small islands, their specificities, historical backgrounds and current developments. It examines overlapping sets of geographical discourses – which can broadly be characterised as physical geography, geopolitical significance, cultural-historical projection, economic spaces and vulnerable places.

Dennis Cosgrove described islands as '... the loci of imagination, desire, hopes and fears, the goal of dreamers and mystics and misfits, multiplying moulds into which cosmographers and cartographers could pour both art and science, material spaces which the merchant venturer, pirate, colonist and governor could penetrate and exploit' (Cosgrove, 2005: 302). At the same time, islands are subject to globalisation, especially small islands that have long represented escape and intervention, discovery and remoteness, interests and power and self-esteem and *eigenwert*. For me, islands are 'outposts of developments' – with an emphasis on the plurality of developments, since there are many different forces, trajectories and topics within which change is a constant. Tomorrow will never be the same as today. Mutabor – I will be transformed.

In this global network of 'increasingly complex connectivity' (Tomlinson 1999), islands are considered 'places of condensation' (Debarbieux 1995) in which the general can be found in the specific and the specific in the general. Islands are not passive victims but agents of knowledge production and territorial transformation, processes that must be seen in a global context. I attempt to provide case study evidence for the selected topics, but should point out that everything I write is exemplary, in that it may be valid for several islands but will never apply to *all islands* of the world.

A book like this does not write itself. Many people contributed, and I'd like to thoroughly acknowledge their support and express my profound thanks. Cartographer Claus Carstens drew all the figures, maps and graphs in this book. Simon Strobelt supplied a valuable Pacific perspective and helped select and write the island brain teasers, giving readers some tough nuts to crack. This idea was borrowed from 'Rafi Reiser's Inselrätsel', a regular contribution in the German weekly *Die Zeit* that began in the 1990s and ended in 2006. Rather than copy the existing 'island brain teasers', we came up with our own to mirror the respective chapter topics. We hope our readers will enjoy them as much as we enjoyed writing them.

I am also grateful to Jan Petzold, my former PhD student, who co-authored the chapter 6 on island vulnerabilities. Environmental historian Nils Franke led me through the history of culture with unfailing good humour and curiosity about islands, opening up ever new island perspectives along the way. A range of colleagues have given invaluable advice and support. Corinna, Lisa, Jan-Hendrik, Martin, Manfred, Prem, Ludwig and Silke provided help, comments and proofread chapters; to each and all of them: a big thank you. Last but not least, Kira Gee helped me draft an English version of a book that was originally conceived in German. Her eternal optimism prevented me from giving up whenever the feeling arose that everything was getting too much.

I sometimes wonder what became of the author of the letter I received all those years ago. Should he come across this book by some accident, I sincerely hope it will make him smile. After all, it was your letter that somehow laid the foundation of this book. Many thanks for this.

Hamburg Beate M.W. Ratter
February 2017

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Introduction to the *Geography of Small Islands*

1

We are defined by the places we hold in the web of others' lives.

Ken Liu 2016

Abstract

This chapter introduces the phenomenon of islands as an object of geographical research. It focuses on the specialities and singularities of islands, opening up a field of tension between internal and external views and questioning existing stereotypes on vulnerability and romantic ascriptions to islands within this. Space is a significant factor of influence in terms of the mutual relationship between space and society, in the sense of analysing and assessing the significance of space for society and, in return, the significance of societal relations for the development of space. The development of islands is influenced by the spatial categories of isolation, distance/remoteness, size/smallness and insularity/islandness, as well as networking/connectedness, and not only within the context of ongoing globalisation.

Keywords

Island spatiality • Isolation • Remoteness • Smallness • Insularity • Connectedness • Vulnerability • Globalisation

Much can be said about islands. Everyone has an idea, a supposition, an experience or a memory linked to islands. The phenomenon of islands opens up an almost limitless field of discovery and fiction together with plenty of opportunity for statements and guesses, legends and interpretations. Countless books and papers have been written about islands: there are novels set on islands, novels about islands and travelogues; there are island calendars with impressive photographs, films set on islands, atlases of remote islands, collections of island literature, island histories and just stories. Often, though, islands are a projection of prevalent dreams and fictitious desires rather than places of actual experience or knowledge.

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To geography, islands are a spatial category all of their own, much like cities, deserts, mountains, coasts and riverscapes. There are innumerable tracts on individual islands, descriptions, analyses of the genesis of islands or papers on island societies. Still, geographies of islands are rare[1] when compared to what has been written on deserts, mountains, coasts or rivers. Maybe work on only 2% of the earth's surface is not considered important enough. Or the scientific engagement with places of desire is not really taken seriously. But maybe it is simply because everyone has something to say about islands and the subject matter is just too broad – island narratives are never-ending stories.

Despite these obstacles, this book attempts to present a geography of islands, looking at the specialities and singularities especially of small islands and their importance for understanding 'whatever holds the world together in its inmost folds' (Goethe 1808: 31, Faust I, verse 382, *translated*). Consequently, the book highlights their specific contribution to cultural, historical, political and economic developments from a geographical point of view. Although islands are commonly imagined as small and insignificant, their role as outposts has played an integral part in global development for thousands of years. Often, they were victims and subject to foreign interests, but sometimes they were forerunners of global innovation.

There is an ongoing and lengthy scientific debate on whether islands are showcases of larger countries or whether they follow their own rationale and rules. Can we understand small islands more easily because of their small size? Are events on these islands indicators of what will happen sooner or later in large mainland countries? Can small islands function as geographical laboratories? Are they the 'canaries in a coal mine' that teach us to be more careful in what we are doing to the world around us?

[1]Exceptions are, e.g. Stephen A. Royle (2001), *A Geography of Islands*; Stephen A. Royle (2014), *Islands: Nature and Culture*; Andreas Mieth and Hans-Rudolf Bork (2009), *Inseln der Erde: Landschaften und Kulturen*; Nathalie Bernardie-Tahir (2011), *L'usage de l'île*.

The attraction of islands as an ideal field of research is down to their supposed, or rather idealised, existence as contained spaces that are clearly demarcated and easily understood: '... a field site where, literally and figuratively, you can see everything' (Bernardie-Tahir 2014: 10). These clear boundaries seem reassuring as they give the illusion of scientific simplification. But the boundaries of islands are all but clear. Obviously, islands are defined by their coasts, but at second glance, even coasts are not a clear boundary, representing an indistinct line between land and water whose precise extent is difficult to determine and which is both a boundary and zone of contact between the terrestrial and marine realms. Gillis speaks of *ecotones* which are specific on islands as coastal and marine influences are direct, immediate and intense (Gillis 2003, 2004, 2014). As open rather than closed spaces, islands cannot be conceived of as laboratories; they are neither sterile nor artificially created nor cut off from all external influences. Rather than places of independent evolution, islands are 'largely immerged in vast economic, social, and cultural currents that develop at other scales, that overtake and include them, and that are at work behind every distinctive profile' (Péron 1993:15–16).

For a geography of islands, space and its significance as a factor of influence is a central focus. As a spatial science, geography is concerned with the mutual relationship between space and society in the sense of analysing and assessing the significance of space for society and, in return, the significance of societal relations for the development of space. Geography is concerned with revealing the structures of island spatiality.

On world maps, projection turns small islands into tiny black dots that seem to be randomly distributed across the huge blue expanse of the sea. Topographically speaking, their isolation and distance to other places are the only aspects of real interest. Geographically speaking, however, islands are much more than mere subjects, more than random specks of dirt on maps. Islands are inhabited by people: creators of their own strong sense of place, agents of their own development

and change and forgers of connections, inclusion and attachment to other islands, the mainland and the sea. In the words of Godfrey Baldacchino, 'islands are sites of agency, depositories of 'new things'. The fragmented (continental) narrative of the many islands of the world can be profitably replaced by a reclaiming, pan-archipelagic script of 'a world of islands'. The treasures that islands deliver include powerful messages, bearing the fullness of vital, novel noises' (Baldacchino 2007: 17).

There is something special about islands and island populations which cannot be explained by their small size or isolation alone. It is how they cope with the spatial facts they have been dealt, as well as their links to a global network of activities, interests and exchange. 'For a complete description of the island, it needs to be described as both isolated and connected, for the two 'are equally necessary for the elucidation of the phenomena'' (Clark and Clark 2009: 316). Obviously, then, a perspective reduced to just the island as such is too limiting. 'Connected isolation' or 'isolated connections' – to use oxymora – depict essential island attributes. Island spatiality is more than the dominant topographical perspective consisting of isolation, distance and size. Spatiality also has a social component that regards islands as a living space, sphere of action and field of projection and which understands islands as part of global processes.

In order to analyse island spatialities, it is therefore important to consider island space and the *effects of space* from different angles. Firstly, although the development of an island is influenced by its Cartesian position, what matters is its relative distance, its accessibility, remoteness or peripherality. Spatial position is never absolute but always relative, to be understood in relation to something which, depending on differing interests, is always subject to change. Secondly, the *potential of space*, understood here as the entirety of the natural, physio-geographical setting and associated processes of genesis, does influence societal developments and determines trajectories. At the same time, how society is organised is also influenced by historical, political and cultural developments, the lock-ins that have been created, location-specific, geopolitical influences as well as networks of the global economy. Analysis of the *organisation of space* can thus provide important insights on the social, political and economic structures and effects at play and how these are themselves subject to changing external and internal forces. Last not least, on top of rational structures and entities, internal and external ascriptions and interpretations are at work, implying that *perception of space* is an important factor in its development. This encompasses the idea of symbolic spaces but also emotional connections to space in the sense of *topophilia* (Tuan 1974, 1977) and sense of place (Relph 1976; Steele 1981). Sense of place can be decisive for identifying with space and creating bonds with islands.

Each of these spatial categories plays its own distinct role in the development of an island as a living space for communities – communities that are special because they live on islands. A comprehensive perspective on islands therefore comprises not only the topographical categories of *isolation*, *distance* and *size* but also the social categories of *insularity* and *connection*.

The French geographer Nathalie Bernardie-Tahir refers to Debarbieux (1995) and his concept of islands as special

> *places of condensation*, a synecdoche of the global territory where an island thus be a place that is both concrete and symbolic. […] that would condense human developments and the processes of territorial production. Places of condensation of globalized rationales and of the tension between the local and the global, islands make particularly heuristic geographical objects, and as such justify the relevance and the reach of Island Studies (Bernardie-Tahir 2011: 10).

This book will take a closer look at these various aspects related to space. It starts by asking how islands arise physically: what is the interplay of location, genesis and physical structure? These factors are important for determining the spatial potential of an island (Chap. 2). The next chapter takes a cultural historical perspective, reconstructing dominant island narratives, images and metaphors that have often been linked to islands and that have conceptualised them for centuries. These narratives continue to play an important

role in the perception of islands today, with islands as a *topos* – a place – acting as fields of projection for dreams and phantasies, but also for fears, horrors or disappointments (Chap. 3).

Apart from their role as a topos, the spatial situation and location of islands plays an important role, not least in the geopolitical game played by major continental powers. This aspect is considered in more detail in a chapter dedicated to changing national and global interests (Chap. 4). Chapter 5 is concerned with societal organisation of space from an economic and social perspective. Economic activities shape and alter spaces and topographies, sometimes beyond all recognition. Islands frequently turn into stages for external interests, although this does not imply they should always be considered victims. Connectedness is an essential element of spatial organisation, a factor that has also played a key role for early human life on islands. Islands form part of the global hub and spoke, not just as stepping stones for discovery and trade but also as sources and targets of migration. Migration ensures a social element within the global connectedness of islands and the inclusion of their populations in global networks. The rationale of islands, like so many other territorial categories, is linked to how engaged they are in globalisation and how they fare with respect to economic dependencies, urbanisation, political internationalisation, tourism development, etc. But the question remains whether there is an island-specific difference.

So what exactly is this island-specific difference that is commonly employed today to turn islands into iconographic prototypes of vulnerability, especially in times of climate change (Smith 2006)? What really constitutes this specific island vulnerability, which can be understood as a product of spatial location, potential and organisation, and what aspects of this are really island-specific? This also leads to the question of whether islands are locked in eternal victimhood or rather represent hotbeds of innovation. What lessons can be learned from analysing island situations (Chap. 6)?

Undeniably, spaces and places are produced both *on* islands and *with* islands. Concentrating on the differences or particularities of islands brings the danger of stereotyping as well as geodeterminism which need to be challenged. At the same time, most island scholars do not deny the influence of an insular location and isolation of the everyday worlds of island societies. Are islanders happier than mainlanders? According to the happy planet index of the New Economics Foundation, published for the first time in 2006, this seems indeed be the case, as in 2006, the top ten states included two small islands, Vanuatu and Dominica (see Winterman 2006). The 'happy planet index' works on a very particular definition of happiness based on the residents' feeling of satisfaction multiplied by life expectancy and inequality of outcomes divided by the average impact that each resident of a country has on the environment (ecological footprint). The outcome is a measure of so-called sustainable well-being. In the most recent report of 2016, Vanuatu dropped to rank 4, surprisingly overtaken by Costa Rica, Mexico and Colombia as non-island nations (ranks 1 to 3). The UN World Happiness Report, released annually by the UN Sustainable Development Solutions Network and using happiness and subjective well-being as primary indicators of the quality of human development, ranks 156 countries by their happiness levels. In the latest report published in 2016, no SIDS are found among the top 20 (Helliwell et al. 2016). So has the picture changed since the 'happy planet index' was first published? How happy islanders really are is of course a matter of definition and assumptions or else a problem of statistics. A critical analysis of islands can contribute to the deconstruction of romanticising images in literature, science, media and society.

1.1 What Is an Island?

So what actually is an island? As a holiday paradise, islands are often associated with beaches, palm trees and clear blue water. In films, they often enter the picture suddenly, threatening to finally sink the ship already in distress. Cemetery islands are somehow mystical, prison islands somehow terrible. 'Islands of the mind' become

places of refuge, somewhere to shelter from the world 'out there'. Islands can be tiny, but is a reef an island? Islands can also be huge, but is Australia an island or a continent?

The simplest and most explicit definition of an island is 'a piece of land surrounded by water'.[2] Implicit in this is the idea of islands being accessible – as long as you have a boat you can easily travel across. But real islands can be anything but accessible. There may be steep and forbidding cliff faces or dangerous offshore reefs or unpredictable currents that make the approach extremely dangerous. The same can be said for the definition of the term 'island': there have been several attempts but these are not always unambiguous.

Etymology, the study of the origin of words, offers a starting point for approaching the term 'island'. In Ancient Greece, islands were termed 'nesos' (= νήσος), although modern Greek applies the term 'nisi' (= νησί). The origin of this term is not clear, but it is probably derived from the verb 'to swim' (= νήχω).[3] Either the Ancient Greeks thus regarded islands as land that was close to or flooded by water – similar to flood plains – or they had the attractive idea that islands float on water.

The Latin root of the word, *insula*, points to a similar semantic journey, as does the Germanic usage of the word. *Island* ('Insel' in German) was borrowed from Latin,[4] standing for 'that which is surrounded by flowing water'.[5] But there is a synonym – Eiland (pronounced island) – where the 'ei' is linked to the Germanic 'ahwo', meaning 'water', which is still present in today's term 'Aue' (river meadow).

The Slavic languages are more specific. 'Ostrov' refers to the verb 'sreu', meaning 'to flow', making an island an entity engulfed by the flow of water. Here, a static element is introduced that contrasts with the surrounding water. This differs from the Greek and Roman perspective of islands as mobile entities.

Etymology may lead back to the original starting point, but history always implies change, which also applies to the term 'island'. In the continued development of the Latin language, the term 'island' became partnered by a verb – 'isolare'. In the medieval period, this interpretation had become so common that islands were regarded as something obviously distant, remote and isolated. The Greek and Roman 'terrain close to water' semantically turned into a place that was difficult to access (Billig 2010: 18–20).

Still, the original interpretation was not forgotten. In the nineteenth century, the German dictionary 'Grimmsches Wörterbuch' still knew the dual significance of the term, describing 'island' as land near water or a river meadow but also making the connection to the term 'Eiland' as land isolated by water (Grimm and Grimm 1971; see also Chap. 3).

Etymology therefore traces the geographical specificity of islands in words that capture their specific situation. Islands stand out from their surroundings, not unlike mountains, rivers or cities – they are noticeable and should be noted.

In line with etymology, the essential attribute of islands is that of distance. The distance created by the wet barrier surrounding them keeps them at arm's length, somewhat separate from an external observer. But islanders are faced with the same phenomenon. There might be the possibility to wade through the water that separates

[2] The editors of *Encyclopædia Britannica* 2015: 'island**,** any area of land smaller than a continent and entirely surrounded by water. Islands may occur in oceans, seas, lakes, or rivers. A group of islands is called an archipelago'.

[3] Vaniček (1877: 1159), *Griechisch-lateinisches etymologisches Wörterbuch, Band 2,* offers the interpretation 'das schwimmende Land' (floating land); Hofmann (1950: 218), *Etymologisches Wörterbuch des Griechischen, s.v. νῆσος,* Darmstadt, refers to *Doric* (another greek dialect) νᾶσος and a likely connection to the verb νήχω (to swim); and Frisk (1970: 317), *Griechisches etymologisches Wörterbuch, Band 2, s.v. νῆσος,* Heidelberg, indicates that the origin is unclear; however, νῆσος mainly is derived from 'to swim'.

[4] Walde and Hofmann (1938: 707f.), *Lateinisches etymologisches Wörterbuch, s.v. insula,* Heidelberg, traces '*insula*' back to 'das vom Wasser Umflossene' and declines the connection to the Greek νῆσος.

[5] Seebold (1993: 402), *Etymologisches Wörterbuch der deutschen Sprache*, s.v. Insel, Berlin, New York, additionally adds that the origin of the Latin term *insula* is also ambiguous.

or to build a bridge, but in principle, both the external observer and islander will need a boat, float or dugout to cross that watery distance.

At this point, we are leaving behind the field of etymology, moving towards historical and cultural points of access. Why have humans looked to access islands in the first place, and why do they continue to do so? Historians offer a ready answer, pointing to the protection afforded by the surrounding water. This made islands places of refuge that were difficult to reach for enemies. When the Persian king Xerxes (486–465 BC) threatened Athens, Themistocles (525–459 BC), the leader of the Greeks, had the population evacuated – to the island of Salamis off the coast of Athens, where they anxiously awaited the outcome of the famous sea battle (480 BC) that was later named after the island. The Persians suffered a horrible defeat, and the Athenians were able to return to their destroyed city.

In history, islands have repeatedly played the role of refuges, a role that has become strongly anchored in the collective memory of all human cultures. But this is just one of the many projection islands experienced over the course of time.

Historically and culturally, European ideas of islands are hugely influenced by Homer's famous epics, all of which are predominantly set in the Mediterranean world of the Cyclades. Homer's writings, and those of his antique successors, contain nearly all the reference points that continue to mark our own island projections – our idea of island paradise, islands as places of erotic adventure, threatening places, prisons or a welcome opportunity to refuel and recharge (see Chap. 3). It is these projections that have always driven people to seek out islands, to explore, to utilise or to subjugate them. This, however, required mastering the oceans up to a point where large distances could be travelled. On the one hand, this depended on ships as the means of transport and therefore progresses in shipbuilding which has remained a highly capital-intensive enterprise to this very day. Yet shipbuilding and seafaring would have been pointless without the specialised maritime knowledge(s) that developed alongside.

The superiority of the Vikings, for example, was grounded in both. Their dragon boats were technological masterpieces that allowed them to rule the elements of water and wind like no other seafarers in the nineteenth century AD. Able to orient themselves on the water, they manned expeditions to obtain a thorough overview of oceans, continents and islands.

This is where topography comes into play. Two-thirds of the Earth are covered by water, making islands important stepping stones for discovery and exploration. This process of discovery extended over a period of more than 2400 years if we take Herodotus' (484–424 BC) geographical writings as a starting point. Over the centuries, islands rarely lost their fascination, attracting geologists, biologists, anthropologists, literary scholars or cultural scientists alike. Every discipline has its own inherent research interests and perspectives on islands.

Islands as Subjects of Research

Johannes Riquet's doctoral thesis, titled 'The Aesthetics of Island Space: Perception, Ideology, Geopoetics' (Riquet 2014), is a highly instructive link between literary sciences and geography. Riquet refers to the reimagination of islands in the work of scholars and writers like Dening, Gillis, Hau'ofa, Benítez-Rojo and DeLoughrey inter alia, but he also recognises the complexity of islands as lived environments. The main point made by Riquet is that 'all islands are framed. They are framed in spatial terms and – in literature and film – in narrative terms. But islands interact with their frames…. they only become alive and dynamic if their frames are considered as part of their space' (Riquet 2014: 258).

Sociologically and anthropologically speaking, island communities have been of interest because scientists used to assume – quite wrongly as it turned out – that they had existed closed off from the rest of the world for centuries, enabling them to develop their own rules of human cohabitation. There was considerable interest in investigating how Western civilisation took hold in these communities and how they responded to this new influence (Lattas 2007). This simplistic assumption ignored the fact that island communi-

ties traditionally transcended their apparent limitations, be it through trade or migratory networks, and that most island societies are connected and should not be thought of as 'insular' (Anderson 2007; Gosden and Pavlides 1994).

Biology regards islands as enclosed biotopes rich in endemism. Many islands have their own very distinct flora and fauna that is often markedly different from that of neighbouring islands. New Zealand's fauna, for example, is unique: 85% of the animals that were not introduced by humans are only found there and nowhere else. Although New Zealand is relatively close to the Australian continent, life there has taken its own trajectory since it split off from Australia in the Cretaceous period (Fischer 2012: 42), leading to the development of entirely new plant and animal communities. The smaller, younger and more isolated an island, the poorer it generally is in species. This is easy to see in the Pacific islands. Plants in the Southern Pacific originated in Australasia and spread from West to East, leading to progressively lower island biodiversity moving eastwards. Tahiti has many more species than the more easterly Pitcairn islands or Easter Island. Animal diversity on islands is often significantly lower or higher than what is found on nearby continents. Island dwarfism is one possible adaptation to permanent food shortages caused by overpopulation in a spatially limited environment (Foster 1964). Island giantism is a consequence of lacking competition for food and the absence of predators together with an oversupply of food, enabling the individuals of a species to grow progressively larger with every generation (Ganzhorn et al. 2016).[6]

Geology can answer a question that has so far remained open here, namely, the conceptual difference between islands and continents. Although technically speaking, every land mass that rises above the water is an island, Australia is definitely a continent rather than an island. Continents (derived from the Latin word *continens*, meaning connected) differ from islands in their geological structure and development. Continents are large, continuous land masses, including Eurasia (Europe and Asia), Africa, America (North, Central and South America), Australia and the Antarctic. Edges of continents that form a geological unit on account of their size and their shape like a peninsula are termed subcontinents (such as India). Geologically speaking, islands located on a continental shelf are classified as being part of that continent. This is the case with Great Britain and Ireland, for example. The largest island on Earth is Greenland which extends over 2,166,086 km^2 and is part of Denmark politically, although it is North American geologically through its location on the American plate. In contrast, Australia, which extends over 7,692,024 km^2 in total, is an independent, continuous continent on the Australian plate which has not had a geological connection to any other continental land mass since it split off from the Antarctic about 80 million years ago. The distinction between island and continent is therefore not based on physical size but geological formation. Geology makes all the difference. A continent has its own continental plate that floats on the Earth's outer mantle. An island is an integral part of a continental plate irrespective of its size. A continent effectively *is* the continental plate, although the two are not always identical (see Eurasia) (Menard 1987).

The economic sciences also thought it necessary to define islands. Johann Georg Krünitz's (1773–1858) 'Oekonomische Encyclopädie' begins with the classical statement that 'the word island is limited by its usage, which is only accorded to small lands surrounded by water' (Mieth and Bork 2009: 14). Land registry maps of Scotland from the nineteenth century are a little more specific; here an island is defined as a land mass in a body of water that can support at least one sheep. In a slightly modified way, this economic perspective still applies to Canada. Here, the definition is that a piece of land fully surrounded by water may be settled and termed

[6]Up until it was driven to extinction by the Maori, New Zealand was home to the Moa, the largest flightless bird on Earth that could grow to more than 3 metres in length. Other examples of island gigantism are the Komodo dragon, the largest living lizard species with a length of 2 metres (occurring on the Lesser Sunda Islands), and the giant tortoises on the Seychelles and Galapagos Islands (see Quammen 1996).

an island if it has at least one living tree (Mieth and Bork 2009: 14).

Jurisprudence also saw the need for a definition. This was not just about settling ownership disputes with respect to islands but also the emergence of the international law of the sea. The definition of islands put forward by the United Nations Convention on the Law of the Sea (UNCLOS) III played a particularly significant role in this context, decisively contributing to the territorialisation of the sea. According to UNCLOS III, an island is defined as '[...] a naturally formed area of land, surrounded by water, which is above water at high tide' (UNCLOS Part VIII, Article 121/1). This definition has political territorial implications, as according to UNCLOS, an island – an area of land surrounded by water that can sustain human habitation or economic life on its own – permits the demarcation of (then newly established) delimitations of maritime jurisdictions. This 'area of land' can then represent the starting point for countries to claim and exploit a continental shelf and exclusive economic zone, which either surrounds the island or which may be considerably extended by the presence of an island (see Chap. 4).

Law and politics are close cousins. Currently, environmental policy plays an important role, having long since recognised the role of small islands in particular as environmental factors. Environmental policy recognised the problem of having to categorise islands due to their diversity and hugely differing sizes. It thus fell to the United Nations Environment Programme (UNEP) based in Nairobi to work on a conceptual framework. In 1998 it published an annotated list of nearly 2000 of the significant islands of the world.[7] This Island Directory (Dahl 1998) is designed to summarise different types of information, giving an overview over the geographical, ecological and human interests related to islands. Where there is enough available data, a variety of indicators can be used to compile listings and compare islands. Islands over 17,000 km^2 in size were left out because they were thought to be too large to make a sensible contribution to the collection (see Dahl 1986, 1998).

Another effort was the UNEP GEO SIDS initiative to mark the UN Year of Islands in 2015 (UNEP 2014). The initiative began with an expert report published as the UNEP/UN DESA Foresight Process report on emerging issues for the Small Island Developing States (SIDS). This is part of the ongoing UNEP GEO process, helping to ensure that SIDS voices are heard at the global assessment level. The Foresight Report was followed by the UNEP GEO SIDS Outlook which was developed as a contribution to the 2014 Third International UN Conference on SIDS in Apia Samoa and as input to the development of the post-2015 Sustainable Development Goals. At the core of the SIDS Outlook process was the UNEP Live Community of Practice on SIDS, made up of government experts, scientists and policy makers. An author group drawn from the Community of Practice was invited to interpret what is known today about the state and trends in the SIDS environment and to articulate an ensemble of outlooks and policy choices for the future. Based on the examination of the diverse realities of island states and communities, it provides an ensemble of four island-centric futures: the blue-green economy, technology leapfrogging, priority to island community and culture and reconnecting with nature. The report includes options for a SIDS sustainability policy framework, to help individual states consider future policies that best respond to SIDS' needs.

The access points here just represent a selection, as the same scientific disciplines can of course be applied to island and continental communities. Still, these focal points developed because of the specificities of islands. Ultimately, the knowledge emerging from every scientific discipline always depends on their epistemologies, the questions asked and the methods employed, whose relative nature and links to particular locations always need to be considered.

[7] A preliminary edition of this Island Directory was published by UNEP in its Regional Seas Directories and Bibliographies series, No. 35 (573 pp.), in 1991, but is now out of print. A new Global Island Database based on Google maps and new satellite data sets will be launched in 2010 by the UNEP/WCMC; see http://glispa.org/commitments/11-commitments/39-global-island-database.

For islands, this latter aspect matters strongly. Due to the long-standing colonial power structures, research perspectives have mostly been brought to islands from the outside, framing island residents rather as objects of research than equitable shareholders in the scientific discourse – a problem that persists today (see McCall 1994; Baldacchino 2008; Lattas 2007). Godfrey Baldacchino goes as far as stating that 'island scholarship remains dominated by those observing from the 'outside-in'' (Baldacchino 2007: 2) and acknowledges that his Island Studies Reader 'A world of Islands (2007) is 'a collection penned by authoritative experts; however, most of these are (as they themselves may be want to admit, and with all due respect) white, western, middle-aged men' (Baldacchino 2007: 2). It is helpful to be reminded of this circumstance and raise reflexive issues, but what does it mean for island research? Are only islanders themselves permitted to carry out research on islands? Is island research carried out by women inherently preferable?

I believe it is more about awareness – not just allowing other perspectives to enter the picture but actively uncovering them and taking them into account. In science, islands will predominantly remain a subject that is 'looked at' from the 'outside'. Perspectives of other cultures, of islanders and non-islanders, as well as other disciplines can evoke an important *gestaltwechsel* or conceptual shift that helps to understand islands in a more differentiated and comprehensive way (see Chap. 7). Often, such perspectives contribute entirely different ideas and patterns of thought, a world away from the Euro-centric or Anglo-American scientific tradition. John R. Gillis notes 'In the West there has been a tendency to think archipelagically, to focus on the parts and ignore the whole. Other cultures pay much more attention to that which connects than to that which divides. The islanders of the Pacific, for example, have traditionally thought of themselves as belonging to a "sea of islands" rather than to any one particular territory' (Gillis 2007: 276).

Epeli Hau'ofa confirms this, pointing to the orally traded myths and legends of the Polynesian and Micronesian people that strongly contradict the idea that islanders live on remote, isolated small islands. Their world not only consisted of solid land but also encompassed the surrounding ocean, as far as they were able to explore it with their seafaring technology. He even goes beyond the statement by Gillis, in that their world also included the wide sky together with its gods, as well as the 'underworld', whose fiery nature they often perceived through shaking ground (Hau'ofa 2008: 31). The holistic perspective portrayed here might even call into question the main criterium set out to define 'island', namely, that of distance created by water. When water and earth are considered one, the island is no longer an island and certainly no longer small. Hau'ofa thus states a little provocatively that 'smallness is a state of mind' (Hau'ofa 2008: 31).

How Many Islands Are There?

The above makes clear that island thinking is not as homogenous as commonly assumed – stereotypes can readily be noted. The easiest solution, one might conclude, would simply be to measure the size of islands and categorise them based on that. The history of mankind is closely linked to the history of island discovery and description, and the question of how many islands there are is age-old. Technological innovation has increased the precision of counting them, making use of sea-going vessels, cartography, telemetrics and satellite information, but still it has been impossible to come up with an absolute number. This is not just due to the different understandings of island but also their constantly changing natural features, caused, for instance, by sea level transgression and ingression, isostatic movements of the earth, sedimentary and erosion processes, volcanism and coralline growth. Islands come and go, and islands permanently change their shape and size. It is these dynamics which make them traceable and untraceable at the same time. Today's official statistics deliver contradicting numbers of islands even at country level. So does it really make sense to speak about an absolute total?

The geographer Christian Depraetere (2008: 6) listed 86,732 islands with a size of more than 0.1 km^2. This diligent work is based on the Global

Self-consistent, Hierarchical, High-resolution Shoreline (GSHHS) database (Wessel and Smith 1996). In the case of islands below the size of 0.1 km^2, the author applied fractal models, estimating an additional 700 million of islands to exist globally (Depraetere and Dahl 2007: 68). But this comes back to the question of how small an island can be in order to still be classed as one.

The list of island states is much easier to define. Out of the 193 sovereign states officially recognised by the UN (2016), about a quarter – 47 – are island states. Their territory is exclusively on islands, and no part of their territory is on continental mainland (DOALOS 2001, Part VIII, Art. 121). The largest island state is Indonesia with a land mass of 1,811,569 km^2 and a population of 258,316,051, and the smallest is Nauru with a land mass of 21 km^2 and a population of 9591 (CIA 2016).

Unlike the description of the geographer in Antoine de Saint-Exupéry's 'The Little Prince' (1943) as a 'scholar who knows the location of all the seas, rivers, towns, mountains, and deserts', however, the task of geographers is not limited to counting, describing and categorising foreign countries and islands. Geographers are not collectors of islands. As my old teacher Gerhard Sandner used to say, '... and even if I count all the tigers in the world it still does not make a geography of tigers'. Rather than counting them, identifying island spatialities focuses on the specific features that allow the characterisation of islands in their specificity. These include:

- Islands are circumscribed by a coastline.
- Islands are strongly influenced by the sea.
- The base level of islands is quickly reached, which can lead to dramatic erosion and serious problems especially close to the coast.
- Development starts on the coast and moves towards the centre.
- Islands provide the stage for a mutual relationship between space and society.
- Insular spatial structures and organisation are as diverse as those on a continent.
- Island populations develop a special sense of place and insularity.
- Islandness is bound up with isolation and connectedness at the same time.
- Islanders' practices and routines are distinct and delineated.
- Last but not least, 'island' is a mental construct.

1.2 Isolation: How Isolated Are Islands?

As we have seen, one of the specific properties of islands is that they are fully and continuously surrounded by water. The occidental perspective interprets water as a boundary, manifesting itself as coast in the transition to land. This Western view does not always correspond to the self-image of indigenous island peoples. Some of them regard the sea surrounding them as a bridge or even an integral part of their island space. The isolation of islands is therefore relative, more so as boundaries are never entirely impenetrable. 'All boundaries are porous: ask prison guards! The ability of island spaces to keep objects out (or in) is always relative. Island studies are very much about the implications of permeable borders' (Baldacchino 2007: 5). Means of overcoming boundaries include seafaring ability, migration or the positive exchange of different religious beliefs. In addition, anthropogenic processes also change islands and may even cause them to emerge and disappear. This latter point does not refer to the irritating discussion which regularly pops up in irregular intervals, namely, whether an island stops being an island once there is a bridge connecting it to the mainland.

According to Mieth and Bork, an island becomes a peninsula when a bank of earth or dam is created to link it to the mainland. Bridges and tunnels, in contrast, do not change its status (Mieth and Bork 2009; see also Baldacchino 2004). This is a rather arbitrary and normative distinction. There would be an outcry on the German island of Sylt if they knew about this definition: Although the 11.3 km-long Hindenburg Dam or causeway has joined the North Frisian island to Schleswig-Holstein mainland since 1927, the island has always remained

an island to its inhabitants. An island also remains an island when an artificial land bridge connects it to the mainland, such as in the case of Singapore or various Dutch Delta islands such as Ijsselmonde or Urk (Persoon and de Jonge 2007). Some places may even retain 'island' in their names for historical reasons long after being connected to a larger land mass by a land bridge, such as Coney Island or Coronado Island. Vice versa, a man-made canal such as the Corinth Canal does not turn the Peloponnese into an island either. An island is therefore not purely a physical structure but basically a human construct.

1.3 Distance: How Remote Is an Island?

Islands are always remote, as distance implies space between the island and the person wanting to come or go. Having one leg on the island and the other on the continent is really only a theoretical possibility. Nevertheless, distance is also relative – in physical, social and cultural terms. The distance between the Pacific Melanesian islands and the nearest mainland is immense, but much smaller between Corsica and the mainland. Does this mean that Corsica's 'islandness' is somehow diminished? Measured distance alone does not say much about an island's isolation and remoteness. The 137 Hawaiian islands and atolls are located a long 3682 km from the US coast. This certainly isn't close in geographical terms. But is Hawaii isolated? Given the more than 6 million visitors per year, the answer is most certainly no.

Topographical distance is easily measured, unlike remoteness or isolation. Arthur L. Dahl attempted to render island isolation measurable by introducing a special 'isolation index', which he defined as follows: 'To measure the isolation of the island from potential sources of colonization, the square roots of the distances to the ***nearest equivalent or larger island***, the ***nearest island group*** or archipelago and the ***nearest continent*** are added to give an index of isolation. Where one of these does not exist, the next higher distance is repeated, except in the case of small satellite islands close to much larger land masses' (Dahl 1998). This enabled the operationalisation of island isolation at least to some degree. In that concept, the North Sea island of Amrum scores a relatively low 11 as the island is closely linked to the German mainland and the islands of Sylt and Föhr are nearby. The island of Aruba, situated 25 km off the coast of Venezuela but still part of the Kingdom of the Netherlands, also has a comparatively low isolation index score of 18; the island relies on tourism as its economic mainstay. In contrast, the Cook Islands have a much higher score of 106. This is an independent island state in the Southern Pacific, a long way even from New Zealand, where the population is about 20,000 and the tendency to emigrate very high (see Integrated Island Database (IIDAB)).[8]

Actual isolation, however, is difficult to determine from this perspective alone. The relative position of an island is also determined by (geo) political interests, affecting the geopolitical power game and localised conceptions of space (Ratter 1988: 237). Taking the spatial understanding of island residents as a starting point can produce astonishing results. The Caribbean political map, for example, changes significantly when cultural history, resource relations and (geo)political friendships are taken as a basis. The specifically Cuban perception of space, for instance, is strongly determined by the international political power game. Initially a colonial outpost of the Spanish empire, the island, was liberated with the support of the USA, after which it turned into a self-declared US playground and haven for brothels against which Cuban revolutionaries felt they had to rise. During the Cuban crisis and the Cold War, Cuba was periodically at the centre of the world's political map: This was where the interests of the USA clashed with the threatening political rhetoric of the USSR. At that time, Cuba itself was part of the 'Group of Non-Aligned and Other States'

[8]The island project of the Institute of Geography at Hamburg University has added further information on islands to the isolation index, creating the Integrated Island Database (IIDAB); see http://www.island-database.uni-hamburg.de/about.php

and interested in nearly all continents, although those states that were of particular significance in terms of foreign or resource policy had a stronger presence. In the 2000s, Cuba was relatively closer to Chavist Venezuela than the USA as the latter continued boycotting it.

The eastern Caribbean is a similar playground of political machinations. US President Ronald Reagan justified the invasion of Grenada in 1983 by emphasising its 'direct proximity' to the USA, although factually, the distance from Washington to Grenada's capital of St. George is 3348 km, more than two times the distance between Berlin and Moscow (1608 km). In the media the US government attempted to present Grenada as a close ally of the Soviet Union and Cuba, although Grenada's Prime Minister Maurice Bishop wanted to remain non-aligned despite the support that was lent by the two countries. In the eyes of the USA, the spread of socialism in the Caribbean – a backyard for the USA – had to be stopped at all costs. A wonderful and very amusing literary tale of Caribbean-British stubbornness, external political interests and the determined search for Caribbean unity can be found in *A High Tide in the Caribbean* written by Peter Morgan (1990).

This section began with the question of distance and how isolated an island really is. Again, we note that seemingly simple questions related to islands are not easy to answer. Islands are multifarious entities and the fact that they are small does not make them easier to classify.

1.4 Smallness: How Structured Are Islands?

Islands are commonly imagined as small. Of course, Great Britain is also an island as it corresponds to the topographical definition of island, but it is rarely considered from that perspective. It seems much too large for this, too powerful politically and economically and too closely intertwined with the continent despite the recent vote to leave the European Union. The smallest island state of the world is Nauru with a surface area of only 21 km^2, making it the smallest state in the South Pacific and the third smallest state in the world, behind only Vatican City and Monaco.[9] But size does not need to refer to area alone. Greenland, the largest island on Earth, has an area of 2,166,086 km^2, which can hardly be considered small from a topographical point of view. But its population is only 56,370 (2013), and its capital of Nuuk is one of the smallest on Earth with only 16,740 inhabitants (2014). So does this make Greenland one of the largest or smallest islands on the planet? Evidently, size is relative.

There are only estimates on the total number of people living on islands, mostly due to the lack of precise information, especially regarding islands that are part of continental states. Estimates vary between 600 million (Baldacchino 2007) and 730 million (Mieth and Bork 2009), which would amount to about 11% of the world's total population being concentrated on around 2% of the earth's surface. One-fourth of the world's sovereign states consist of island or archipelagic territories, and if the land area and exclusive economic zone of the world's islands were to be combined, it would cover more than one-sixth of the Earth's total area (Baldacchino 2007). Moreover, islands that are small in terms of surface area might still be large in terms of population: geographically speaking, Taiwan is much smaller than New Zealand, but its population is six times the size (around 23.5 million).

The notion that islands are small can lead to erroneous conclusions. Islands are commonly imagined as clearly structured, or as microcosms of the continental macrocosms (Brookfield 1990: 31), or as politically insignificant or minor matters for science. Islands, so the common thought, are easy to understand, and 'big issues' cannot be resolved based on small islands. But islands strongly resist these generalisations. 'Small islands are small. Small islands, however, are not easy to understand just because they are small. A small system is just as complex as a large area state' (Ratter 1996: 114).

Three major aspects determine the complex situation of islands: their limited resources (1),

[9] Nauru total population, 9591 (CIA 2016, July 2016 est.)

the multilayered island fabric (2) and close social interactions (3):

1. Limited island resources narrow down economic options and alternatives. Only few islands can rely on sufficient mineral resources; the same applies to intensive agriculture. On the other hand, many islands have sand, sun and a coastline suitable for tourism, which has opened up particular economic opportunities.
2. 'Complex island fabric' means the close interplay between ecology, economy, society, politics, administration, external relations and so on – no different really from what is going on in larger continental states. This is why the hypothesis of a microcosm within a macrocosm is so appealing. But the interplay of the various factors is much more noticeable in the limited world of an island, not least in an ecological context. While the logging of a forest may not affect many people in a large continental state, on an island, this might be a significant intervention that must be carefully considered. Pumping waste water into the sea can directly impact the surrounding coral reefs, which in turn play a significant role in coastal protection and fishery and might also support tourism. Impacts such as these become apparent very quickly at various levels of island society, while larger continental states can buffer them more easily simply on account of their size.
3. Due to the small overall size of the population, communication on islands is more densely structured, resulting in closer social relations. This might translate into positive aspects such as strong neighbourhood support, informal agreements or social practices such as shared childcare. On the other hand, it might lead to higher social control and greater difficulties with respect to breaking out of the social structure, changing social order or being an outsider over an extended period. Recent research on social capital and adaptation to climate change on islands has often focused on supposedly vulnerable Small Island Developing States (SIDS), e.g. in the Pacific (Hay, John 2013a; Barnett and Campbell 2010). Yet few researchers have examined the role of social capital in dependent small island territories in the Western and European periphery (cf. Young et al. 2014; Petzold 2016, 2017). 'A central component of the social capital of islander communities is therefore their flexibility and adjustment capacity. In practice the "sustainability" of island economies has very little to do with self-sufficiency or environmental protection, with which it is often equated' (Bertram and Poirine 2007: 337). Social capital is the key sustainability requirement, which encompasses people (including diasporas), institutions and mutual understandings (Baldacchino 2005). Especially small island communities develop high bonding social capital, which is important for the continuity otherwise threatened by emigration (Hay, Pete 2013b: 225). Such dense social networks, networking and cooperation are important factors for resilience (Barnett and Adger 2003). Campbell (2009: 91), for example, observed an increased inter- and intra-island cooperation to increase food security in traditional Pacific islands communities and inter-island networks and mechanisms of help can increase resilience (e.g. after cyclones) (Kelman and Khan 2013: 1133).

So, although islands are seductive in terms of 'thinking small', they are owed much greater reflection and in-depth consideration.

1.5 Insularity: Is There an Insular Identity?

> If geography has made Providencia an island, history has given it insularity. (Peter J. Wilson 1973: 43)

Despite the ambivalence of isolation as either enclosedness or remoteness, it is noticeable that island societies are often distinct and different from those of neighbouring islands or continents. This phenomenon is captured by the term 'insularity' which describes '...the specific living situ-

ation of islanders in contrast to mainlanders and the behaviours that result' (Ratter 1992: 78). Insularity can describe two things, namely, physical isolation, measured by distance to the mainland, island size or contacts to other regions (Clark 2009: 607), and the psychological self-perception of those inhabiting an island. Olausson (2007: 30) claims that insularity, i.e. the small size of islands and their physical remoteness, leads to stronger delineation of the *other*. Indeed, many islanders have habits that might seem strange to visitors at first. On the German island of Helgoland, for example, people do not shake hands in greeting, and anyone extending their hand in greeting quickly reveals himself as a foreigner and outsider. Practices, routines and rituals are features of distinctiveness and difference and are used both externally for the purpose of delineation and internally to create identity.

Insularity appears to arise out of geographical delineation, manifesting itself in a coastline and the isolation this implies. But, as described above, insularity and remoteness should not be overestimated as they are relative already within themselves.

Social communities can exist in isolation for various reasons. Rarely is isolation triggered by the obvious boundary of a geographical unit. Delimitation is more often based on individual concepts of self or the collective belief of a group which then insists on material boundaries. A simple example is the idea of protecting one's own home ('my home is my castle'); another is monastic communities whose delimitation from the outside world often manifests itself in walls but who really set themselves apart through their monastic rules. Social constructs such as these can be just as effective in causing isolation as a chain of mountains or a wide river. An island therefore does not necessarily equate with island identity, as even on small islands, community identity may not be uniform – outsiders always exist (Taglioni 2006: 673). Criticism of the principle of insularity goes as far as stating that the phenomenon has been imported by continental powers in the case of the Pacific islands and the Caribbean (Gillis 2007: 276).

At the end of the day, it is not the island itself whose physical nature influences the physical and mental characteristics of the people living there – it is rather the interaction of these and other features. Also, islanders themselves should not succumb to the idea that they are more strongly influenced by geographical conditions than their mainland counterparts (Taglioni 2006: 674). Insularity must be considered a social phenomenon, which can readily manifest itself without physical separation. Insularity is largely down to the self-image of a group, which might be based on certain shared beliefs or a shared historical tradition.

Nevertheless, there is no denying that boundaries facilitate the development of identities. In the context of islands, coasts cannot be overlooked as barriers. But what impacts did this barrier have on the social communities living there, and does it continue to have these same impacts today?

Island situations and the greater spatial proximity of people living on islands harbour opportunities for greater social cohesion and closer personal relationships on account of more immediate social interaction (Royle 2001: 11). Isolation and delimitation are typical island characteristics that lead to island-specific life forms and insularity. Baldacchino (2005: 33) explains that 'small islands are special because their 'geographical precision' facilitates a (unique) sense of place'. So far, however, this statement has hardly been backed by empirical evidence as direct comparisons between islands and continental states are lacking. Naturally, the physical size of the island and the number of people living on it play an important role in this context. Individuals living on islands may also experience important political decisions – or other events that affect the entire community – more intensively; as there is less room to withdraw from them, they may be more immediately affected. There may also be more opportunity to shape events through participation. Close relations in the sense of lower anonymity can also relate to collective history, traditions and everyday practices (Ratter 1992: 79). It follows that insularity can definitely impact on the identity of individuals and island communities but that it should not be conceived in deterministic terms.

The phenomenon of insularity stood out starkly when European continental powers entered into the history books of islands. As a force with superior military and technical capability, the differences between the two cultures became very obvious to both sides. Subsequent interactions were largely dominated by the new arrivals whose ideas of island peoples persisted for a long time afterwards. Writing as late as the 1930s, the anthropologist Raymond Firth still notes very heterogenous ideas of remote non-European island communities, ranging from idealised images of the 'noble savage' to the opposite view of island residents as uncultivated and lazy (Baldacchino 2008: 39). But the appropriation of non-European islands by continental powers also initiated an exchange between the respective cultures, meaning that the two central characteristics of insularity – the coast as a natural obstacle and isolation – gradually lost their hold. The process of overcoming boundaries has reached a new level with the globalisation of the twentieth and twenty-first century, bringing with it a whole new set of challenges and opportunities.

The population of small islands does not exist in isolation. Just like anywhere else in the world, islanders strive towards certain ideals and goals. Tourism also has an impact and reduces the seeming remoteness of islanders (Gillis 2007: 276). On the other hand, many islands suffer from emigration and the demographic consequences this brings – not only in recent times (Smith 2006: 232). New technologies enable distances to be covered quickly: aeroplanes have replaced ships as key actors, in particular in the case of larger islands and tourism, and the internet plays a vital role in facilitating communication with the mainland and other islands. In fact, connection has always been essential for surviving on islands – connectivity is vital.

1.6 Connection: The Other Side of the Coin or How Globalised Is an Island?

Although islands are defined by their geographical isolation, their existence is also determined by their connection with the sea, with other islands and with the mainland. To connect means to tie or bind (nectere) together (com-). Words sharing the same Indo-European root (ned) include nexus, annex, knot, node, net and nettle (fibres of which were used to make string) (Clark and Clark 2009: 311). For islands these connections have always been central, not only from an economic and strategic but also from a social and cultural point of view. Stepping stones in the Mediterranean, island holism in the Pacific and migratory movements in the Caribbean – these are not only historical or forced connections between Europe and Africa and America, respectively, but continue to represent a web of social relations that expresses itself spatially and manifests itself socially. This highlights the fact that islandness is not only about isolation but very much about connection.

Making connections is not a modern phenomenon nor is it limited to island communities. All of us connect physically and bodily to the world around us for food and the satisfaction of all sorts of needs. We also connect metaphysically: emotionally in social and personal relations and cognitively in understandings of the myriad ties, bonds and relations – not least causal – that make our surroundings. Connections literally *take* place in that they shape, construct or change space. 'To facilitate connection we develop infrastructure' (Clark and Clark 2009: 312), and we need technology as a means of transfer across space. While it was shipping technology initially that played a key role in crossing oceans and linking islands to the mainland, this has been replaced by new technologies and new means of traversing space in times of globalisation.

What Is Globalisation?

Globalisation describes the process by which national and regional economies, societies and cultures have become connected through the global networks of trade, communication, immigration and transportation. Globalisation as such is a modern phenomenon that goes beyond the global trade that existed during colonial times. Columbus (1451–1506) and other explorers of his time are therefore not the founders of globalisation but its pioneers. In the nineteenth and early twentieth century, the colonial period was suc-

ceeded by imperialism where industrialisation enabled hitherto unknown levels of accumulation and combinations of capital, knowledge and technology, leading existing structures to be finally replaced by new forms of rule and exploitation.

Global trade has grown enormously since the Second World War. International trade in manufactured goods alone has grown by an estimated factor of 100 from US$ 95 billion to US$ 12 trillion in 50 years since 1955 (FT 2016). However, globalisation is much more than just trade. In the last 20 years, the number and depth of links between nations and regions have grown enormously, not the least due to technological inventions and progress in transportation and communication technologies. Communication costs have declined dramatically, allowing easy daily contact via the web and telephone and enabling the outsourcing of IT and other services and the rise of global work teams. Parts of the global economy would not be imaginable without these processes, such as international finance and offshore financial centres or international tourism which is growing almost annually.

Other critical links are migration and transportation. The International Organization for Migration estimates that there are more than 240 million migrants (2015, according to UN DESA 2016) around the world who have largely migrated from the emerging to the developed countries, particularly to the USA, Canada, Australia, the UK and Continental Europe. Despite recent tensions in Europe and elsewhere, this migration has changed the face of these regions and considerably strengthened personal links across borders.

Finally the transportation of people and goods has increased enormously in the last few decades, with huge growth particularly in international aviation. During the 1980s and 1990s, annual growth rates of 5% in the number of airlines seats offered were not uncommon; by 2010 the total number of flights per month had exceeded 2.3 million. This huge growth has forged stronger business and personal links, making today's world much more connected than in the past (FT 2016).

While discussions of globalisation often focus on economic aspects, such as trade, foreign direct investment and international capital flows, the term actually comprises a much broader range of areas and activities, including culture and media and sociocultural, political and even ecological factors such as climate change. 'Cocacolization' and 'McDonaldisation' describe the spread of Western ideas around the globe, pushing traditional cultural connections into second place and equating modern everyday worlds to Western or US-American worlds. After the fall of the Berlin Wall, the notion briefly arose of a 'one world way' of doing business, but more recent events suggest that those thoughts were misplaced. Today we see not only the success of a number of economic and national systems but also resistance to pure Westernisation.

If we think of globalisation as a form of *integration* of economies, industries, markets, cultures and policy-making, we need to ask what is really meant by integration and what is being integrated into what.

Globalisation implies the opening of local and nationalistic perspectives to a broader outlook including the view of an interconnected and interdependent world with free transfer of capital, goods and services across national frontiers. However, this does not and never did embrace the unrestricted movement neither of labour nor of goods. Some economists even suggest that it may hurt smaller or fragile economies if applied indiscriminately. Globalisation has led to or has increased opposition at various levels, to numerous national political alliances and to the flaring up of regionalisation movements at the subnational level, for instance, in Corsica, French-speaking Canada or Scotland. There is also an increasing search for local connection, identity and meaning at the individual level. There is a need to ask who benefits from globalisation and what are its costs. In the context of small islands, the question is what role they can play in this global network of economies and cultures. These questions will be further addressed in the course of this book.

Geography and Globalisation

The science of geography is also affected by globalisation. While its previous topics have lost none of their significance, they have begun

to present themselves differently and in more depth. In an economic context, a quantitative overview of places of production, international distribution, the consumption of goods, services and capital and migratory streams is certain to be preserved, but added to this are new and more qualitative tasks for the discipline. Connections between actors, for example, are no longer just analysed horizontally but also vertically in terms of the forms they may take (e.g. international companies) and the many levels of exchange (e.g. dispersed production sites for the manufacture of a complex good). Writing in 2011, Peter Dicken states that 'the crucial diagnostic characteristic of a 'global economy' is the qualitative transformation of economic relationships across geographical space and not their mere quantitative geographical spread. … Globalisation processes are reflected in, and influenced by, multiple geographies, rather than a single global geography' (Dicken 2011: 7).

Important processes include:

- Localisation processes, i.e. the concentration of economic activities in one place and their vertical organisation in that place
- Internationalisation processes, which may imply economic activity across borders without much functional integration or extended economic activity combined with high functional integration
- Regionalisation processes in the sense of supranational globalisation processes, such as the expansion of the European Union (Dicken 2011: 7)

Mirroring the relations between space, isolation and connection, in this sense, globalisation literally *takes* place in the sense of grabbing and taking hold of places. This taking of place manifests itself much more directly and intensively in the confined spaces of small island states.

Islands and Globalisation

So what was, and is, the role of islands in this process of globalisation? What impacts does globalisation have specifically on islands, and how does this in turn reflect back on continents? This book aims to trace these and other questions – as there is no doubt that globalisation has changed the situation of islands in particular.

In our age of globalisation, islands have unquestioningly become part of a shared world. Thanks to communication technologies they are no longer (very) remote, and modern means of transport have enabled many people to live their dream on an island paradise – an idea still widely shared. Mass tourism is the keyword here, which may have changed the economic base of many islands but also led to serious social and ecological consequences.

Globalisation also changes the social fabric of islands. More people are arriving, some come to stay, while many islanders realise their own dream of living on the continent. New traditions are brought to new places called home. Innovation never was a one-way street, and so a plethora of cultural goods and practices came to islands but also travelled out from them to the continents. We have largely forgotten what came to us from islands: barbecues, tattoos, the catamaran and many other things have become embedded into our continental lifestyles, although their origins lie in the cultural practices, routines or knowledge(s) of islanders (see Textbox 1.1).

A special chapter in the changing economic base of islands is being written by international finance, one of the key results of, and in turn driving forces of, globalisation. The ambivalence of islands in terms of proximity and distance is particularly apparent here. Some islands are using their geographical distance to develop their own legal space in terms of favourable taxation schemes which can turn them into financial havens (Chap. 5).

Islands also took on a new role in the context of the Law of the Sea. The territorialisation of the oceans that followed in the wake of globalisation turns them into outposts from which further claims can be staked. Unfortunately this process is often linked to military threats and actual conflicts (Chap. 4).

Politically, the question begs whether islands best act alone in the global context of power or whether they better affiliate with each other in international organisations in order to promote shared interests. Can the formation of new alli-

Textbox 1.1: Sneaky Infiltration – Unknown Island Treasures

For many centuries, the dominant European world view was one of irrefutable cultural superiority over the non-European, non-white and non-Christian rest of the world. Although the occupation of foreign territories and the subjugation of supposedly inferior peoples were mostly driven by economic and political interests, there was also a cultural mission, namely to radically assert occidental culture over the barbarian and uncivilised lifestyles and non-Christian beliefs of indigenous societies. In exchange for this "gift of culture", it only seemed right to the colonisers to appropriate the available resources - resources the growing European market urgently needed.

This "colonial principle" paid little heed to the influx of cultural practices and lifestyles from the colonies. Many such practices or objects have long since become part of everyday life in the West, but their island origins have largely been forgotten. There are numerous examples for this creeping intercultural exchange which has left indelible traces in our Western language. Here are some examples:

Anorak/Parka – Anorak is derived from the West Greenland term for a weatherproof hooded pullover jacket (*anoraq*). It roughly translates as "something against the wind". Parka is derived from the Nenets language spoken by the Nenets people in northern Russia. It translates as "animal skin" and describes a long hooded anorak.

Barbecue – Linguistic adaptation (seventeenth century) of the Arawak term *barbacoa* (engl. 'wooden frame on posts'). The original sense was 'wooden framework for sleeping on, or for storing meat or fish to be dried'.

Canoe – Spanish adaptation (sixteenth century) of the Arawak term *canaoua* for a light, narrow boat with pointed ends and no keel, propelled with a paddle or paddles.

Catamaran – Linguistic adaptation (early seventeenth century) from Tamil *kaṭṭumaram*, literally 'tied wood', for a boat with twin hulls in parallel.

Hammock – A bed made of canvas or rope mesh suspended from two supports by cords at both ends. Linguistic adaptation (sixteenth century) of the Taino term *hamaka*.

Taboo – derived from the Austronesian term *tapu*, describing a complex concept of spiritual and religious restrictions and prohibitions in Polynesia and Melanesia.

Tattoo – Mark (a part of the body) with an indelible design by inserting pigment into punctures in the skin, derived from the Polynesian *tatau.*

Yoyo – Although toys resembling yo-yos were known in ancient China and Greece, the name probably comes from the Philippines, where the toy *yo-yo* had been popular for hundreds of years. It entered English in 1915, and became a verb meaning 'to move up and down, fluctuate' in the 1960s.

Sources inter alia: Oxford University Press (2015): Oxford Dictionaries. http://www.oxforddictionaries.com/definition/english/ (accessed 15/07/2015).

ances between sea island states contribute to political agenda setting, and does this lead to island voices being heard?

Ecologically, climate change – doubtlessly one of the most important problems affecting humanity as a whole – affects many islands. Often, their very existence is threatened by sea level rise. The 'vulnerability of small systems' is a keyword here, one that is not only seen by islands themselves but also continents. Many eyes are currently directed towards islands as early indicators of events that might ultimately affect continents. Can islands become fields of experimentation for

counter-measures that lead to greater resilience in the context of climate change impacts (Chap. 6)?

Within science, and in particular geography, increasing interest in islands developed in the late 1970s, leading to a considerably improved research base. In this process islands lost the notion of pristine virginal innocence that was so long implied on account of their apparent, though never true, isolation. In times of globalisation, hardly any islands remain on the globe. Instead, islands are part of the 'Geographies of Global Change' where they represent particular environments. More attention was paid to islands in science also because of the emergence of counterforces to globalisation that value supposedly threatened local or regional identities. This discussion can be linked to the term 'locus' which is important in geography. Peter J. Taylor, Michael J. Watts and Ron J. Johnston argue that 'global change does not in any sense make other geographic scales disappear, quite the reverse: the rise of globalisation coincides with a simultaneous affirmation of "localization" as places both of control and of resistance' (Taylor et al. 1995: 380).

It is evident that globalisation has profound implications for islands. Due to their natural specificities, it makes sense to analyse this process and determine the opportunities and risks that might arise. Islands do seem to be outposts of globalisation.

1.7 Islands as Outposts of Globalisation

The idea of terming islands as 'outposts' goes back to the book *Outposts: Journeys to the Surviving Relicts of the British Empire* (Winchester 1986) where the author Simon Winchester describes a rather unusual journey. Inspired by events surrounding the Falklands War, he began to collect information on the remaining British Crown colonies in the early 1980s. The colonial census of 1981 stated that 5,248,728 people still lived in these colonies, of which 5,120,000 lived in Hong Kong alone (Winchester 1986: 15, 20). So where were the remaining islands, how connected did they still feel to the British Empire, and what traces were left there of the Empire? Winchester decided to visit these islands. He writes: 'No, the island group that seemed to me, from my maps and charts arranged on tables and walls and on doorbacks in every room of the family house, to be more precisely an outpost – a remote colonial settlement, detached, lonely, and tragic – was sited in the very centre of the Indian Ocean, three thousand miles from Africa, eight thousands miles from home' (Winchester 1986: 25).

Looking more closely, Winchester's notion of 'outpost' describes an island that is leading a painful existence far away from the motherland. 'Home' to him is very much Great Britain, and from that perspective, he regarded the islands as outposts that can barely cling to life.

This may be as it appeared to a person closely connected to the British Empire and looking for the glory of his nation in the past. Globalisation, in contrast, is based on a notion of the world as a whole. It understands the world as a process, creating opportunities for integration at incredible speed and opening up new options for actors who may previously have been remote and left behind. Independence from the formerly imperialist colonial powers was achieved by many islands after the end of the Second World War, revising perspectives yet again. Even for those island residents who maintain ties to former motherlands voluntarily, 'home' as interpreted above by Winchester is no longer the centre of an empire but in most cases the island itself.

For this reason, the term 'outpost' is revisited here and redefined for the purpose of this book. Perspectives on islands as defined by a colonial power have changed considerably over the centuries. During the Age of Discovery, islands were objects of exploration that were taken possession of when considered profitable, sometimes settled and the local population subjugated. 'Outpost' in this context meant a colonial settlement that could act as a basis for future exploration. At the same time, the character of an outpost could quickly be

lost when other islands took on that same function for the colonial power. 'Outpost' definitely no longer applied when the island was taken over by another ruler whose sphere of influence already extended far beyond the island itself.

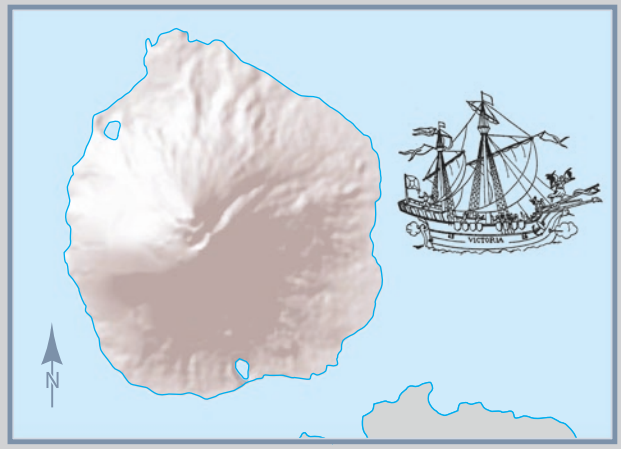
During the imperialist period, the military interpretation of the term 'outpost' became more prominent due to the intense competition between European powers. Islands were markers of a sphere of influence. Often they were armed and seen as military outposts that could muster a first line of defence in case of an enemy attack. They also served as points of departure for aggressive foreign policy. After the Second World War, islands gradually lost their military 'outpost character' due to their increasing independence, as the book by Winchester so eloquently describes.

Today, the term 'outpost' only makes sense again from the perspective of globalisation. The significance of islands in the context of climate change turns them into outposts of a modern kind. But what makes the rehabilitation of the term so appealing is that this ascription is not imposed from the outside. Rather, it emerges from the specific geographical characteristics of the island itself, namely, that it represents a world that seems separated from everything else by a barrier of water, but which is nevertheless connected to the world through a broad range of global activities. 'Globalization is commonly defined in terms of increasingly complex connectivity' (Tomlinson 1999). In contrast to the aforementioned meanings of the term 'outpost', it should here be understood as 'exposure to different forces' explicitly including not only natural but also economic, geopolitical and social forces.

Globalisation does not shrink the world as common imagery would suggest. Rather, globalisation leads to distortions of the geographical image of the world. Some islands continue to be left behind and are developing slowly; others engage with processes of globalisation more quickly. This concurrence can even happen within an archipelago, as numerous examples show. While New Providence in the Bahamas can be termed a globalised urban centre – a place where illegal Haitian migrants meet Bahamian bankers and very wealthy millionaires – Cat Island or other family islands on the edge of the archipelago are much more peripheral. A heterogenous picture emerges especially of small islands with strong vertical tensions.

Globalisation is the driving force that influences these 'outposts' with incredible dynamism. It is worth paying attention to them, whether they are seen as 'canaries of the coalmine', showcases for development or litmus tests. Islands have their own rules, and it pays to take a closer look. Islands are special and small islands are very special. We are going to see why this is the case in the following chapters of this book.

Island Brain Teaser 1



Numerous islands could be chosen to exemplify the topic of islands as outposts of globalisation. This mystery island impressively demonstrates how the interaction of historical, political and geographical forces can turn islands into central nodes of power, pawns or peripheries of global events.

The island we are looking for can confidently be termed a hub of the early global economy. European and Chinese economic interests met here, and the island also witnessed a form of cultural expansion when a Muslim Sultanate became established here as early as the thirteenth century, about 10,000 km away from Mecca. Its area of merely 112 km^2 makes it tiny compared to its neighbours. Nevertheless, for a long period the island was a centre of economic, political and cultural power. Clever diplomacy also enabled the island to stand up to foreign political interests whilst benefitting from a considerable share in the global trade. For nearby China, the island was an outpost of the world of spices and of the Chinese trading empire. The Portuguese Francisco Serrão was the first European to arrive here in 1513. Eight years later the legendary explorer Ferdinand Magellan briefly stopped over during his circumnavigation. Although the ruling Sultan allowed the construction of a Portuguese fort as a regional trading base and military stronghold, he did not cede any territorial authority to the Europeans. The two leading maritime powers of the time, Spain and Portugal, competed for the trading monopoly with the countries just discovered far from home. Local power elites made clever use of this conflict of interest. From 1529 onwards neither party was tolerated any longer by the Sultanates, giving room to the rise of another significant actor in the early global economy: The Dutch East India Company. In the early seventeenth century the Dutch ousted the Sultan's family from power and began the large-scale cultivation of cloves with the intention of creating a monopoly.

Today only few people have even heard of the archipelago. With its economic decline in the nineteenth century, the island too lost its significance. During the Second World War it was occupied by Japan; after decolonisation it became part of the largest island state of the world, sealing its fate as a peripheral outpost of the world. Volcanologists still appreciate the island as its central volcano, rising a proud 1715 m above sea level, is one of the most active in the region. With a total of 176,000 inhabitants (2010), the island is also relatively densely populated. Which node of the former global economy are we looking for?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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Genesis of Islands

2

The larger the island of knowledge, the longer the shoreline of wonder.

Ralph W. Sockman

Abstract

This chapter deals with the various primary processes of island genesis (volcanic, tecto-orogenetic, sedimentary or coralline) before addressing secondary processes such as isostatic subsidence, emersion, marine ingression, erosion, horizontal and vertical drift as well as doming. In most cases islands are formed as a result of several processes, although this varies with island size: the smaller the island, the more likely it is that a single dominant process is responsible for its genesis. Examples are provided for each of the different island types.

Keywords

Primary and secondary island formation processes • Plate tectonics • Volcanism • Zoogenous processes • Emergence • Built-up • Subsidence • Dislocation • Doming

Although it may seem obvious, islands are not simply there. Islands are indicators of underlying natural processes – outposts so to speak of the physical global realm. Physical-geological processes come into play just like biological natural processes. A rough classification of island-forming processes would include volcanism, tectonic uplift or folding and sedimentation on the physical side and the formation of coral as a biogenic process. Secondary processes such as lowering sea levels, isostatic uplift, dislocation, salt tectonics and erosion can give rise to islands that are continental outposts in the sea. Often, islands are formed by a combination of processes whose specificity depends on the island's size. The smaller the island, the more likely it is that only one dominant process is responsible for its genesis (e.g. volcanic, tectonic, biogenic). The larger the island, the more physical processes are likely to come into play, e.g. the drifted orogenic folding of Corsica or the folding, volcanism and sedimentation that gave rise to Cuba. The small island of Nauru is also of mixed type, where the primary genetic process is emersion, but the overall island

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is best described as a raised coral atoll. Processes of island formation interact with global changes such as changing sea levels across time and space. The result is a hotchpotch of large, medium and small islands that come and go, scattered in their great variety across the oceans of the world (see Depraetere and Dahl 2007; Nunn 2007, 2009).

First attempts to categorise islands were made by Charles Darwin in his famous book *On the Origin of Species* (1859). Alfred R. Wallace (1880) picked up on this, choosing to categorise islands according to their geological structure. This led him to differentiate between *continental islands* ('detached sections of continents') and *oceanic islands* ('never formed part of a continent or any large mass of land'). This differentiation between continental and oceanic islands is still frequently used today. But then, is this the real difference? Put very simply, an island is a piece of land surrounded by water. Looking at the global distribution of islands, beyond the islands and archipelagos of the Pacific, the majority of islands are located off the continental coasts, linking them to natural processes occurring on the continental edge.

From the 1960s onwards, following the discovery of the mid-ocean ridges and recognising the significance of Alfred Wegener's theory of continental drift proposed in 1912, scientists began to understand that many questions surrounding the formation and distribution of islands could be explained through modern plate tectonics (Rücklin 1963).

Several scientists have attempted to classify islands based on their genesis. Yet astonishingly few classification attempts draw on the fundamentals of island formation (e.g. Arnberger and Arnberger 1988; Grigor'yev 1971; Klug 1985; Depraetere and Dahl 2007). A particularly well-founded example goes back to the Russian geographer Grigor'yev who was critical of Darwin's differentiation: 'although such a division reflects the basic structural differences between continental and oceanic islands, it tends to be a rather arbitrary distinction' (Grigor'yev 1971). Disagreeing with the simplicity of Darwin's approach, Grigor'yev developed an alternative genetic classification based on the character of the underlying crust. Each type of crust is associated with particular types of islands, leading to continental, oceanic and intermediate islands. These three groups, in turn, are broken down further based on their structural geology and where they evolved on the respective crust types. The group of continental islands, for example, includes two structural types (shelf islands and fragments of continental platforms), the intermediate group three types (continental island arcs, oceanic island arcs and volcanic islands on the continental slope) and oceanic islands a single volcanic type (see Grigor'yev 1971: 586).

The German geographer Heinz Klug (1985) developed a more detailed geographical island categorisation based on dominant natural processes. He not only considered the original material of which the island is formed but also subsequent processes of isolation and change. Excluding freshwater islands, he distinguishes nine general island types and four types of genesis:

1. *Dislocation* of part of the mainland through marine ingression, erosion or tectonic dislocation
2. *Doming* of a small part of the seafloor as a result of salt tectonics or underground intrusion
3. Extensive *emersion* of the seafloor on account of isostatic or epeirogenic compensatory movement
4. *Build-up* from the seafloor through tectonic or volcanic events or zoogenous processes

These four general types were differentiated further according to the specific processes involved, ranging from marine ingression and regression to erosion, accumulation processes and shift-causing tectonics. In all, 16 island types were identified.

Coastal morphologist Ludwig Ellenberg has pointed to certain weaknesses of Klug's systematic typology. Despite the clear intention of differentiating islands according to their genesis, he argues that this typology cannot be consistently adhered to as islands are not the result of a single

process. Further difficulties result from the distinction between salt tectonics and other tectonic lifting processes including orogenesis or upthrust, as well as the problem that land destruction and isolation cannot be separated as strictly as Klug's categories may suggest. As ever, the devil is in the detail. Islands – just as coasts – are particularly difficult to classify, resisting even broad typologies. Formed by the interplay of terrestrial and littoral processes, coasts and islands are comparable in their genetic complexity.

Despite these difficulties, I find the straightforward distinction between continental and oceanic islands so common in the anglophone literature too simple. For island researchers, a little more differentiation is called for. A typology of islands should at least distinguish four primary genetic processes (see Table 2.1), i.e. volcanic islands, tecto-orogenetic islands, sedimentary islands and coralline islands, as well as five secondary principles of isolation (see Table 2.2), namely, isostatic uplift and subsidence, plate tectonic processes, sea level fluctuations and resulting processes. Each of these processes will be discussed in the following in more detail.

2.1 Volcanic Islands

Many islands and groups of islands are of volcanic origin. Many volcanic islands, such as Réunion or Mauritius in the Indian Ocean, have a long history; these specific examples formed about 3.5 million and 8 million years ago, respectively. The Pacific Galapagos Islands are probably more than five million years old, but some of their westernmost islands, which are the most volcanically active, may only be hundreds of thousands of years old – in fact, they are still being formed today. Measured from the seafloor upwards, volcanic islands are among the highest mountains on Earth, with about 90% of their massive volume hidden below the sea. The volcanic island of Gunung Api (the name simply

Table 2.1 Typology of islands – part 1: primary processes

Island type	General genesis	Processes *Special form*	Examples
Primary processes			
Volcanic islands	Volcanism	Subduction, convergence, divergence	Lesser Antilles, Mariana Islands, Réunion, Mauritius, Tonga, Solomon, Japan
		Island arc volcanism	
		Hotspot activity	Hawaii, Comoros, Ascension, St. Helena
Tecto-orogenetic islands	Orogenic folding	Tecto-orogenetic formation of strata with denudation	New Zealand, Puerto Rico, Balearic Islands
		Faulting tectonics	Hispaniola
Sedimentary islands	Accumulation by sedimentation	Marine sand aggradation, wind action, formation of dunes	Norderney, Padre Island, Mississippi-Alabama Barrier Islands
		Geest core sedimentation initialisation	Sylt, Amrum, Föhr, Agalega Islands
		Silt aggradation, silt sedimentation islands	Gröde, Langeneß, Oland, German Halligen
		Hallig	
Coralline islands	Zoogenic formation	Fringing reef or barrier reef formation	Barrier Reef Belize, Great Barrier Reef Australia
		Shelf reef islands	
		Ring-shaped reef or chain of islands; *evolution* on rim of a subsided deep-sea volcano	Bikini, Maldives, Chagos Archipelago, Diego Garcia, Henderson
		Atoll	

Table 2.2 Typology of islands – part 2: secondary processes

Island type	General genesis	Processes *Special form*	Examples
Secondary processes			
Subsidence islands	Isostatic land subsidence, submergence	Epirogenesis processes, separation from continental land mass through subsidence	Bissagos Islands, Sansibar, Pemba, Mafia
Ingression islands	Marine ingression	Eustatic sea level changes, sea level rise	Rottnest, Garden Island, Gotland, Oland, Hiddensee, Ilha do Governador, Djerba
Emerging islands	Isostatic emersion	Isostatic rebound and/or epigenetic uplift	Santiago, São Nicolau, Finnish skerries
Residual islands	Erosion	Erosion in combination with marine regression	Pellworm
		Morphologically resistant outliers of the mainland	Gorée, Guernsey, Jersey
		Outlier island	
Dislocation islands	Horizontal drift	Tectonic separation and migration of peripheral plate parts	Madagascar, Seychelles, Corsica, Sardinia
		Drift island	
	Vertical movement	Vertical lifting of blocks	Bornholm, Malta, Gozo, Comino, Lampedusa
		Horst island	
Diapir islands	Tectonical doming	Doming caused by salt tectonics	Helgoland, Zarqua

means ‘volcano’ in Indonesian) dominates the entire Indonesian Banda group. This active volcano only rises 640 m above sea level but is located within two calderas that are part of a huge submarine volcanic cone (see Fig. 2.1) (Ritchie and Gates 2001: 21).

The Hawaiian archipelago is one of the best known groups of volcanic islands, with Mauna Kea not only representing the largest volcano in the world but also the highest mountain on earth, measuring 10,205 m from the seafloor. Even above sea level, this stately shield volcano still reaches 4205 m (see Wolfe et al. 1997). Iceland is the largest volcanic island in the world. Here, like on Hawaii, the volcanic activities of the earth’s lower layers are plain to see on the surface. The smallest volcanic islands are also some of the youngest. One island emerged in 2013 off Japan near the well-known Bonin Trench. Initially it was less than 2 km^2 in size, but it has grown further since and even swallowed a neighbouring island. The islands, christened Nishino-shima, were a source of joy to the Japanese because they extended their sovereign territory (Nishida and Ichihara 2016; Allen and Simmon 2014). Another island formed even more recently in January 2015 near Tonga. Several submarine eruptions occured at Hunga Tonga-Hunga Ha’apai, throwing up lava and ash that eventually reached above sea level to create a new island. How long it will remain there is uncertain. Most likely, it will simply be washed away within months because it seems mainly to be composed of loose material as opposed to more resistant solid lava flows.[1]

[1]For more information and constant updates, see *www.volcanodiscovery.com/de/hunga-tonga-hunga-haapai.html*. Last accessed 4.1.2017.

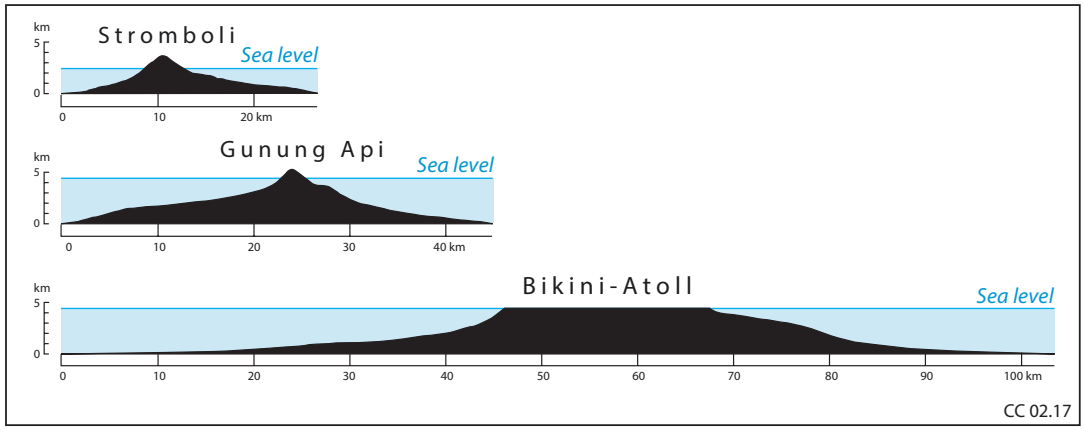


Fig. 2.1 Volcanic islands and giant atolls compared in size (After Menard 1964)

Put simply, volcanism means that the liquid interior of the earth is coming to the surface. This spilling of magma, lava or ash can only occur where the earth's crust is thin or broken, and fracture systems enable them to escape. The distribution of volcanic islands across the seas suggests a close relationship with geodynamic processes, especially plate tectonics and the organisation of the earth's surface. Plate tectonics explains the fundamental interrelationships that also play a key role in the formation of tecto-orogenetic and uplift/emergent and submergent/dislocation islands (see Sects. 2.2 and 2.5).

The Internal Structure of Earth

To understand volcanism, it is necessary to understand the structure of the earth. Earth is not a homogenous sphere – strictly speaking it isn't even a sphere – but consists of several layers of varying densities and aggregate states (see Textbox 2.1 Layered structure of the earth and Fig. 2.2). It is this which enables dynamic change and various natural processes on the surface of the planet. Geodynamics is the term describing fundamental geotectonic processes, comprising plate tectonics, continental drift and orogenesis – translated from the Greek (*oros* for 'mountain' and *genesis* for 'creation' or 'origin'), meaning the formation of mountains. Geodynamics refers to global dynamic processes which are subject to constant change. Orogenesis tends to be concentrated along certain long stretches of the earth's crust, unlike plate tectonic processes which affect the entire globe. Still, the deeper layers of the continental crust all consist of rock that has undergone orogenesis at some point of the earth's history (Frisch and Meschede 2013: 9).

Earth is the only planet in the solar system with an outer layer of large rocky plates that rub and press and move against each other. This outer crust is between 30 and 40 km thick; below lies the fluid-like upper mantle which is about 400 km thick. The origins of plate tectonics are vividly debated, with some experts assuming the process began shortly after the formation of the earth around 4.5 billion years ago but others suspecting a much later start about 800 million years ago. Scientists around Ming Tang of the University of Maryland have recently investigated the amount of magnesium, nickel, cobalt, chrome and zinc contained in the outer layers of rock from 18 different regions of the earth. Their analysis was able to determine that plate tectonics began three billion years ago, confirming an earlier study which analysed inclusions in diamonds and came up with a similar date (Ming et al. 2016; Willems 2016).

Plate tectonics led to a major paradigm shift in the 1960s as it was able to bring together all the dynamic phenomena of the earth in a unified theory. A precursor theory was the theory of continental drift that was proposed by German meteorologist and geophysicist Alfred Wegener (1880–1930). He not only noted that the continents on both sides of the Atlantic fit together like

a jigsaw puzzle but also their geological relationships (Frisch and Meschede 2013: 10). Wegener of course was not the first to note the matching contours of the African west coast and the South American east coast[2], but using new evidence, he was able to question the geotectonic models of his day. Natural radioactivity, just discovered, showed that the earth had a heat balance, a finding which contradicted the idea of a planet that was gradually cooling and shrinking. His comparative analysis of American and European fossils and rocks yielded further evidence that the earth is anything but a solidified firm sphere.

Wegener presented his theory of continental drift in 1912. It posited that 200 million years ago, all continents were united in a supercontinent called Pangaea. This then broke apart, and individual elements began to drift apart horizontally on a plastic interior, leading to the formation of the Atlantic and Indian Ocean. In the 1920s and 1930s, Wegener's theory of continental drift caused much controversy as the scientific community doubted the ability of continents to move horizontally. What made matters worse was that Wegener was unable to come up with plausible forces that could cause the movement of plates. Based on the ideas of his colleague Robert Schwinner, he finally put forward thermal convection currents in what was to be the last edition of his book *The Origin of Continents and Oceans* (Wegener 1929). Due to his untimely death in November 1930, he did not live to see proof that convection currents are indeed the driving force behind the movement of plates.

Still during his lifetime, in 1924 and 1927, respectively, echo soundings carried out in the Atlantic on the research vessel Meteor gave first insights into seafloor topography. These soundings also confirmed the existence of thermal convection currents. Astonishingly, they additionally showed a mountain ridge in the middle of the Atlantic extending all the way across the globe from north to south (Press et al. 2011; Press and Siever 1982).

In subsequent years similar north-south mountain ridges were discovered on all ocean floors – the mid-oceanic ridges. In the central rift of these mid-oceanic ridges, divergent movements are taking place which are known as seafloor spreading. The central ridge continues to be opened up and re-forms on account of the oceanic plates moving sideways. Oceanic lava consisting of basalt and gabbro are brought to the seafloor. With a total length of about 70,000 km, the mid-oceanic ridges are a system of volcanic mountains that cross all oceans. Measurements on the mid-Atlantic ridge have shown that heat convection is particularly strong here; in contrast, measurements on the Acapulco Trench show that heat convection is significantly reduced (Wilson 1965; 1986: 20 f.).

These new insights, in particular the discovery of magnetic bands on both sides of the mid-oceanic ridges, laid the foundation of plate tectonics which finally became widely accepted as a theory in the 1960s (Hess 1962). At that time, geologists and oceanographers came to agree that mid-oceanic ridges form where convection currents move upwards and deep-sea trenches where they move downwards. Contrary to what Wegener thought, continents do not actively migrate as isolated slabs that 'plough through the sea floor like an icebreaker' (Wilson 1986: 21). Rather, they passively ride on the earth's crust which is moving horizontally (see Textbox 2.1 Layered structure of the earth). The seafloor drifts apart horizontally from the mid-oceanic ridges and sinks down into the deep-sea trenches. Continents are dragged along passively as they form part of larger plates that also comprise some oceanic crust and upper mantle (Frisch et al. 2011: 12; Frisch and Meschede 2013: 12; Press et al. 2011: 27).

When plate tectonics first became accepted as a theory, the total number of plates was assumed to be about 12. These were thought to consist of combinations of continents and ocean basins and were believed to have moved around on the Earth's surface through much of geological time

[2]Frank Bursley Taylor also noted that continents did not sink but slowly drift apart. Around the turn of the century, geologist Eduard Suess presented a map that brought together all southern continents in a single giant continent; see Suess 1892 and original map: http://blogs.scientificamerican.com/history-of-geology/files/2012/01/SUESS_1909_Antlitz_Erde.jpg. [last access 4.1.2017].

Textbox 2.1: Layered Structure of the Earth

In an idealised picture, Earth is made up of spherical shells, each consisting of material with very different density. This is the result of planetary differentiation, where denser materials sink to the centre to form the core. The shell with the lowest density is the outermost shell; the shell at the core of the earth – a sphere really – is the densest.

The Earth's outermost shell – the lithosphere – is divided into the crust and upper mantle. The outer crust can be further divided into a continental and oceanic crust. The continental crust is normally about 30 to 40 km thick, reaching up to 70 km in mountainous regions. This crust type mainly consists of granite and gneiss; feldspar, quartz and mica are the most important minerals. The oceanic crust is only between 5 and 8 km thick and mostly consists of basic rocks such as basalt and gabbros; here the dominant minerals are feldspar and pyroxenes.

The lithosphere lies on top of further layers of mantle, which are divided into the fluid-like upper mantle (asthenosphere) and lower mantle. The upper mantle has a high proportion of olivine and is very viscous. The lower mantle mainly consists of silicates and oxides. The core of the Earth mainly consists of iron and nickel. Due to the temperature difference between the earth's surface and outer core, there is convective material circulation in the mantle. This consists of the slow, creeping motion of the earth's silicate mantle across the surface, carrying heat from the interior to the surface. Hot material rises to the surface while cooler, heavier material sinks beneath.

Movement and convection are responsible for Earth's volcanic and seismic activity.

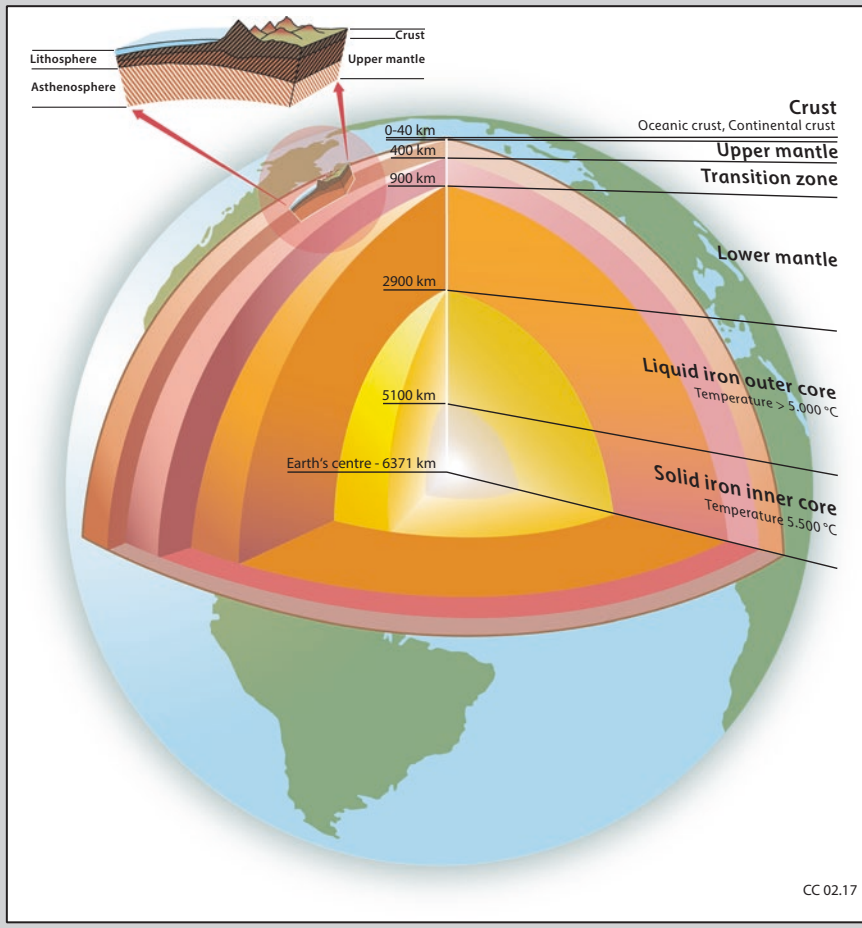


Fig. 2.2 Layered structure of the Earth (After Press and Siever 1982: 10)

(Anderson 1989). The upper parts of plates consist of either oceanic crust, continental crust or both sitting side by side. But since the start of the plate tectonic era, and especially relying on new techniques of more accurate earthquake epicentre location, modern ways of measuring ocean bathymetry using swath mapping and the use of space-based geodetic techniques, the number of plates thought to exist has grown considerably. A study by Bird (2003) proposed 52 plates. Because of the pattern of areas of these plates, he suggested that there should be more small plates than he could identify. Christopher Harrison in a recent study proposed a total of 107 new plates, giving 159 plates in all (Harrison 2016).

The greater the number of plates, the more boundaries there are between plates and with these potential activities that can lead to the formation of islands. Tectonic boundaries are the separation lines between plates, and along them tectonic movements almost always occur. Tectonic boundaries are the weak zones of the lithosphere where earthquakes, volcanism and orogenesis take place. There are three types of tectonic plate movement:

1. Divergent movements: Two plates are drifting apart at an average speed which can vary from 2.6 to 16.1 cm/year. This creates a rift zone, most commonly observed on the seafloor.
2. Convergent movements: Two plates are moving towards each other, with one plate sliding underneath the other. This is termed subduction.
3. Transform movements: Two plates are sliding past each other.

The *Pacific Ring of Fire*, or circum-Pacific belt, clearly shows the effects of the geodynamic processes occurring along tectonic boundaries. The Pacific Ring of Fire is not an enclosed ring but a horseshoe shape that runs along the western, northern and eastern edges of the Pacific Ocean along a total length of about 40,000 km (Fig. 2.3). The western and northern parts are characterised by a series of volcanic island arcs and continental volcanic belts, beginning with New Zealand's North Island (Taupo Volcanic Zone), continuing on to the New Hebrides, the Solomon Islands, New Guinea, the Philippines and the Mariana Islands and extending further to the Ryukyu Islands, the main Japanese islands, the Kuril Islands, the Kamchatka Peninsula and the Aleutian Islands. To the east, the belt of active volcanoes begins in Alaska and extends along the western side of North and Central America to the South American Andes, all the way to the southern tip of Patagonia.

The Pacific Ring of Fire encompasses the tectonic boundaries of the Pacific Plate and those of other smaller plates. A number of subductions are occurring concurrently. The Nazca Plate and the Cocos Plate are being subducted beneath the westward-moving South American Plate, resulting in the eastern section of the Ring. In Central America the Cocos Plate is being subducted beneath the Caribbean Plate and along with the small Juan de Fuca Plate; part of the Pacific Plate is being subducted beneath the North American Plate. The north-westward-moving Pacific Plate is being subducted along the northern section beneath the Aleutian Island Arc which is also part of the North American Plate. To the west, the Pacific Plate is being subducted southwards along the Kamchatka Peninsula past Japan. A number of smaller tectonic plates are in collision with the Pacific Plate at the southern part; this encompasses the Mariana Islands, the Philippines, Bougainville, Tonga and New Zealand. Australia lies at the centre of its tectonic plate. Indonesia lies between the Ring of Fire along the northeastern islands adjacent to and including New Guinea and the Alpide belt along the south and west from Sumatra, Java, Bali, Flores and Timor.

The effects of these geodynamic plate processes are twofold: volcanism and earthquakes. Earthquakes are generated constantly, multiple times a day but mostly too small to be felt. A severe earthquake on New Zealand on 20 January 2014 reached a magnitude of 6.2 on the Richter scale and was named Eketahuna earthquake due to its epicentre 15 km east of Eketahuna in the south-east of New Zealand's North Island. A total of 1112 aftershocks were recorded, ranging between magnitudes of 2.0 and 4.9 on the Richter scale. It was felt strongly down the country, from

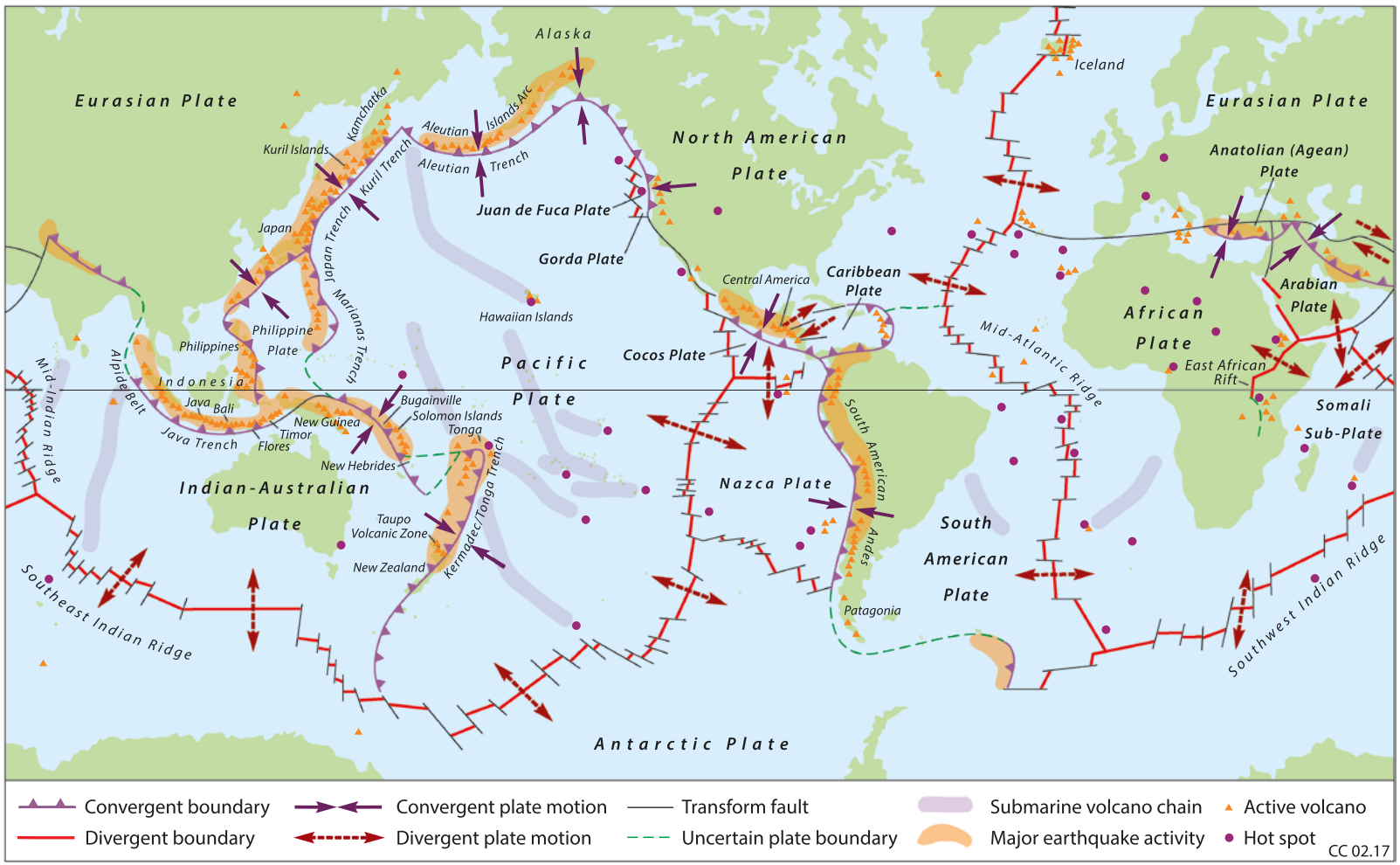


Fig. 2.3 Plate tectonics and Pacific Ring of Fire (After Press and Siever 1982; Frisch and Meschede 2013)

Auckland in the north to Dunedin in the south, and more than 9000 reports were submitted by the public to GeoNet[3], the geological hazards monitoring network. About 90% of the world's earthquakes and 81% of the world's largest earthquakes occur along the Ring of Fire (USGS 2016) – a considerable number of them happening on islands.

Volcanic islands form as a result of three different types of volcanism. As shown in Fig. 2.3, divergent and convergent plate movements lead to volcanic islands along the subduction margins of the continents or the mid-oceanic ridges. But some islands, especially in the Pacific (including Hawaii and Galapagos Islands), form on account of volcanism within lithospheric plates, on top of the so-called hotspots. And then there are special cases such as Iceland, where hotspot volcanism coincides with the volcanism of a mid-oceanic ridge.

Island arcs can result on three types of convergent plate boundaries. In intra-oceanic subduction zones, where an oceanic lithosphere is subducted beneath another, volcanic island arc systems are built on oceanic crust. Examples for intra-oceanic, ensimatic island arc systems (*sima*, an artificial word – silicon and magnesium – first used by A. Wegener to characterise the ocean floor and Earth's mantle, Frisch et al. 2011: 91) include the Mariana Islands, the Lesser Antilles in the Atlantic and the South Sandwich Islands (see Fig. 2.4). If oceanic lithosphere is subducted beneath continental lithosphere, an island arc may form on a continental base (a so-called ensialic island belt – *sial* for silicone and aluminium and the continental crust). These island arcs are generally separated from the continent by a marine basin underlain by oceanic crust. Examples for island arc systems underlain by continental crust include the Japanese islands and the eastern Sunda Arc (Frisch and Meschede 2013).

Subduction of an oceanic lithosphere beneath a continental lithosphere also occurs along active continental margins. The continental margin is connected directly to the rest of the continent, although there may be a shallow marine basin behind the volcanic arc (Frisch et al. 2011: 91). Examples for active continental margins include the Andes, Alaska and the western and central Sunda Arc (Sumatra, Java). This plate margin system is dominated by a volcanic zone on top of the subduction zone that often takes the shape of an island arc. The volcanic arc, which has an average width of 100 km, is the central part of the island arc or the active continental margin and is characterised by significant magmatic activity. Volcanism begins sharply on the forearc margin (the volcanic or magmatic front) and gradually peters out towards the backarc margin.

Why the arched shape? Frisch, Meschede and Blakey explain the principle as follows:

> A thumb pushed against a rubber ball causes the normal convex bulge of the ball to become a concave dent. The line of bending marks a circular line on the surface of the ball. Before a plate enters a subduction zone its curvature mirrors that of the earth. When it dives into the subduction zone this curvature inverts and convex becomes concave. Adjacent arcs commonly display a catenary-like pattern as observed in the Western Pacific where one island arc drapes next to the other (Frisch et al. 2011: 94).

Hotspot volcanism is a special form of volcanism not related to plate fringes. Such intraplate volcanic islands are fixed-point sources of magma that occur within continental or oceanic plates. They owe their existence to mantle diapirs or plumes (from Greek diapeirein, to penetrate, or from the French for feather) – in other words, hot fingers in the Earth's mantle that rise up from great depths. Once they arrive below the plates, they cause melt and, in the long term, volcanic eruptions. As the position of hotspots is stable, linear chains of volcanoes can result as plates slowly glide over the hotspot (Frisch et al. 2011: 11 f. & 80; Press et al. 2011: 49; Klug 1985: 204).

These mantle plumes (convection cells) below the lithosphere also occur along constructive plate boundaries, although they are more common within plates. They cause large-scale doming of the Earth's crust. Only about 5% of volcanoes are hotspot volcanoes, owing their existence to man-

[3]GeoNET is the official source of geological hazard information for New Zealand http://www.geonet.org.nz

Fig. 2.4 Island arc – example: Lesser Antilles

tle diapirs or plumes. Nevertheless, they play an important role in the mantle's convection system as they are responsible for about 5–10% of the energy the Earth gives off to the outside. Island chains of this type mostly occur within the Central Pacific.

When plates slide across a hotspot, long chains of volcanoes form. The hotspot is marked by the active end of the chain. Chains of islands that formed more than 40 million years ago tend to be oriented more north to south, while younger chains are arranged more east to west. This difference in orientation is caused by a change of direction in the movement of the Pacific Plate (Morgan 1971; Jackson et al. 1972). The classic and best-known example for this phenomenon is the Hawaii Islands that find their continuation in the Emperor seamount chain (Keating et al. 1987) (see Fig. 2.5). The Marshall Islands, Tuamotu, Samoa, Tubuai and the Caroline Islands have also formed in this way. In line with the plate's movement, islands grow ever older and show an increasing tendency to subside. The geomorphological form of the oldest volcanic islands has thus undergone some erosional change. A good example is the Comoros Islands group in the Indian Ocean with aging erosion processes increasing from Grande Comore to Moheli, Anjouan and Mayotte.

In this type of volcano, the molten rock is viscous and only flows slowly from the core of the Earth. This causes large flat shields to form - so-called shield volcanoes that are large in size but low in profile. Volcanic growth and erosion are often parallel processes on the same island. Older volcanic islands often have a fully formed barrier reef, while younger ones may even lack a fringing reef (Klug 1985: 204).

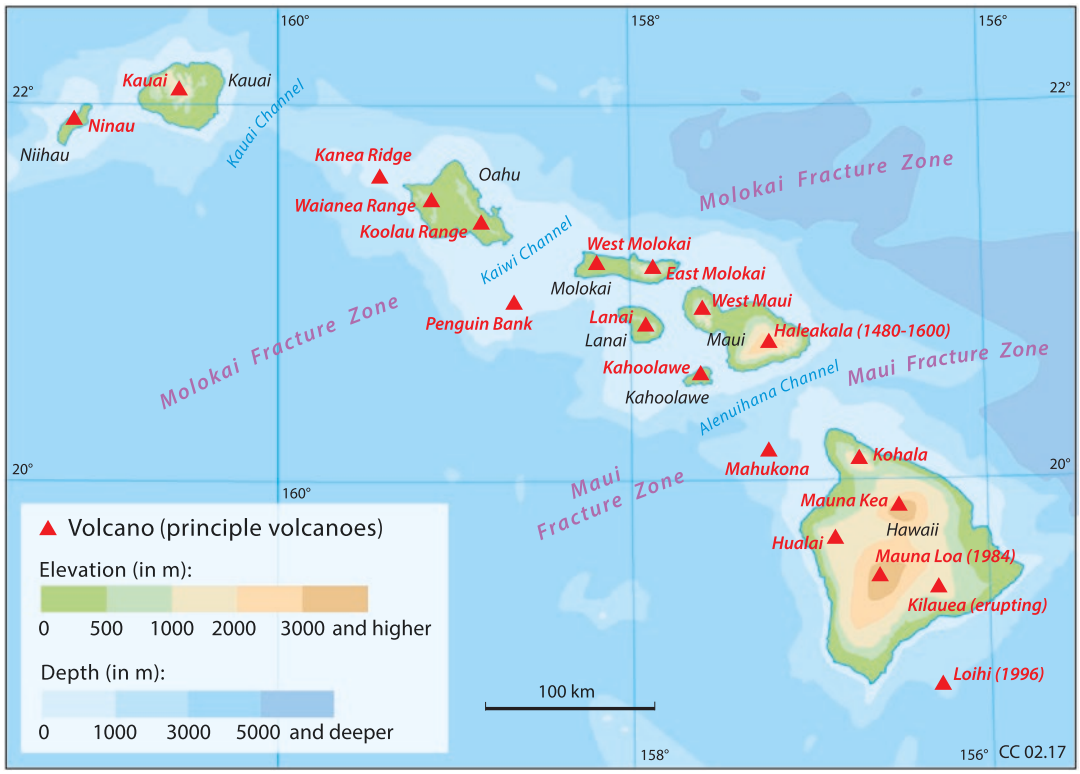


Fig. 2.5 Hotspot volcanism – example: Hawaii

2.2 Tecto-Orogenetic Islands

Apart from initialising volcanism and earthquakes, the collision of lithospheric plates can also lead to uplift and the subsequent building of mountains and islands. Puerto Rico or Hispaniola in the Caribbean or New Zealand in the Pacific are examples of islands created by tecto-orogenic events. Strictly speaking, these islands are the result of multiple geological processes. Orogenesis is preceded by sedimentation processes, and several events occur at once or sequentially when tectonic plates collide and folding takes place. The exact nature of events depends on the type of plates colliding and the manner of collision. In the *orogenic stage* of mountain building, accumulated sediments become deformed by the compressional forces resulting from the collision of tectonic plates.

This tectonic convergence can be of three types: arc-continent, ocean-continent or continent-continent. In an ocean-continent convergence, the collision of ocean and continental plates causes the accretion of marine sedimentary deposits on the edge of the continent. Arc-continent convergence occurs when an island arc collides with the edge of a continental plate. In that instance, the ocean plate area between the arc and the continent is subducted into the asthenosphere, and the volcanic rocks and sediments associated with the island arc become accreted to the margin of the continent over time. Continent-continent convergence occurs when an ocean basin closes and two continental plates collide to form mountain systems.

In all three types of tectonic convergence, layered rocks that were once located in the marine basin are squeezed into a smaller and smaller area. This compression causes the once-flat sedimentary beds to be folded and uplifted. When the compressional and tensile forces become greater than the rocks' ability to deform, faulting occurs. Compressional forces typically result in reverse and overthrust faulting. Another consequence of the orogenic stage is regional metamorphism and the incursion of magma plumes, plutons and volcanoes into the growing mountain range (Frisch et al. 2011: 93 & 95; Press et al. 2011: 75).

New Zealand is an instructive example of the complicated genesis of tecto-orogenic islands, of which there are many around the globe. New Zealand lies on the boundary of the Australian and the Pacific Plates, but the islands forming New Zealand developed as part of a broader continental shield made up of Antarctica and Australia. A clear delineation of the various processes involved is particularly difficult, as there is always a sequence of sedimentation, uplift, folding and orogenesis.

New Zealand's geological history can be divided into three main periods of sedimentation and three main periods of mountain building (orogeny):

1. *The early sedimentation depositional phase* in the Cambrian to Devonian period about 545 to 370 million years ago

The area now known as New Zealand began when the earliest major recorded rock formation was taking place. The oldest rock is found on the western coast of the South Island. It all happened just off the coast of Gondwana. After they became extinct, some volcanic islands were covered in sand and mud washed down from the land and built up. Sometimes the land uplifted only to be worn down again and pushed back into the sea.

2. *The Tuhua Orogeny* in the late Devonian to Carboniferous period about 370 to 330 million years ago

A long period of sedimentation ended with a period of pressure and uplift. Seafloor sediments were pushed up, folded and melted together to form mountains. Rocks were completely changed and regrouped into new minerals under great heat and pressure. Sandstones and mudstones became schist, known for the parallel layering of minerals. Plutonic intrusions formed granite and in some places diorite. All these activities happened long before today's New Zealand existed, and

therefore the exact mountain building details are not exactly known.

3. *The New Zealand Geosyncline* in the Carboniferous to Jurassic period about 330 to 142 million years ago

This period is characterised by an enormous accumulation of sediment, extending northwest from New Zealand to New Caledonia and south far below the South Island. The rocks of this second cycle of deposition have formed much of the foundations of New Zealand. Two main groups of rocks can be identified from this period: the Torlesse Supergroup on the east mostly made up of greywacke with only very few fossils and the Murihiku Supergroup in the west, with a good series of fossils, with sediments rich in volcanic debris.

4. *The Rangitata Orogeny* in the early Cretaceous period about 142 to 99 million years ago

The previously deposited sediments were compressed and folded during this orogeny. The western rocks were deformed in open simple folds, and the eastern block was severely deformed in a stack of folds with complex faulting. Some seafloor was caught in the folding and later exposed when the orogeny had finished and erosional forces had levelled the mountains.

5. *The break-up* in the Cretaceous to Oligocene period 99 to 24 million years ago

Weathering and erosion of the mountains followed the preceding orogeny, so much so that some places were reduced to areas of low relief – the so-called peneplains. About 85 million years ago, a rift valley formed to separate the New Zealand region from the rest of Gondwana, resulting in the formation of a new ocean floor by means of *seafloor spreading*. Marine transgression and the following Oligocene period (about 35 million years ago) led to a sinking of the land and resulting in characteristic Cenozoic marine deposits: calcareous and fossiliferous, with common limestone.

6. *The Kaikoura Orogeny* in the Miocene to Quaternary period 24 million years ago to modern

A build-up of strain in the southwest Pacific crust in this period led to vertical and transcurrent fault movements. This resulted in uplift of central Westland and produced the majestic range of the Southern Alps, with their steep, straight western front of the Alpine Fault. Widespread tectonic activity continued from ten million years ago to the modern period; during this time the principal mountain ranges of both islands were uplifted, and New Zealand began taking its modern shape. The subduction of the Pacific Plate caused much volcanism in the North Island, starting initially in Northland in the early Miocene and moving south over time until it reached its present position along the Taupo Volcanic Zone (Nelson et al. 2003). Cenozoic intermingled with Cretaceous sediments dominates the North Island whereas Cretaceous and Palaeozoic metamorphic rocks are predominant on the South Island (see Fig. 2.6).

2.3 Sedimentary Islands

The genesis of sedimentary islands depends on the respective coastal morphology and related parameters such as tidal range, wave energy and basement control. A basic requirement is the availability of sediment – mostly sand – as well as a shallow shelf area which lends itself to accumulation processes. Sedimentary islands therefore only occur in shallow coastal seas. The group of sedimentary islands primarily includes sand spits and barrier islands, such as the Frisian Islands in Europe or the islands on the east coast of the USA from Florida to Rhode Island. According to Smith et al. (2010), 'chains of barrier islands can be found along approximately thirteen percent of the world's coastlines'. Excepting the tidal inlets that separate the islands, a barrier chain may extend uninterrupted for over a hundred kilometres, the longest and widest being Padre Island in Mexico (Garrison et al. 2010).

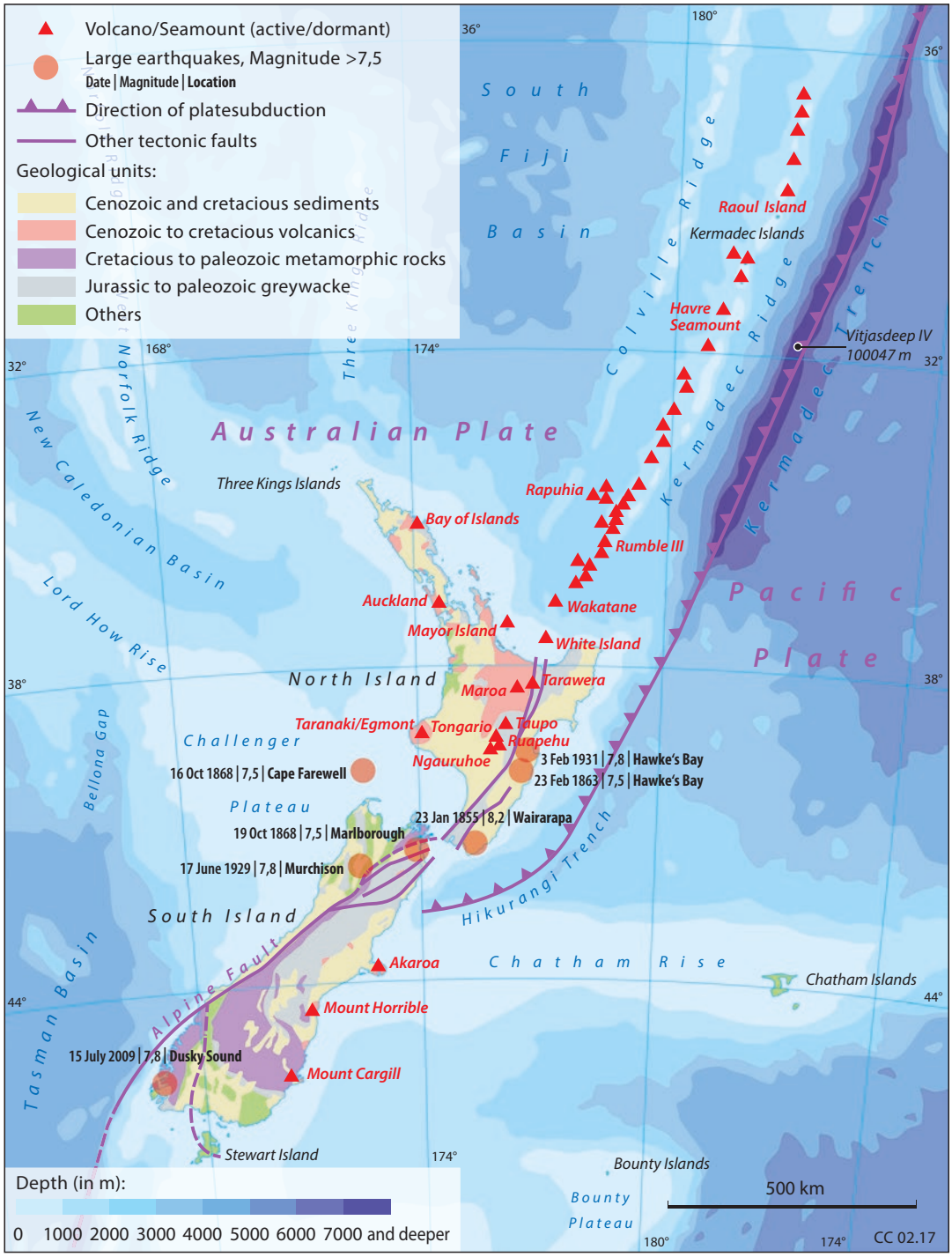


Fig. 2.6 Tecto-orogenetic island – example: New Zealand

Sedimentary islands result from the accumulation of loose sediment. In the coastal areas of shallow seas, the surf creates a plethora of different island forms. A key force is the vertical and horizontal deformation of deep ocean waves as they reach shallow areas. On approaching the beach, the rounded peak of the wave becomes more pointed (shoaling) before rising and then breaking towards the shore. Kelletat describes this as follows:

> Deformation begins when the wave reaches a critical water depth, which corresponds to about half the length of the wave and therefore varies. Upon reaching the critical water depth, the orbital trajectories of the lower water particles meet the seafloor, where they are slowed down or obstructed. In the upper part of the wave the orbital motion initially continues. This results in the characteristic breaking of the wave. (Kelletat 1999: 127 f.)

Depending on the wave's energy, water can spill up the beach quite a long way, depositing the transported sediment in that direction. In an interplay of swash and backwash, the energy of the water is shooting up the beach and then running back down which leads to the shifting, layering and sorting of sediment in processes that are collectively termed beach dynamics.

When a wave approaches the coast obliquely rather than head on, the nearshore part reaches shallow water first and slows down before the rest of the wave. This creates the so-called refraction effect, or a veering of the wave towards the coastline. While the wave and therefore the swash meet the beach at a certain angle, the backwash loses energy on account of friction and the deposition of sediment, causing it to run directly down the beach in the direction of gravity. This means particles are transported down the beach in a zigzag pattern. The displacement of sediment at an oblique angle is termed longshore drift (see Fig. 2.7).

Accretion bodies usually adjoin a coastal promontory. With frequently changing wave directions and subsequent changes in the direction of longshore drift, seasonal modifications of forms can occur. Sand spits can occur when sandy deposit is built up into a landform which projects into a body of water. Beach ridge accumulation results in islands gradually becoming attached to the mainland and the creation of ridge-like links between islands.

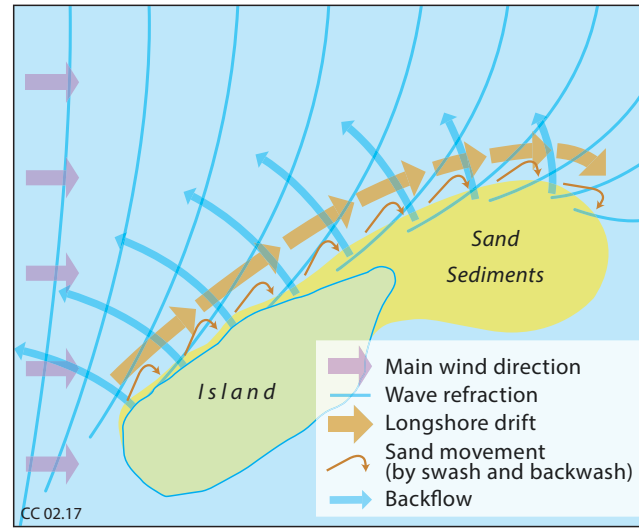


Fig. 2.7 Longshore drift and shifting island (After Klug 1985)

Such formations are termed tombolo. Kelletat shows an extensive representation for St. Christopher in the Caribbean (Kelletat 1999: 134). Another visible effect of longshore drift is the uneven accumulation of sediment on obstacles such as groynes. Coastal residents often make use of this effect when reclaiming new land on the coast, for example, on the Frisian coast in the Wadden Sea.

Since surf zones not only develop near beaches but also in shallows, quasi-stationary areas result with strong resuspension and accumulation of sediment. Mostly in tidal areas but also before tideless coasts, submerged bars of sand can thus grow above sea level. Due to the varying reach of the waves, accumulation coasts are normally characterised by extensive areas of dry sediment that are bare of any vegetation. This creates a point of attack for wind and is a prerequisite for the formation of dunes, as can be observed on the North Sea coast, for example. Once the upper areas of the beach dry out, freely migrating, barchan dunes initially form. On encountering obstacles, irregular and above all higher accumulation can occur. This mostly coincides with the first colonisation by salt-resistant plants (such as marram grass) with fast-growing and widely branching root systems, contributing to the further stabilisation and accumulation of sand. Over time, dune ridges develop, which in humid parts of the world are often covered in thick vegetation.

Along coasts with a larger tidal range, swash lines can shift horizontally, sometimes over considerable distances, especially along flat coasts. Ridge-like structures accumulate before the coast which initially grew above the low-water mark and eventually above the high-water mark, forming elongated islands. On mesotidal coasts, tidal inlets are kept open by the huge water masses streaming in and out with the tide which prevents islands from linking up. In these cases, free spits and barrier islands commonly develop, such as the chain of islands that lines the Dutch and German North Sea coast. Their distance from the coast is influenced by the critical, surf-forming water depth of the last transgression. In line with the predominantly westerly winds and waves that abound in this region, material is transported eastwards in parallel to the coast, causing a tendency of the East Frisian Islands to shift or migrate east-south-east.

Shifting Islands in the Wadden Sea

Entire islands shift from west to east and landwards. Only islands with an old Pleistocene core are safe from being shifted by the forces of nature. The predominant winds along the German North Sea coast are westerlies or northwesterlies, and the high tide always streams in from the west. The Wadden Sea extends between the mainland and the barrier islands, composed of finely sorted accumulation material. Twice a day, millions of cubic metres of water flow in and out between the islands through the small tidal inlets that connect the Wadden Sea to the open sea. Much sand is transported in this way. While it is washed onto the beach during high tide, it actually promotes steeper sloping of the beach when sucked out again by the reverse flow of water. In line with longshore drift, the coastal current leads to sand shifting eastwards in parallel to the beach. The western sides of the islands are eroded, and sandy hooks form on the eastern sides (see Fig. 2.8). Norderney, Spiekeroog and Wangerooge are classic examples of shifting Frisian barrier islands (Sindowski 1973).

Over the last 100 years, Spiekeroog has grown by about 4 km in an easterly direction. In 1894 the western side of the island was secured by human intervention (groynes and sea walls) to prevent storm surges from breaking through the western chain of dunes. The classic tripartite structure of dune core, salt marsh and eastern plate is readily visible on Spiekeroog. The eastern plate is occasionally flooded. Large amounts of sand are transported along the East Frisian Islands in an easterly direction and deposited, forming sandy hooks. The islands and the Wadden Sea are estimated to be at least 1500 years old (Pott 1995).

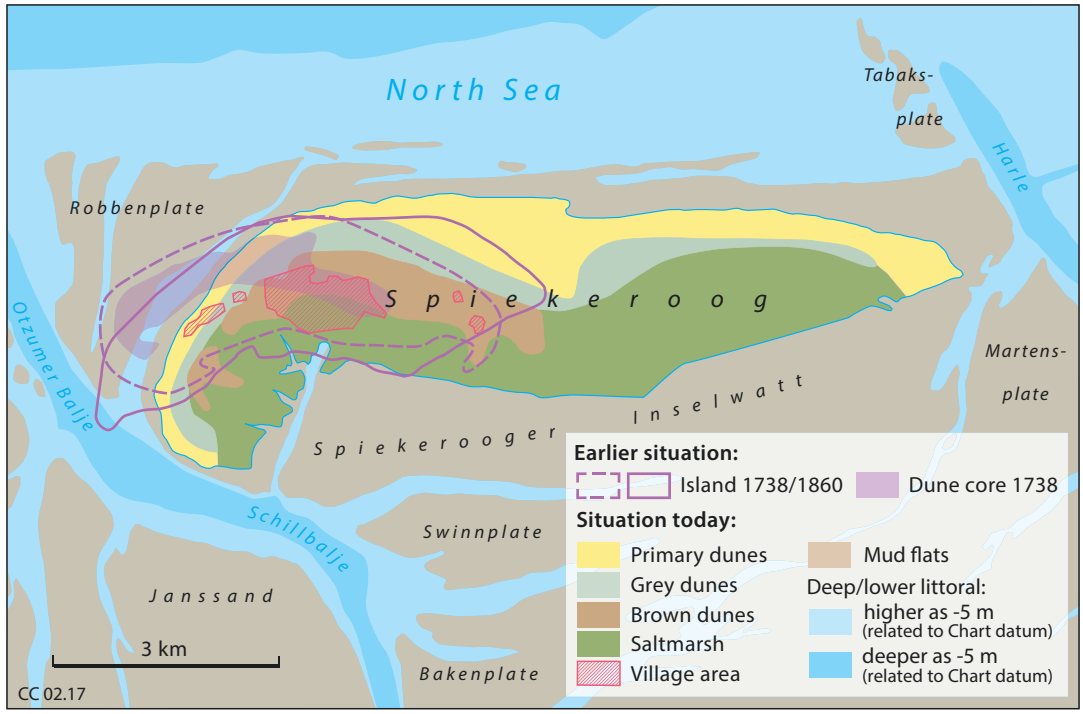


Fig. 2.8 Shifting Frisian barrier island – example: Spiekeroog (After Kelletat 1989)

Wangerooge today is a pure dune island. Since medieval times the island has lost its old core due to the eastward shift of the Harle inlet. The church tower, built in 1595 at the centre of the first village, is now in the sea west of the island. Wangerooge's West Tower was built around 1600 on the eastern shore; by 1793 it had moved to the centre of the island. Before the First World War, its western side already stood in water.

In contrast to the East Frisian Islands which are modern land formations, the North Frisian Islands are remains of mainland that was broken up by storm surges. Here, islands can be found with and without a Geestland core, the latter representing pure accumulations of sediment and the former depositions of sediment on an existing core of former mainland. Sylt, Amrum and Föhr are examples of islands with a Neogen[4] Geestland core around which coastal sediment was deposited over thousands of years (Streif 1990).

[4]The tertiary period is divided into the Neogene and Paleogene. The Saale glacial stage had pushed together the Geest cores.

Last not least, sedimentary islands also include islets that have gradually grown up through silt aggradation or sedimentation in areas of shallow water. According to the inhabitants of the region, these islets are not really islands but 'Halligen'. Contrary to what has long been assumed, these silt aggradation islands are not the remains of former mainland but gradually accumulated in layers after the destructive Rungholt storm surge in 1362. During this huge and destructive event, also known as the 'Große Mandränke' (literally 'big drowner of men'), much of the cultivated land on the North Frisian coast was lost. Formerly agricultural land became mudflat, or a shallow shelf area where sand and mud was deposited twice daily by the flow of the tide. With growing aggradation, the new deposits were eventually only flooded during spring tides. The second catastrophy in 1634, known as the 'Zweite Mandränke', again destroyed parts of the coastal mainland and islands. 'After the disastrous storm surge, inhabited mounds that had not been destroyed and still rose above the Wadden Sea by a few decimetres – the Hallig islands – continued

to grow' (Mieth and Bork 2009: 116). New dwelling mounds were created on the fresh sediment that was flooded ever more rarely. With every submersion, the Hallig islands grew in elevation and changed their area. This is how these specific 'pieces of land surrounded by water' rather than islands came into being.

Due to the lack of coastal defence, or weaknesses in its execution, flooding events were more common in the past. Two large-scale changes to the coastline occurred in history, and many more Hallig islands used to exist that frequently changed shape. Some only lasted for a short period until a shifting tidal creek caused them to shrink and disappear again. Others grew due to sediment deposition and merged, such as Nordmarsch and Langeneß which became today's Langeneß. The ten remaining Hallig islands are grouped in a circle around the island of Pellworm, which is not a Hallig itself. Nordstrandischmoor, Gröde, Oland, Langeneß and Hooge as well as the smaller Halligs of Habel, Südfall, Süderoog, Norderoog and Hamburger Hallig are today's cultivated Hallig islands in North Frisia. Seven out of the ten are inhabited by a total of around 230 people.

Ecologically, barrier islands play an important role in mitigating ocean swells and other storm events. Not only do barrier islands create a unique environment of relatively low energy, brackish water, but they also serve as natural coastal defence. On the back-barrier side, multiple wetland systems form such as lagoons, estuaries and marshes depending on the specific context and conditions. These wetlands could not exist without barrier islands – they would be destroyed by the daily action of waves and storm events. Prominent examples of such wetlands can be found off the coast of Louisiana as well as off the Frisian coasts.

Islands Come and Go…

Coastal change and island creation is a continuous process. In the Lower Saxonian part of the Wadden Sea, a new island, the so-called Kachelotplate, was reported some 10 years ago when the sedimentation process created a dune island with primary dunes. Large parts of the Kachelotplate are now no longer flooded during high tide, meaning the sand bar, which measures about 3 km^2, is now officially an island. It is situated between the islands of Borkum and Juist and near the island of Memmert which is a bird sanctuary. The current process of island formation is caused by changing ocean currents and changes in the shift of sand. The sand deposited on the Kachelotplate originates from the West Frisian Islands off the Dutch coast. The next storm surge may once again destroy the Kachelotplate, but should it persist, it will almost certainly be dedicated to nature conservation as it is situated within Zone I of the Wadden Sea National Park (Wehrmann and Tilch 2008; CWSS 2013). Islands come and go; this holds true not only for the uninhabited islands of the Wadden Sea.

2.4 Coralline Islands

Apart from geological and physical processes, reefs and islands can also form as a result of zoogenic processes, specifically the growth of corals. A coralline reef takes thousands of years to grow, a process which is influenced by many geological and physical factors. Fluctuating sea levels, continental drift, subsidence and changes of temperature influence the shape and character of a reef more strongly than the different species of coral responsible for its construction. Zoogenic superstructures in the form of coralline reefs are particularly widespread in warmer waters.[5] Corals are primarily found in the tropics and subtropics between the 30th parallel north and

[5]Some stone corals build cold water reefs and live at depths between 50 and 1000 m. Despite the icy water temperatures of 4–12 °C, they grow by up to 2.5 cm a year. Much less is known about these so-called deep water or cold water corals than their tropical relatives. The Darwin Mounds, a huge belt of coral reefs extending from Norway to Portugal, was only discovered in 1998 (Roberts et al. 2006; Kiriakoulakis et al. 2004).

the 30th parallel south – where they are estimated to extend over a total area of 250,000 km^2 or approximately 0.1% of the world's oceans (Burke et al. 2011: 13; Spalding et al. 2001).

The development of coral reefs is dependent on hydrological factors, particularly water temperature, although relatively low water depth is also critical. Corals are related to jellyfish and sea anemones; together they form the phylum of Cnidaria. Corals are colony-forming, sessile Cnidarians which are subdivided into distantly related classes. Anthozoans include corals, sea anemones, sea pens and sea pansies; two important subclasses are the Octocorallia and Zoantharia. Octocorallians include gorgonian corals, sea pens, sea pansies, organ-pipe corals and soft corals (order Alcyonacea); zoantharians include the reef-building corals, which are also known as hard or stony corals. All corals have tube-like hollow bodies; the mouth is used for both taking in food and excreting wastes. Tentacles surrounding the mouth are used at night to catch food. More or less the entire body is given over to digestion.

Stone corals form skeletons by depositing calcium carbonate in their tissue. Coral banks or reefs are created by living organisms constantly overgrowing dead skeletal material. Stone corals are the master builders of the tropical seas. Their skeletons are largely composed of crystals of aragonite ($Ca[CO_3]$), a calcium carbonate excreted through the basal plate or epidermis in order to lend support to the colony. Individual skeletons tend to be branched like a tree. Colourful polyps sit at the tips of the branches where growth takes place, reinforcing the impression of submarine flowering plants. Coral growth largely depends on the species. Many soft corals grow faster than their hard relatives, with some growing as little as 1 cm and others over 100 cm per year. Growth essentially depends on sufficient levels of oxygen, nutrients and light, which is why corals are usually restricted to maximum water depths of around 40 m.

Stony corals are important ecosystem engineers, which regulate the functioning of the entire reef via the production of limestone structures and the release of organic substances such as carbohydrates and mucus. But soft corals have their advantages too. A recent investigation discovered a pecularity of soft corals of the Xeniidae family. Their feathery polyp tentacles open and shut like birds' wings. This pulsating movement generates considerable advantages for their metabolism and food supply – and ultimately probably affects growth positively. Another effect of pulsation could be of great importance; during photosynthesis, reactive oxygen radicals are also produced, which are very harmful to coral metabolism. When oceans warm, oxygen radicals induce corals to release their symbiotic algae, in turn causing the corals to bleach and often to die. Through pulsation, the radicals are probably transported away effectively. Therefore, it is likely that pulsating soft corals are particularly resistant to coral bleaching. Such robustness and the favourable energy balance create a significant competitive advantage for soft corals in the reef (Wild and Naumann 2013; Kremien et al. 2013).

Like most sessile marine organisms, corals are filter feeders that filter microplankton, nutrients and trace elements from the water. Corals that live in shallow water not only rely on filtering plankton but also obtain nutrients – in some cases predominantly –from symbiotic algae stored in their skeletons. These so-called zooxanthellae are responsible for the vivid colour of living coral tissue. The photosynthetic activity of these single-celled algae is an essential part of the coral's metabolism. A symbiotic relationship ensues: Since the algae need sunlight for their metabolism, corals grow towards the sun. When corals are shaded out by other corals, they branch and, just like the branches of a tree, reach out towards the light. As a result, genetically identical polyps can form entirely different shapes of coral. Depending on the available plankton, the size of coral polyps can also vary greatly, reflected in the distinction between large polyp corals (LPS – Large Polyp Sclerantinia) and small polyp corals (SPS – Small Polyp Sclerantinia). Polyp size ranges from fractions of a millimetre to several centimetres.

Corals have existed for over 400 million years, explaining their importance for palaeoclimate reconstruction. Coral reefs are so significant because they are home to thousands of plants and

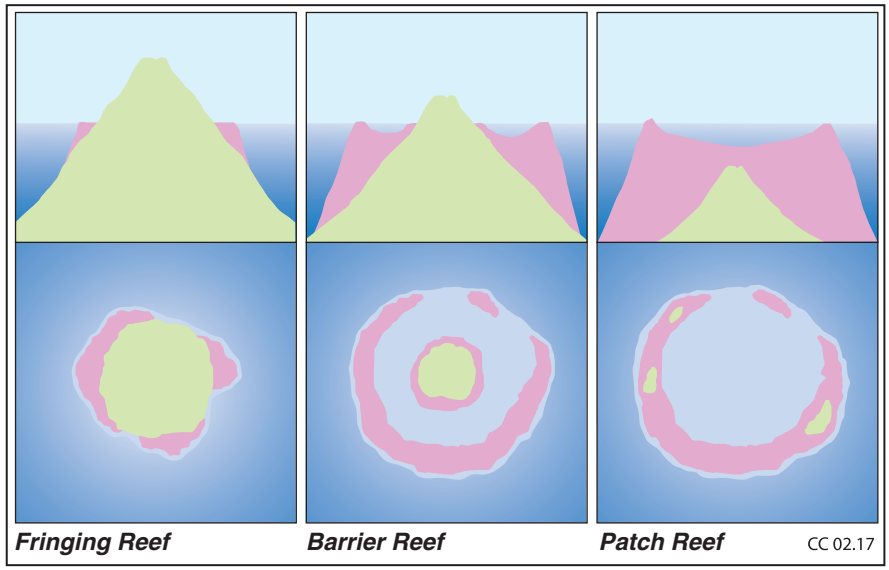


Fig. 2.9 Types of coral reefs: fringing reef, barrier reef and patch reefs (After Kelletat 1989)

animals. Crustaceans, starfish and other small animals live in their nooks and crannies; many fish use coral reefs as nurseries. In terms of biodiversity, the Indo-Pacific is roughly ten times more diverse than the Western Atlantic. For example, there are approximately 60 species of corals inhabiting the coral reefs of the Western Atlantic compared to an estimated 500–600 species in the Indo-Pacific. Coral reefs are rare or absent in the tropical Atlantic of South America and Africa mainly because of the great influx and circulation of freshwater and silt from the Amazon and Congo River systems.

2.4.1 Reef Types: Fringing Reefs, Barrier Reefs and Patch Reefs

Coral growth usually reflects the relief of the seafloor. Reef formations can be classed into four main types: fringing reefs, barrier reefs, platform reefs and atolls (see Fig. 2.9).

Fringing reefs form close to the coast, sometimes following the contours of the shore for kilometres. How far they extend out to sea depends on the decline of the seafloor and on water quality, as corals need clear, unclouded water and enough light to ensure the survival of the zooxanthella. Fringing reefs are the most common type of reef; they are predominantly found in the Red Sea, Southeast Asia, the Indian Ocean and the Caribbean.

Erosion may form a channel between the shore and the reef, giving rise to a fringing reef with an intervening shallow lagoon.

Contrary to a fringing reef whose lagoon is only a few metres deep, *barrier reefs* are separated from the coast by a lagoon with a water depth between 30 and 70 m. While fringing reefs always originate from the mainland, gradually moving into the sea, barrier reefs usually form in the open sea. Different environmental conditions are responsible for the different dimensions of the reef. If sea levels rise over the course of millennia, the reef responds by growth, ensuring the algae remain just below the water line to still receive enough sunlight. The same response occurs when the seafloor subsides. Barrier reefs are much rarer than fringing reefs due to the particular interplay of geological change and reef growth. The largest barrier reef is the Great Barrier Reef of Australia, followed by the barrier reef islands before the Belize Coast in the Caribbean (Gierloff-Emden 1980: 973 f.; Klug 1985: 205; Kench et al. 2005, 2009).

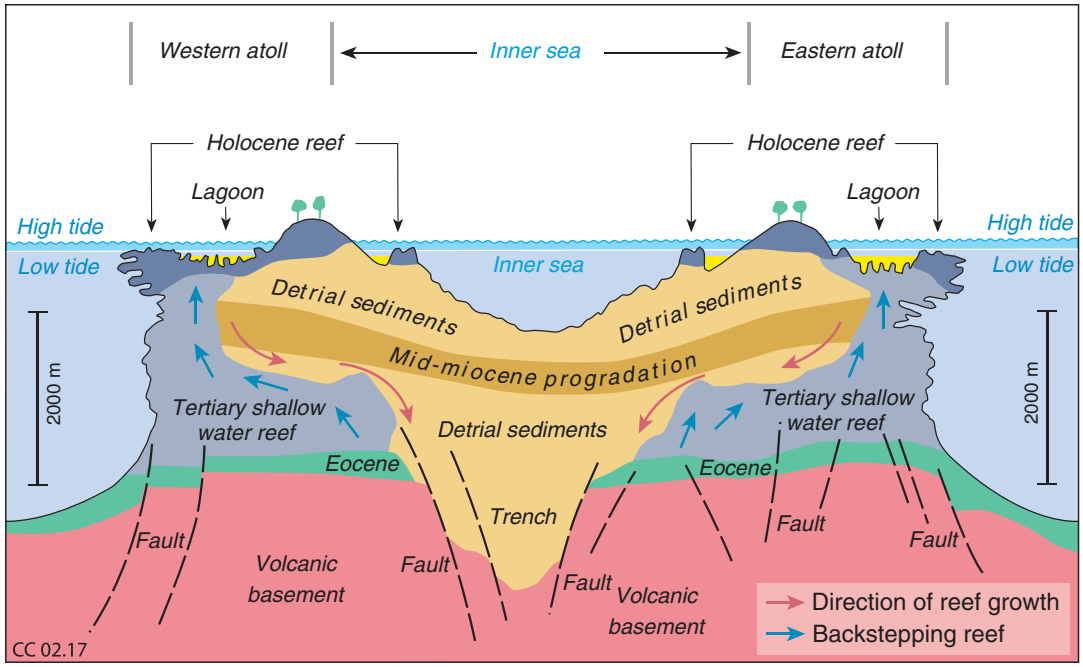


Fig. 2.10 Scheme of an atoll – example: Maldives (After Kench 2011)

Patch reefs form where the seafloor is close enough to the surface for corals to obtain enough sunlight. In terms of their form, patch reefs, like atolls, are ring-like. Unlike atolls, however, their development is not linked to a sunken island, which is why they lack the characteristic deep lagoon of atolls. Patch reefs can form anywhere, even hundreds of kilometres from the coast. Some patch reefs, for example, those that lie within the Great Barrier Reef, can reach a diameter of up to 15 km.

Shelf reef islands mostly trace the relief of the seafloor. Directly on the continental slope, they are often ribbon-shaped; behind the continental slope, they are mostly at a right angle to the shore. Islands spreading out from the shore, for example, may mirror a shelf relief characterised by the arms of a drowned river delta. Such hardened sediments, including also coquina formations and beach rocks, form suitable substrates for reef-forming corals. The growth of shelf reef islands is mainly driven by glacial eustatic variations of sea levels. Three reef types are commonly understood as precursors to islands: apron reefs, pseudo-atolls and patch reefs. Their inner sides often accumulate sand and bivalve debris which often solidifies and reaches above the water level at all times.

2.4.2 Atolls

Atolls are ring-shaped reefs that mostly sit on the slopes of (sometimes huge) submarine volcanoes. One of the first theories on the formation of atolls goes back to Charles Darwin (1809–1882) and his work *The Structure and Distribution of Coral Reefs* (1842). His theory, which became known as the subsidence theory, holds that atolls begin as fringing reefs surrounding a volcanic island that slowly turn into barrier reefs. Over time, the volcanic island gradually sinks into the sea as a result of erosion, seafloor subsidence or rising sea levels; at the same time, the reef continues to grow. It finally becomes an emerging reef and forms a new island. Atolls are typically ring-shaped with a central lagoon. Examples include the Line Islands in the Pacific and the Maldives in the Indian Ocean (see Fig. 2.10).

If the island remains unchanged, and if the surrounding water level allows, the reef continues to grow outwards into the sea. The same applies to rising islands, where reef terraces result from the inner fringe of the reef being lifted above sea level. If the island subsides, a barrier reef forms, separated from the main island by an increasingly deep lagoon. All of these processes assume that sea levels do not change by more than 10 mm per year, as this is the speed at which corals still grow well. Once the island has completely subsided beneath the water, a ringed reef remains, a so-called atoll.

'Atoll' is derived from the Dhivehi word *atolhu* (ތަކެތި) (a Maldive language). The coral reef forms a fringe of mostly very narrow islands, which are often termed 'Motu' (the Polynesian word for island). Within the lagoon, remnants of the former peak of the volcano may also still appear as islands. Finally, only the reef emerges above sea level, where it forms a ring of small islands. Ringed reefs take up to 10,000 years to grow; if conditions are favourable, they can continue to expand for another 100,000 years. Atoll formation can take up to 30,000,000 years in total. Glacial eustatic changes in sea level undoubtedly also contributed to the formation of these islands (Klug 1985: 204 f.).

Another theory of atoll formation was put forward by oceanographer and zoologist Hans Hass (1919–2013). He suggested that atolls form from originally cone-shaped reefs whose innermost corals die back due to insufficient water supply; only the outer corals continue to grow, leading to a ring-like structure (Hass 1962a, b).

Darwin's theory was verified in 1951/1952 by analysing the results of deep core drilling at Bikini and Eniwetok Atolls in the Indo-Pacific Ocean. At a depth of around 1300 m, the drill went through the limestone of the reef and hit volcanic basalt. This confirmed that the island had gradually subsided while the reef had continued to grow towards the light. Eventually, the reef had overgrown the completely submerged island, forming a perfectly circular atoll around a semi-enclosed lagoon. This process took place over a period of 60 million years (Gierloff-Emden 1980: 976). In 2014 an international team of scientists took two sea containers of drilling equipment to the Southern Seas in order to retest the subsidence theory and to understand past climate fluctuations in order to better understand current climate change. The team was able to prove the subsidence of volcanoes and the concurrent growth of the reef, offering an explanation of how fringing reefs become barrier reefs and eventually atolls. They were also able to confirm subsidence on Bora Bora (Harper et al. 2015) which is at least 6 m and at most 16 m lower than 117,000 years ago. Below the current reef, which began to form 10,000 years ago, the researchers came upon the 117,000 year-old fossile reef which formed before the last ice age. One aspect Darwin was unable to take into account is the vast fluctuation of sea levels. The melting of the ice sheets after the most recent ice age around 20,000 years ago caused a huge rise in sea levels by about 120 m, implying that the volcano and the fossile reef of Bora Bora were simply flooded. It was also shown that fluctuations in sea levels overlie subsidence and that rising sea levels have greater influence on the formation and growth of reefs than subsidence.

The distribution of atolls is determined by their specific genetic origin around a volcanic island. Originally defined for Pacific reefs, these types of coralline islands mostly occur in the tropical waters of the Pacific and Indian Ocean. Darwin (1842) believed that there are no true atolls in the Atlantic. However, by defining an atoll as a geomorphic form (rather than by origin, as Darwin did), Bryan (1953) listed 27 Atlantic atolls, 26 of which are in the Caribbean (Milliman 1969).[6]

Most of the Caribbean atolls are found offshore in Central America, from Yucatan to Nicaragua. Caribbean atolls are somewhat misshapen, lacking the nearly perfect circular or oval symmetry seen in many of their Indo-Pacific counterparts. This is due to the simple fact that

[6]Prior to 1966, five Caribbean atolls had been extensively studied: Alacran Reef (Kornicker and Boyd CR03211962; Hoskin 1963); The Belize atolls, Lighthouse Reef, Glover's Reef and Turneffe Islands (Stoddart 1962); and Hogsty Reef (Milliman 1967a, b) (see Milliman 1969).

most (if not all) appear to have developed in ways other than through the subsidence of mid-oceanic volcanic islands (as is typical of Indo-Pacific atolls) (see Alevizon 2015).

Bermuda is termed a *pseudo-atoll* because its general form, while resembling an atoll, came about very differently – an isolated outpost of Caribbean reef development. Reef life survives there year-round only because of continual exposure to the warm waters of the Gulf Stream. Atoll-like reefs which are not of Darwin's type tend to form around isolated highs formed by local tectonics. Modern examples of exposed (i.e. non-lagoonal) patch reefs occur off the north coast of St. Croix in the Caribbean Sea (Gischler 1994).

The northernmost atoll is the Kure Atoll northwest of Hawaii at 28° 24′ N; the southernmost is Ducie of the Pitcairn Islands at 24° 41′S.[7] The largest continuous atoll is the Great Chagos Bank in the Chagos Archipelago which covers a total area of 12,642 km^2 but only has a dry land surface of 4.5 km^2. The atoll with the largest land area is Kiritimati in the Pacific island state of Kiribati, amounting to 389 km^2 of land surface (and 345 km^2 of lagoon); this is followed by Aldabra with 155 km^2. Many atolls have very small areas of dry land and no drinking water, rendering them uninhabitable. The Saya de Malha Bank, a ring-shaped coral reef, is entirely submerged and therefore not classed as an atoll; it has a total area of around 35,000 km^2 (not including the separate North Bank or Ritchie Bank).

The Maldives is a classic example of a nation state that only consists of atolls. The tiny country in the middle of the Indian Ocean is made up of about 1200 small coral islands grouped into 26 atolls. The Maldives owe their existence to a side ridge of altogether four mid-oceanic ridges, extending over a total length of about 2000 km. All this occurred about 200 million years ago when the former supercontinent of Gondwana in today's Indian Ocean broke up and, accompanied by powerful eruptions, drifted apart. The peaks of the volcanoes jutted up above the warm tropical sea, and corals built the first fringing reefs. Eventually, corals formed huge banks, similar to those found today in the area of the 'Maldive Ridge', which is properly known as the Chagos-Laccadive Ridge. Over the course of time, this ridge continued to sink, with its highest points today at 2200–2400 m below sea level. The Maldivian atoll of Thiladhunmathi-Miladhunmadulu (two names but one atoll geographically) has the largest total area of 3850 km^2, of which 51 km^2 are dry land (see Yamamoto and Esteban 2014).

Later stage events (such as volcanic elevation or lowering of sea levels) can cause atolls to be uplifted, causing the central lagoon to partly or fully dry out. Niue, Nauru and Henderson Island are examples for these processes.

Henderson Island is a classic example of a *makatea* formation – a large coral limestone mass that has been geologically uplifted high above sea level. Located about 170 km northeast of Pitcairn Island, the island takes the form of a raised coral plateau whose area of 37 km^2 makes it by far the largest island of the Pitcairn group. Originally formed as a volcanic structure rising from the seabed, the volcano has long since disappeared and is now capped by aeons of coral growth. It is these layers of fossilised reef that form the structure of the island down to great depth. Local seismic activity and global changes in sea levels have raised the island out of the water so that it is now largely surrounded by limestone cliffs. The island is thought to have been above sea level for the last 380,000 years. Its rocks have been used as a record of climate change, with some of its ancient reefs having being dated to around 600,000 years ago. The island was last inhabited by Polynesians in around 1600 AD, having been settled since 800 AD. The island is surrounded by steep but low cliffs of limestone rocks around 15 m in height – much of which has been undercut by wave action – forming overhangs and caves. Although largely cliff-lined, the island has three large sandy beaches that have formed around the northern coastline and which are nesting sites for green turtles (*Chelonia mydas*). Offshore there is a fringing reef of at least 200 m in width that surrounds the island on the north, northwest and northeast sides. Reefs off the

[7] Atoll-like structures further south are found on the submerged Elizabeth Reef in the Tasmanian Sea at 29° 58′ S.

north and northeast beaches are seaward sloping reef platforms without reef crests and are not typical fringing reefs. There are two narrow channels through the reef on the north and northwestern coasts. The interior plateau of the island has an elevation of up to 30 m and is largely composed of treacherous, dissected limestone formations and reef rubble. Much of the interior forms a central depression that is thought to be all that remains of its uplifted lagoon.

2.4.3 Threats to Coralline Islands

Coral growth is slow and highly sensitive, dependent on a symbiotic relationship with algae and good environmental conditions. Corals cannot grow without light and will die if their symbiotic algae cannot survive. As a result, coralline islands are susceptible to a wide range of man-made and natural threats. Waste water discharge into coastal waters contributes to coral bleaching by suspending faecal matter and coliform bacteria; litter turning into flotsam is a huge problem for humans and animals. Deep-sea fishing and unsustainable practices such as bottom trawling, bomb fishing or using bleach for lobster catching threaten corals. Excessive diving tourism in coral reefs and anchoring also destroy corals and negatively impact on the island's constituting ecosystem. In addition there are various threats arising from climate change. Some reefs have already died off; others are endangered. At present, one in five coral reefs subject to scientific monitoring in the Caribbean is found to be shrinking. The corals' symbiotic algae are very sensitive to temperature: In warmer water, they begin to produce toxins and are expelled by the corals; these then die off, leaving behind the white calcium carbonate skeleton – a process termed coral bleaching. Corals can recover from modest bleaching, but the global warming of the oceans reinforces the process to such a degree that they eventually die (Burke et al. 2011).

While there is much focus on the impacts of warmer ocean temperatures, there is another more direct effect of the burning of fossil fuels and deforestation. More than 30% of the carbon dioxide emitted by humans is dissolved into the oceans, gradually turning the water more acidic. Coral reef researcher Ove Hoegh-Guldberg explains the threat of ocean acidification: 'Evidence gathered by scientists around the world over the last few years suggests that ocean acidification could represent an equal – or perhaps even greater threat – to the biology of our planet than global warming' (Pelejero et al. 2010: 333). These authors label ocean acidification the 'evil twin' of global warming. As CO_2 dissolves in the oceans, it leads to a drop in pH and accelerates the process of acidification. This change in seawater chemistry affects marine organisms and ecosystems in several ways, especially organisms like corals and shellfish whose shells or skeletons are made from calcium carbonate. Today, the surface waters of the oceans have already acidified by an average of 0.1 pH units from pre-industrial levels; signs of its impact can be noted even in the deep oceans (see also Chap. 6 Island vulnerability and resilience).

2.5 Secondary Island Formation Processes

Proper 'outpost islands' are those that have not arisen through the physical or zoogenous processes described above but through processes that can be termed secondary. These secondary processes are mostly cut-off processes where parts of the mainland are separated off as islands, either through ingression or regression of the sea, the erosive force of the surf or tectonic activities. This group also includes islands that have arisen through diapirism (doming), lifting or dislocation (see Table 2.2). Geologically speaking such islands tell the story of the nearby mainland, as only secondary processes have surrounded them with water and turned them into islands. If it were not for the sea, they would be readily visible as outposts of the continent.

Some of these islands are classic outposts in that they have played an important role as physi-

cal outposts of the mainland or prison islands. Famous examples, and readily classified as continental outliers, include:

Île d'If/Chateau D'If – a small uninhabited island of about 2 ha, with a maximum elevation of 35 m. It is situated about 1.5 km off the coast of Marseille and part of the Frioul archipelago. Geomorphologically, Ile d'If is part of a submerged karst formation which was part of the mainland before the Holocene sea level rise (Collina-Girard 2004: 8).

Robben Island – situated about 12 km off the coast of Cape Town in Table Bay in the Atlantic. It has an area of 5.07 km^2 and a maximum elevation of 30 m (Minto Hill). In 2011 it was inhabited by 116 people. Robben Island can also be classed as a *continental outlier* as it is part of the Tygerberg formation and therefore part of the Malmesbury Group, the oldest sedimentary rock on the South African mainland (Rowe et al. 2010: 57; Department of Geological Science of the University of Cape Town 2016).

Alcatraz – consisting of sandstone and part of the Alcatraz terrace which also includes the hills around San Francisco. During the Pleistocene Alcatraz was linked to the Californian mainland. During the Holocene, sea levels rose, causing the island to become separated (Konigsmark 1998: 50). This marine ingression makes Alcatraz a continental outlier.

The following section takes a closer look at the various secondary processes of continental outlier islands or outposts.

2.5.1 Subsidence, Ingression and Emerging Islands

Subsidence, ingression and emergence are processes that cannot entirely be separated as secondary island formation processes often occur simultaneously. For example, an island can rise as a result of isostasis and be flooded by raising sea level at the same time.

Marine ingression can lead to the drowning of marginal mainland as a result of land subsidence (isostatic) or sea level rise (eustatic). Subsidence islands result from the gradual submergence of the seafloor, as in the case of Sansibar, Pemba and Mafia (on substrate that arches into the Somali Basin off the east coast of Africa (Valentin 1954: 70) or the Bissagos Islands that developed in a subsiding delta region on the coast of Guinea-Bissau (Buckle 1978: 218).

Ingression islands form when terrain formed by exogenous processes is flooded during a marine ingression, leaving behind higher areas of land as islands and groups of islands. As a consequence of global sea level rise after the last glacial period, all sorts of mainland terrain were caught out by marine ingression. Ingression islands of this type are therefore highly morphologically diverse. The Baltic islands of Gotland and Oland represent a drowned Precambrian escarpment, for example. Bodden islands such as Hiddensee in the Baltic are really the tips of moraines in a drowned peri-Baltic glacial landscape (Hurtig 1959: 47). Ilha do Governador in the Bay of Rio (Guanabara) is a tropical bell-shaped mountain surrounded by water, and Djerba Island is part of the southern Tunisian Djeffra Plain that was cut off by the last sea level rise (Klug 1973: 46; Klug 1985: 195).

Contrary to ingression islands, emerging islands form as a result of isostatic or epirogenetic movements that lift large areas of seafloor. Santiago and São Nicolau of the Cape Verde Islands exhibit a unique geological record rich in palaeo-markers of sea levels, thus allowing different synchronous uplift histories to be discriminated (Ramalho 2011). Examples include also the Scandinavian and Canadian skerries, which are rounded domes and small blocks of rock, partially also moraines or drumlines that jut out of the water off the mainland coast, giving away their origin as part of a former headland. Their origin goes back to the ice ages when inland ice originating from Scandinavia and North America flowed across and abraided the underlying rock. Skerries are often groups of many hundreds of individual islands. The idea of a 'yard' in front of a land mass has led to the name of *skärgård* (Swedish) or *skærgård* (Danish). The syllable 'gård' is related to the English word 'yard' but was understood in the German-speaking region

as 'garden', leading to the skerries also being termed a 'skerry garden'.

Strictly speaking there are two types of skerries in Scandinavia where – depending on their position – marine ingression meets glacial isostatic emergence and meets subsidence. The Baltic skerries, such as those off Turku in Finland, are really rounded bosses that were flooded; as they are situated in glacial isostatic rebound areas, their current genesis is unaffected by the sea. As a result of their continued uplift, marine clay deposits are emerging that offer possibilities for agriculture on many skerries. The island fringe on the open tidal coast of western Norway from Stavanger up to the Vesteralen islands is part of a Strandflat, forming the foreshore of an inland glacier that was significant in the Pleistocene. These skerries are really denudation rumps that were formed below the shelf ice by constant tide-dependent freeze-thaw cycles (Gierloff-Emden 1980: 1214f; Tolvanen et al. 2004; Scheffers et al. 2012: 73ff). Whether formed by isostatic lift or marine ingression, the result is a garden of skerries that permits an impressive association: a sea of islands (see Fig. 2.11).

2.5.2 Residual or *Outlier Islands*

Outlier islands are the result of erosion processes that cut them off from the mainland. Residual islands are leftovers of mainland destroyed by transgression. Both types can be termed outlier islands, in analogy to the vocabulary describing the shapes of a scarp landscape. Quite often these islands are buttes or hard cores of rock that, unlike their surrounding land, were able to resist erosion.

The Channel Islands of Guernsey and Jersey are the remains of a former continental plateau; they owe their existence to the hardness and resistance of their constituting rock, which is mostly igneous and strongly metamorphic. The Oligocene brought with it erosion caused by transgression; however, the islands were only separated from the continent of Europe by rising sea levels at about 5000 BC during the new stone age (Power 1997: 276–277) .

The North Frisian Wadden Sea along the German Coast has several examples of residual islands. Föhr is the second largest and Pellworm the third largest island in the tidal marshes off this coast. The elevated Geest cores of the North Frisian Islands, situated within wide expanse of marshland, attracted people in the Neolithic period when sea levels in the North Sea rose. Up to the major storm surge in 1362, Föhr was not an island but part of the mainland, linked to the North Sea by deep channels of water. That same storm surge drowned the port town of Rungholt, later steeped in legend and formed a new island called Strand. Pellworm mostly consists of the western part of Strand which was destroyed in another storm surge in 1634. Pellworm, Nordstrand and some of the Halligen islands are all residuals of the former island of Strand (see Fig. 2.12).

2.5.3 Dislocation Islands (Horst and Drift Islands)

Islands can also form as a result of horizontal or vertical tectonic shifts, giving rise to drift and uplift islands, respectively. Vertical tectonic shifts can lead to the lifting of blocks, giving rise to a horst island. Horizontal tectonic movements are often linked to plate tectonics, leading to the separation and migration of peripheral parts of a lithospheric plate; in this case drift islands result. These are fragments of the mainland, forming part of the respective continental crust.

Bornholm is a typical example of a *horst island* that arose from tectonic lift. The entire rim of Fennoscandia was lifted as a predominantly crystalline block of rock (Blüthgen 1975: 193). In the Mediterranean, Malta, Gozo, Comino and Lampedusa are horst islands perched on the lifted shoulders of a trench on both sides of the Pantelleria reef system (Henning Illies 1980: 152) (see Fig. 2.13). Often, the erosive forces that cause islands to separate off from the mainland go hand in hand with vertical tectonic movements. Such mixed forms have shaped the island of Capri off the coast of Italy. The nearby Sorrentine peninsula is a rocky outlier in that it

Fig. 2.11 Subsiding and emerging islands – example: skerries east of Stockholm

forms a continuation of the mainland, but its shape indicates that it is also a tectonic horst.

Madagascar, the Seychelles, Corsica and Sardinia are examples of *drift islands*. Madagascar and the Seychelles split off from the African continental plate about 100 million years ago and gradually drifted into their current position as a result of a complex rift system (Smith and Hallam 1970). Sardinia and Corsica split off from the mainland during the late Tertiary. They reached

Fig. 2.12 Residual islands – examples: Föhr, Pellworm and the North Frisian Coast (After Umweltbundesamt 1998)

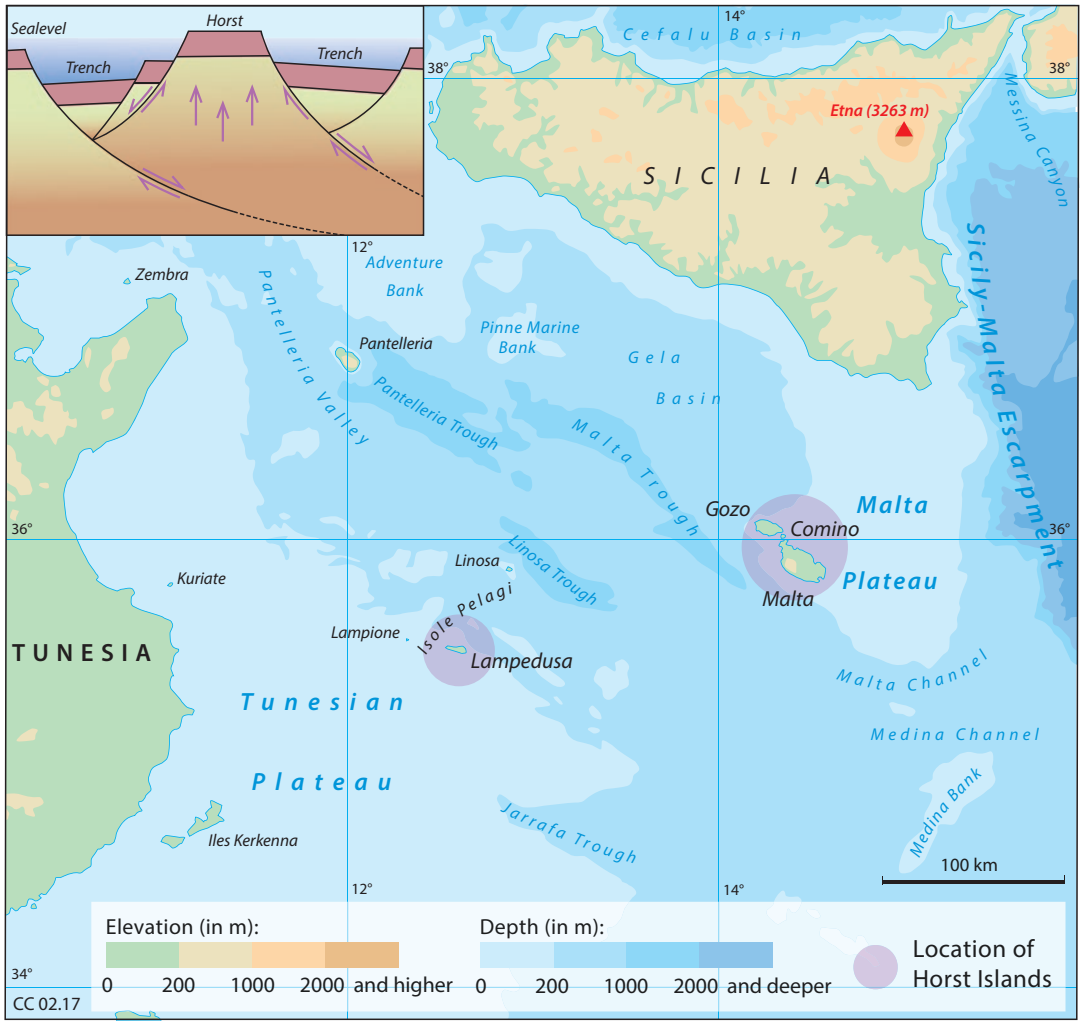


Fig. 2.13 Horst islands – examples: Malta, Gozo, Comino and Lampedusa

their current position following a rotation process which resulted from the development of Mediterranean microplates – a process that must have been completed six million years ago at the latest (Alvarez 1972) (see Fig. 2.14).

The South Shetland Islands represent a mixed type in that they were separated from the Antarctic Peninsula by a rift in today's Bransfield Strait and then tectonically lifted (Curl 1980: 11).

2.5.4 Diapir Islands

Some islands owe their existence to processes originating in the seafloor. Salt tectonics or intrusion can lead to the local emergence of a small area of seafloor through doming, leading to the formation of diapir islands. Helgoland is such an island, whose main island genetically represents a bunter (sandstone) horst lying on top of a Zechstein salt dome (Kremer 1983: 183) (see

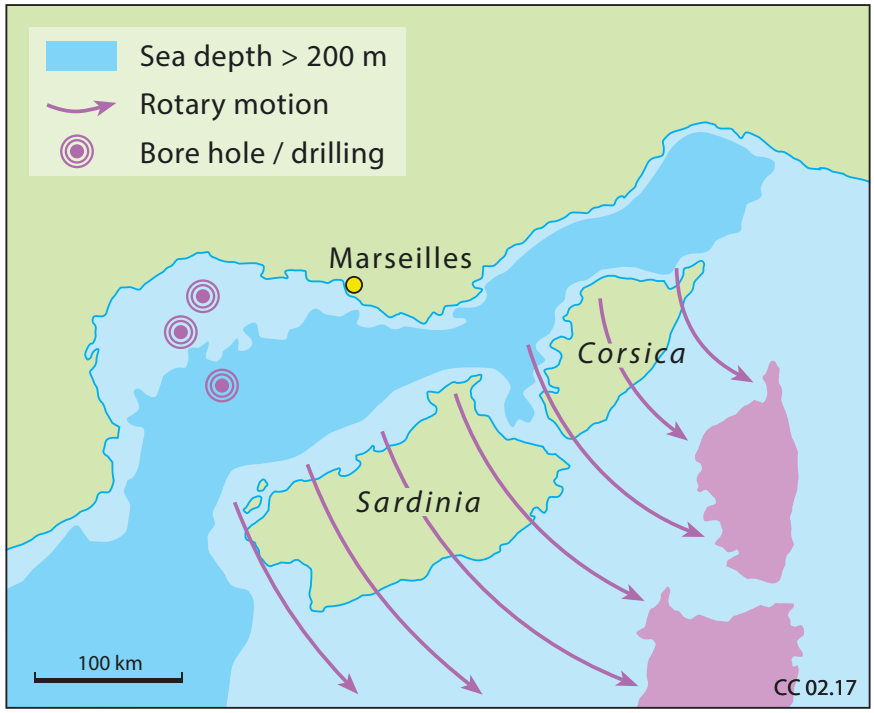


Fig. 2.14 Drift islands – examples: Sardinia and Corsica (After Klug 1985)

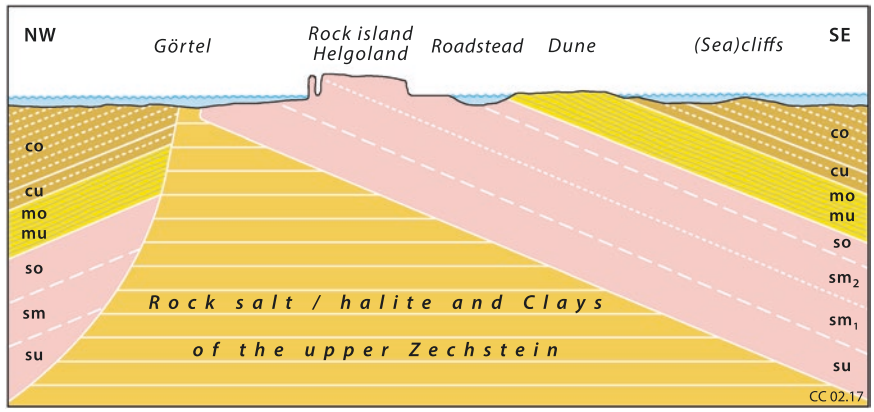
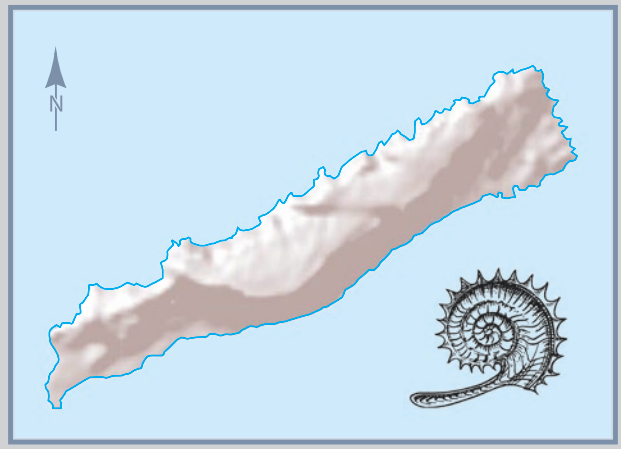


Fig. 2.15 Diapir islands – example: Helgoland (After Klug 1985)

Fig. 2.15). Many small islands in the Persian Gulf also form part of this category, such as Zarqua whose genesis, like Helgoland, is the result of a salt diapir below the seafloor.

Many islands across the world are of mixed genesis and could easily be assigned to several of the types described. This fact, or the progressing scientific understanding of complex physical processes, may be the reason why geographers, after their initial efforts in the 1970s, have been reluctant to attempt a general typification of islands. The larger the island, the more physical and biological processes interact in giving it its present face. These processes are never complete. Islands continue to emerge, erode and be destroyed. Islands come and go.

Island Brain Teaser 2



According to current geological knowledge, planet Earth is about 4.6 billion years old. But the visible surface of the Earth is comparatively young and continuously in motion, so that current topography is only ever a snapshot. Unsurprisingly, some islands are relatively old in Earth terms, while the birth of others, mostly in volcanic island regions such as Iceland or Tonga, can be witnessed live and in colour.

This chapter's mystery island is a silent witness of the formation of an entire tectonic plate. The plate initially formed about 150 million years ago through hotspot volcanism on the Pacific seafloor and subsequently moved east over thousands of kilometres – into an ocean which was only just emerging then. The plate reached its current position about 100 million years ago where it represents the foundation of an entire island region. On the island bizarre tuff and magnificent basalt formations along the rugged coast of the island are indicative of this history. Special forms of pillow lava point to the island's underwater origins at a depth of 3000–4000 m; marine microfossils are evidence of its long plate-tectonic journey along the Earth's surface.

Humans first settled on the island around 5000 years ago. In the middle of the last millennium, the island, which is today only 22 km^2 in size, was the desired anchoring point for European conquerors after their long and uncertain journey across the Atlantic. The indigenous population fought valiantly to prevent a European takeover, but the military forces of the colonisers were vastly superior. The last indigenous residents were eventually deported to a neighbouring island, and in consequence a plantation-based economy was introduced, typical at the time for the entire region.

Although the first European visitor sailed under the Spanish flag, today's 1500 residents mostly speak French and earn their living from agriculture, fishing and a little tourism. Above all, though, the island has remained a Mecca for interested geologists from all over the world. Which mystery island are we looking for?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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Cultural History of Islands

3

Where the dreams have no end

Jerman Silvio, wooded Chardonnay, Friuli Venezia, IGT 1987

Abstract

This chapter deals with sun islands, ur-islands and I-lands, presenting a cultural history of island dreams, exotic paradises and social-political utopias. A wealth of stereotypical island attributions or *topoi* that may even be contradictory have considerably contributed to developing images about islands throughout history. The geographical *topos* of island is a field of projection for fiction and fantasies embodied in classic 'Western' and 'Eastern' island ascriptions. From a geographical perspective, the *topos* of island is a living place and outpost of global networks in the literal and nonliteral sense.

Keywords

Topos • Societal horizon • Historico-cultural perspective • Germ cells of worlds • Experiments of thought • Island narratives • Island palimpsest • Nissology

Islands are magically attractive. Time seems to pass a little more slowly here, and all still seems right with the world. Even rain is good news on many islands, kissing dry vegetation back to lush green life. Islands are the paradise we dream about, the place we want to be. But where does this image come from? When did this perspective emerge? Where does the *topos* of island and the narratives associated with it originate? And how could they become so strongly anchored in historico-cultural projections and social representations of islands?

Islands can be described as *landscapes of creation*, as *germ cells of worlds* containing idealised projections, experimental thoughts, dreams and imaginations. An island is a *topos*[1] in two senses of the word – a geographical locus yet also a commonplace. Often, the island is imagined as

[1]pl. *topoi* – from Greek τόπος *topos* 'topic, commonplace'; see also Curtius (1953).

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a circle, egg or sphere, seemingly embodying an ideal state – characterised in this case by seclusion, isolation, smallness and not the least by manageable size. Islands thus become a canvas of projection, a canvas for imagining a whole series of societal themes. Volkmar Billig describes these themes as '... monuments of a prehistoric ideality that arch into present-day reality' (Billig 2010: 21). His description traces the culturally stabilised narratives of islands back to their origins, ranging from the pre-ancient period to island representations of the twentieth and twenty-first century.

Islands are specific geographical places and *topoi*: places of projection that oscillate between storytelling and reality. Even mythical stories such as Homer's *Odysseus* have seen repeated attempts at verification and efforts to locate the scenes of *Odysseus* in the real island world of the Mediterranean. Precisely because such verification is possible, and island fantasies can be grounded in the fact that they refer to a fairly plausible geographical background, so many stories can be told about islands.

Like Billig, human geographer Yi-Fu Tuan, well-known for his work on place-making, place attachment and *topophilia*, considers islands one of several ideal worlds: 'Certain natural environments have figured prominently in humanity's dreams of the ideal world: they are the forest, the seashore, the valley and *the island*' (Tuan 1974: 247, *emphasis added BR*). Nevertheless, islands are not per se utopian, lonely or paradisical, nor do they represent playgrounds for random stories. Rather, they function in specific discursive and cultural contexts that are themselves historically contingent. They are 'encultured topoi' based on even earlier images and sociocultural representations of islands. Serving as multiple projection screens, they supply similar island themes and island stories over millennia and time and time again.

The present chapter traces the changing interpretations of island imaginations, their historical flirts with and marriages to certain *topoi* and figures of thought. Naturally, the specific qualities of islands cannot be neglected, but the focus here is on the processes that connect islands to concepts of the idyllic, Robinsonade, exotic, erotic, philosophic and other. It seems necessary in this context to focus more closely on the historical cultural development of island images using a historical and phenomenological approach. The objective is to shed light on the interstices of islands and island representations and to understand where the *topos* and the connected narratives of islands originate.

In this chapter on the cultural history of islands, the term 'societal horizon' is used as analytical conceptual tool. This is derived from the phenomenological and constructivist approaches put forward by sociologists Peter L. Berger and Thomas Luckmann (2007: 61). Their recommendation is to first verify the existence of a phenomenon, and only then to ask why it has presented itself, or continues to do, so as part of society's general discourse. It hence makes sense to investigate the history of the *phenomenon* of islands to better understand why it has been passed down through generations. With respect to stereotypical island attributions – which can be classified into different themes and meta-themes – the first step is thus to ask where they have initially arisen in order to identify their current forms in a second step.

3.1 The Reception of Islands from a Historico-cultural Perspective

Islands doubtlessly played an important role in prehistoric times as places of refuge or shelter. The biblical story of Noah's Ark is a case in point: Mount Ararat, emerging from the water, offers the desired refuge and a possibility for starting out afresh. Islands already played a significant role in early antiquity,[2] although John R. Gillis (2007) explains that Western civilisation only gradually populated them and that there was an ambivalent relationship with islands that oscil-

[2]Mediterranean period ranging from about 800 BC to about 600 AD; the beginnings are sometimes set even earlier.

lated between embracing and rejecting them (Gillis 2007: 275; Gillis 2004a, b).

Islands as *Germ Cells of Worlds*

The oldest examples of fantastic island stories come from the civilisations of the Mediterranean and Indian Ocean, such as a 4000-year-old fragment from Ancient Egypt that contains fairytale stories of heroes and their adventures on magical islands. These mythical island stories reveal a series of motives linked to globally prevalent creation myths, especially egg cosmogonies and legends of the sun, fragments which subsequently entered and permeated the legends of antiquity. Nearly every island region of the world has a myth that links the origin of the island to an egg deposited in the sea. This is connected to a widespread idea of creation in which the original chaos contained an egg that was laid there by a primeval bird or snake (Billig 2010: 25, see also section 3.2.1 on the Japanese creation myth).

According to Indian ritual texts, the world began with the warming of primeval waters, giving rise to an egg from which the heavens and earth and the single god of creation emerged (Baumann 1955: 268ff.). The Greek Orphic rhapsodies refer to a similar egg cosmogony (Capelle 1968: 35ff.). Herodotus, for example, tells the story of a golden-feathered magical phoenix that flies from the Arab peninsula to Egypt once every 500 years to bury his father, embalmed in an egg, in the sun temple of Heliopolis. In the Arabian Nights, Sinbad the sailor meets the giant bird Roc whose egg he confuses with the huge dome of a palace. In the creation myths of the Egyptian metropolitan cities of Hermopolis and Thebes, the sun god emerges from the egg of an Egyptian goose also called the 'Great Cackler'. Egg cosmogonies emerge in a variety of entirely different prehistoric and early cultures, all connecting the ideal oval 'egg place' isolated in the sea of life to the *topos* of stories of creation. Over centuries thus, islands were perceived as world's origin and beginning.

The idea of a primal island where the sun first rose plays a key role in the myths and rituals of Ancient Egypt. Here, the idea of the first sunrise is linked to another symbol important in ancient oriental thought: the Lotus. The interplay of Ancient Egypt's primal island myths and the image of a lotus flower is indicative of an aspect of formal perfection which has been linked to the idea of islands since ancient times (Billig 2010: 26).[3]

3.1.1 The Development of the *Topos* of Crete

The first high period of Western island culture is the Minoan culture that developed on the island of Crete. The early Minoan period ranges from 2600 to 2000 BC, when the island was at the crossroads of the advanced civilisations of Egypt and Mesopotamia and the megalithic culture of Southern Europe. Here, a society was established based on the division of labour; early forms of written culture emerged as well as a specific cult of the dead. Wealth was accumulated through trade with Egypt, Cyprus and Asia Minor. During the Middle Minoan period between 2000 and 1600 BC, famous palaces were built at Knossos, Mallia and Phaistos where wealthy court elites, supported by the favourable island climate, apparently led a charmed existence untouched by mundane concerns of ordinary life. Other characteristics of this culture were the lack of temples, the lack of palace defences and the strong role of women in everyday life and religion.

This early civilisation was built on the back of a fleet that ruled the eastern Mediterranean and extensive trading relationships. Although Crete suffered destructive earthquakes around 1600 BC, causing the collapse of the palaces, the Minoans successfully recovered even from these setbacks. From about 1600 to 1450 BC, the stan-

[3] Old German has another word for island: 'Eiland', a term no longer in common use today. This word is sometimes (wrongly) attributed to the metaphor of the island as a germ cell or idea of the very first beginning. The syllable 'Ei', however (meaning egg in German), does not represent egg but stands either for 'Ein-Land' (one land) or 'Eigen-Land' (own land), or the 'ei' can be linked to the Germanic 'ahwo', meaning 'Aue' (river meadow), which leads back to *nhd. 'wasserumflossenes land'* (land surrounded by water) (see Grimm and Grimm 1971: Sp. 105).

dards of living of the previous era had once again been reached and were even surpassed.

Ultimately, the Minoan culture was destroyed by the Achaeans reaching Greece as part of the Indo-Aryan migration. They displaced the original population and established a patriarchal, hierarchical culture of war, also on Crete, and introduced the so-called Mycenaean period from about 1600 to 1150 BC; the Trojan War and the mythological journey of *Odysseus* fall within this period. The Minoan civilisation, the first European island civilisation, leads us to note the following: during this period Crete is an island that accumulates wealth due to far-ranging trading relationships. It makes use of this wealth to enable a lifestyle devoted to earthly goods, at least for the elites, whose power is such that there is no need for protective walls around their palaces and livelihoods. Several important stereotypical island attributions and island themes can be traced: those related to exchange (goods), distance (a far-flung place of desire), paradise, beauty, happiness, love and romance (the special status of women), intimacy and even artistic inspiration (high architectural and artistic performance).

To contemporary witnesses, Crete must have appeared as an island paradise. It was probably transfigured in later periods to stronghold, refuge or seclusion and firm as a rock in troubled waters. It was hit by natural disasters and successfully rebuilt, only to then be destroyed again by the Achaeans. Another self-evident theme also applied to Crete, namely, the island as a link to water, the sea and the ocean.

As geographical formations surrounded by water, up until recently islands could only be reached by boat. Accordingly, the social group that first planted projections of islands in Western thought was almost exclusively that of seafarers. It was they who were most intimately connected with islands – be it on the account of the threat they posed to sailing, or that they could serve as shelters in stormy seas, or that they triggered simple curiosity, not least because of the potential wealth or treasures they might hold. As one of the first island trading nations of Europe, Crete surely represented a culmination of these experiences.

This inkling of the economic significance of islands leads to a second culture that must be included in the story of the reception of islands (see Dommelen 1998). With the fall of the Mycenaean culture, the Phoenicians rose to power in the eastern Mediterranean. They were a trading people from Asia Minor that had erected trading bases on islands, for example, on Arados or Tyros – the latter holding a powerful position around 1000 BC. Due to their seafaring and trading abilities, the Phoenicians extended their sphere of influence across the Mediterranean, with Cyprus, Rhodes, Crete and Carthage in Northern Africa as well as Sicily, Sardinia and the Balearic Islands representing important trade locations. Culturally, however, their products were of limited originality. The political structure of the Phoenician empire was based on city-states which situated islands outside the core territory to be used as trading posts.

This leads to the transition to the second important phase in the perception of islands. For reasons that are still unclear, from about 750 to 550 BC, the Greeks expanded from the mainland into the Western Mediterranean and the Black Sea. Fanning out from their mother cities, they settled in Southern Italy, Sicily, Southern France, Spain and along the Black Sea coast, as well as in the southern and eastern Mediterranean. Only the southwest, which remained dominated by the Phoenician fleet and the ruling city of Carthage, escaped this claim to power. During their expansion, the Greeks either encountered virgin land or fought the indigenous population to establish city-states (polis, *pl. poleis*). These were closely linked to the mother cities and initially served as suppliers of agrarian goods, only later becoming trading posts. An archipelagic entity – a network of islands – arose in the Mediterranean which was termed *Magna Graecia* (Dommelen 1998: 17).

Traditional Western historiography describes the Greek city-states as precursors of democratic nation states, an image that has persisted to this day. Nearly all the narratives of the Western image of islands also apply to *Magna Graecia*, an entity that represents the island as a stand-alone and embodies themes of departure, migration,

exchange and economic exploitation. When also taking Homer's epic poems into account, the *Iliad* and the *Odyssey*, both written in the seventh century BC, nearly all of the classical island *topoi* come together – *topoi* that are still valid today. They include the narratives of paradise, exotic places, eroticism, love and friendship, intimacy, happiness and beauty, embodied, for example, in the hero's stay on Ogygia with the temptress Calypso or on Aia with Circe. The notion of the island as a space of positive seclusion is also present here, although these positive images are countered by the negative *topoi* of depression, fear, loneliness and desperation, as well as islands as hotbeds of crime and threat. The image of man-eating cannibals and islands as dangerous sites can also be found here: Odysseus encounters the Cyclops Polyphemus and escapes danger only due to trick.

From a spatial perspective, the connections between islands play an important role. John R. Gillis traces the imagined realms across the centuries and emphasises the relationship between islands and between islands and continents, describing islands as 'sites of significant rites of passage' and ascribing a special role to the idea of archipelagos as networks of islands (Gillis 2004a, b, 2007). Thus, another theme pervades here, the idea of islands as links to water, the sea and the ocean, either emphasising them as geographical places with particular characteristics or demonstrating the reality of uninhabited islands.

Homer's epic poem, set in the archipelagic island realm of *Magna Graecia,* can be said to epitomise island history. The reception of Homer is fundamental to the self-image of Western culture. Bernhard Zimmermann writes: 'Given the after-effect of Homer, which cannot be overestimated – "the" absolute poet... for the Greeks … only few subsequent authors, works and genres have been similarly characteristic for both the type and manner of reception [of islands]' (Zimmermann 2011: 29–33). This not only applies to Western Europe, where Homer has been read in Latin due to the gradual loss of knowledge of Greek and where he has become a firm part of the school curriculum, but also to Byzantium up to its collapse in 1453 AD, as well as Asia (China, Japan, Korea).

Looking back at the role of islands and their reception from a cultural-historical perspective, it becomes clear that nearly all of the current island stereotypes or *topoi* are present in Ancient Greek literature. They entered the shared horizon of European, but also non-European culture as part of the reception of Ancient Greece during the Renaissance period.

Islands as Gardens

Homer's descriptions in the *Odyssey* begin with the heavenly landscape gardens of Circe and Calypsos and on the Phaeacian island of Scheria. This liaison between island imagines and garden concepts can be traced all the way to the romantic landscape gardens of the eighteenth and nineteenth century. 'The structural resemblance of islands and gardens – the determining aspects of seclusion and boundedness – has additionally inspired the superimposition of ideals of islands and gardens. Homer's description of the garden of Alcinous on the island of Scheria can equally be read as a poetic masterpiece or a founding text of Western garden literature'. (Billig 2010: 45)

Here it is again, the *topos* of an ideal cultural landscape, found for instance in the instructions for garden design that first became popular in the Italian Renaissance. From then on, gardens were often linked to the *topoi* of islands.

> One of the essential concepts of such poetic quasi-islands is the notion of the idyll which was largely introduced by the Greek poet Theocritus. A key aspect of the idyll is that the place that is celebrated is screened off from the remaining landscape, hidden for instance by a rock face. Like the garden – which resembles the idyll on account of its seclusion – the idyllic *locus amoenus* describes a paradisiac island in the here and now, a bounded area of pleasure in the cultural landscape. (Billig 2010: 46)

Paradise is a term borrowed by the Greeks from the inhabitants of Eastern Iran. Representing 'secluded area' or 'park', the term denoted the flower gardens of the Assyrian kings where all animals and plants of the empire were represented. No wonder that religious beliefs attributed such a garden to divine power and that the

'Garden Eden' of the book of Genesis came to be described as paradise. Later, paradise became a metonymy for secluded, bounded islands.

Some of Theocritus' idylls are reminiscent of the island world of the *Odyssey*. Numerous writings from that period make efforts to verify the various traditions and travel logs and their topographic attributions, supporting the tendency to assign the island fantasies of the day to specific landscapes. The Homeric island of Helios (Thrinákie) was subsequently identified as the 'triangular' *Trinacria* of Sicily and the mythical *Elysion* as the Canary Islands. The ancient island literature that follows on from the *Odyssey* increasingly emphasises the aspect of an idyllic and poetically inspiring landscape while the false, unfulfilled and generally paradoxical promises of islands are gradually becoming less prominent.

> Islands are offering themselves up as points of translation – from numinous paradisiac origins to the paradises of this world where they are subject to the competence of real or poetic landscape gardeners: idyllic pleasure gardens, "graceful places" embedded in random landscape constellations, archaic worlds that persist under a faraway southern sun or the mild climate of the Atlantic, "spiritual landscapes" of burgeoning poetic creation, fortunate places of arrival of Romanesque odysseys, regular places of perfect erotic pleasure. (Billig 2010: 50)

Islands as *Experiments of Thought*

The 'spiritual landscapes' of islands not only apply to the idyllic islands described above. They also represent an island theme which is present in Ancient Greek literature and which entered the shared European, but also non-European societal horizon due to the re-reception of this literature in the Renaissance period: the narrative of islands as experiments of thought.

The legend of the lost island of *Atlantis* in the Hesperian ocean, transmitted in two works by Plato (around 428–347 BC) – Kritias and Timaios – had a more profound impact on the contemporary image of the world than any island fiction of antiquity. It especially invited interpretations that identified the 'sunken' island with the emerging 'New World' in the West. According to today's philology, the legend of Atlantis does not even represent a myth as such, but is largely seen as freely invented by the author. Plato's legend of Atlantis is less the political design for a new reality than an alternative concept. His aim was to describe the perfect society based on satisfying human needs. Islands thus become a *topos* for utopian thinking (see Platon 2003: 20ff.; Eismann 2005: 13; McCall 2006: 264).

Plato provides detailed descriptions of the extraordinary fertility of the island, its location beyond the Pillars of Hercules, the layout of the capital city and defences and its rings of water. The basic geological, historical and architectural parameters are clearly borrowed from the *topoi* known from ancient island literature outlined before. Atlantis is situated in the same obscure interstice between 'East and West' as all the other 'sun islands' of antiquity. During classic antiquity and the medieval period, interest in Plato's island tale was limited. It was only rediscovered during the early modern period when it became a big hit. Similar utopian realms can be found in the work of Hecataeus of Abdera (ca. 300 BC) who invented Elixoia, an island that is said to have belonged to the Hyperboreans. Unlike previous mythical islands, Elixoia was located in the North, opposite the land of the Celts. The transfer to the northern hemisphere continued: in 'De facie in orbe lunae' Plutarch (45–120 AD) described such an island supposedly under the rule of Cronus. And later in history, the Irish located Flath Innis, their island of the dead or a world of ghosts that existed in parallel to the human world, somewhere to the west of Ireland. In the sixth century, a certain St. Brendan invented a mythical island in the Northern Atlantic (St. Brendan's Isle) which was never discovered (Schulten 1926: 242, 245f.).

Spirituality was also a dominant island theme in ancient times. The idea of the island promising life in the underworld is reflected again in the *Odyssey*. Menelaus is sent to the Elysian Fields, described by Hesiod as islands in the Western Ocean at the end of the Earth. The climate is agreeable there, and life is not troubled by work. This is where the gods reside, which is why these islands are also termed 'Islands of the Blessed'.

This idea then takes root and is also found in a scolion, a song about the tyrant slayer Harmodius, and in Pindar's work (Olympian, 2, p. 75). In Hesiod's work, it is only a selected few – the heroes – that can be admitted to the islands to reside among the gods. With Pindar also those chosen by the gods have the possibility of reaching the island, provided they had lived a threefold life of purity in this and the next world (Schulten 1926: 229–231).

3.1.2 The Formation of the Roman Island Narrative of Sicily

Numerous island themes and *topoi* that were initially formed in Ancient Greece continued to exist after the rise of Rome to a new great power. New island worlds were added that were primarily linked to the themes of dominance and suppression, arising against a background of colonisation and economic exploitation.

By about 270 BC, Rome had conquered Italy and established itself as the mainland power. Its subsequent development into a world power is marked by the conflict with the Phoenicians, especially with Carthage. An island – Sicily – became the cornerstone of this struggle.

A powerful fleet was required to take Sicily from the old seafaring nation of the Phoenicians. For this purpose, the Romans copied the ship engineering skills of the Phoenicians, incrementally advanced them and added the invention of the Corvus, a bridge-like military boarding device, allowing them to use their successful land-based military tactics in maritime warfare. Still, it took two Punic Wars (264–201 BC) to wrestle down Carthage. In 201 BC the Phoenicians were forced to renounce Spain and the Balearic Islands, hand over their fleet, make war reparations and give up important political rights. From then on, Rome ruled the Western Mediterranean and was able to gradually conquer the entire Mediterranean region from there.

The rise of Rome to a global power thus was only successful as a result of defeating a naval power and began with the fight over an island. With respect to Sardinia and its rulers throughout history, van Dommelen states: 'The first known of these were the Phoenicians, who were followed by Carthaginians, Romans, Vandals, the Byzantine Empire, North African Muslims, the Italian maritime republics (in particular Pisa and Genoa), the Spanish kingdom of Aragon, the Duchy of Savoy and Piemonte and last but not least the unified Italian state in the early 19th century' (Dommelen 1998: 11).

Apart from the military aspects, Rome also took up the Greek cultural heritage, especially after conquering Greece in 196 BC. Greek achievements were mixed with Rome's own, leading to the reception and replication of the Greek island narratives and themes. However, the form of depicting or imaging islands markedly changed. Peter van Dommelen (1998) convincingly explains that the Roman relationship with its subjected territories was one of colonial rule, unlike the colonisation pursued by the Greek city-states. Rome's purpose was not just to establish a new island town in order to enter into a trading relationship. For Rome it was about ruling the entire island. 'In either case, however, colonialism can broadly be defined as the process of establishing and maintaining a colonising group and their dominant or exploitative relationships with the colonised region and its inhabitants' (Dommelen 1998: 16). This policy obviously led to ever greater accumulation of capital in the hands of a single power, allowing Rome to become the city of marble under Augustus (63–14 AD).

The fact that Rome's imperial mindset was also constitutive for the political development of the West explains why subsequent empires also used a lot of capital to build ships and exploit the natural resources and people on islands far away. Islands here were connected to the *topoi* of economic exploitation and dominance (see Chap. 5).

Last but not least, the development of religion also plays an important role. During late antiquity Rome converted to Christianity, introducing the story of Noah's Ark to the Western narrative tradition and with it the stereotypical image of the island as a place of refuge, retreat and potential new beginning (Holy Bible, 1. Mose 8). The Roman period thus picks up the narrative of the

island and its associated themes, acting as its historico-cultural transmitter to the European Middle Ages. A core perspective of the Roman Empire is that of dominance and aggressive subjugation of natural and 'human' resources. It also adds to the Judaeo-Christian narrative tradition, expressed in the legend of Noah's Ark.

3.1.3 Island Narratives in the European Middle Ages

In Europe the Middle Ages began with the fall of the Western Roman Empire during the Migration Period (375–568 AD). This period is primarily 'mainland history' although the invasion of islands was no problem from a technical navigational perspective. In England, Angles, Saxons and Jutes arrived in the fourth century where they fought the resident Celts.

In the eighth and ninth century, Viking attacks added another dimension. Due to superior shipbuilding and navigation techniques, they were able to cross the seas and navigate upriver to penetrate deep into the interior of Northern Germany, England, France, Italy and Russia. They even reached the New World via Iceland. Islands obviously represented a central element in Viking navigation, and the stereotypical island attributions of these seafarers comprise many *topoi* that also occurred in antiquity: the lonely island, distance, connection to water, the sea and ocean, the island as a place of adventure, dominance, departure, retreat, migration, exchange, economic exploitation – and reality. Intimidating and terrifying hordes of seafaring Vikings invading mainland settlements probably also increased the projection of islands as places of threat and menace as well as criminals' hideaways.

This phase of European history is also important in the context of the dispute between the emperors of the Holy Roman Empire and the Papacy. Sicily plays a key role in this from a political, military and historico-cultural perspective.

The Hohenstaufen imperial family achieved the largest expansion of its empire under Henry VI (1169–1191) because Henry's wife Constance, daughter of Roger II (1130–1154), the last of the Norman Sicilian kings, inherited Sicily. This constellation of power was a threat to the Pope, himself a ruler over large domains in Italy. The fear was that he would lose influence through a combined threat from the North and South. Pope Innocent III (1198–1216), a clever political player, managed to obtain guardianship of Henry VI's son the later Frederick II (1212–1250) gaining the rule of Sicily in the process. When Frederick became emperor, Innocent extracted the promise that the two kingdoms, the German crown and the Kingdom of Sicily, would forthwith be kept separate. When Innocent III died, Frederick II broke his promise, transferring the 'empire' to his son Henry VII and taking the Sicilian crown for himself. There he proceeded to build up the most modern state the West had ever seen, increasing his contemporary and subsequent historical significance and contributing to the formation of legends. This leads to another theme relevant to our perspective: that of a modern island state.

Religious mission is another theme emerging at this time. Even though this has lost its significance, its origins can be traced back to the monastic culture of the Middle Ages. The first confirmed monastic community was established by the Egyptian Pachomius (292/298–346) near Thebes in Upper Egypt. Foundations of monastic life were already established there; they were subsequently formalised as rules by the religious teacher Augustine (354–430) who was ordained as a priest in Northern Africa in 391. In Western Europe, monastic communities developed from the second half of the fourth century based on a missionary mandate. An archipelagic network of institutions emerged that were linked to each other in their own distinct island-like cosmos. The most striking example is the Cluniac community that lived according to Benedictine rule and in 998 AD had 38 interconnected houses in Italy, Lorraine, England, Normandy, Gascoigne, Provence and other regions (Melville 2012: 18–28, 62). Moreover, the island *topos* was given outstanding historical significance by St. Augustine's 'De Civitate Dei'. God's state was imagined as a secluded place where faith enabled

peace and which was therefore akin to paradise. The work of St. Augustine is considered fundamental for the conceptual world of the Middle Ages.[4]

A range of the stereotypic attributions associated with islands also apply to the monastic 'islands of the pious': the island as a space of positive seclusion, the lonely island, the island as an individual or a collective refuge, intimacy, artistic and spiritual inspiration, but also depression, loneliness or desperation, mission and dominance. In subsequent Western history, the *topos* of island as a hotbed of crime and threat as well as of mission had enormous influence on the construction of the 'civilised' and 'savage' – dichotomies that legitimised the latter's subjugation for a long time.

Considering that for centuries, monasteries were the guardians of antiquity's heritage, their position in this discourse is even more important. In the secluded archipelago of the 'pious friars', the ancient stereotypical attributions that had arisen in the Cycladic world of Homer were able to survive. Monasteries can be understood as their own island worlds, their own archipelagos whose organisational structures enabled ancient island stereotypes to weather the storms of the Migration Period and the Middle Ages.

3.1.4 Island Narratives of the Early Modern Period

For the theme discussed in this chapter, the transition to the early modern period is epitomised by the Hanseatic League, an association of merchant companies and cities that was primarily interested in trading connections. Parallels can be drawn to the Phoenicians, whose island concepts were those of a seafaring nation. Due to piracy, embodied for instance by Klaus Störtebecker (around 1360–1401), islands as hideaways and places of crime and threat also gained ground.

The Islamic conquest of Constantinople in 1453 led to the search for alternative sea routes to India. Portugal and Spain in particular were instrumental in the discovery of the world in the first half of the sixteenth century. The period of discovery gave new credence to existing island stereotypes, not only because new climatic zones and entirely unknown peoples were being discovered. The period marks the beginning of global networks linked to early capitalism and the search for maximum profit by supra-continental empires. Islands thus became Portuguese and Dutch trading posts and Spanish and British outposts of the empire – in a sense the first outposts of globalisation. This coincides with a central shift in the perception and description of islands. While Columbus' diaries still recall Homer in their description of island paradises and sea monsters, these stories gradually give way to tales that emphasise the economic interests linked to islands. Religious mission, a narrative familiar from medieval monastic life, was only a purported focus during this period. Dominance played a key role as the explorers clearly felt superior to the indigenous peoples they encountered. Economic exploitation also increased in importance because ever more capital was needed for increasingly longer voyages with larger ships.

The early modern period includes the publication of Thomas More's book *Libellus vere aureus, nec minus salutaris quam festivus, de optimo rei publicae statu deque nova insula Utopia*, first published in 1516. Parts of the book were written in Bruges and Antwerp where More spent some time as a member of an English trade delegation. His work can be understood to link the newly acquired knowledge of his time back to ancient knowledge. More saw *Utopia* as proposing a corrective to the contemporary political situation in Europe and England, offering ideal alternative concepts such as the abolition of private property. 'Few other works of the political history of theory, be it in the ancient or modern period, had a similarly broad and long-lasting impact as *Utopia*' (Stammen et al. 2007: 389–392, *italics* in original). This took up the narrative of 'islands

[4]Monasteries were also explicitly important in power-political plays of the Eastern European colonisation. The Teutonic Order played a crucial role and their buildings were well-fortified outposts of power and dominance: 'islands in defence'. From the sixteenth century onwards, religious mission was crucially important during the colonial European expansion overseas.

as experiments of thought' and explicitly developed the island into an idealised testing ground for political thought and theory (Fig. 3.1).

More did not instrumentalise the island to transfer his social criticism to some utopian afterlife. In the age of Columbus and Machiavelli, it is the mundane presence of his island that qualified it as a staging ground for an ethical and political debate (see Textbox 3.1). More's *Utopia* can be read as a commentary on the period of discovery and conquest as by 1500, the Caribbean and Oceanic islands were no longer myths and legends but a tangible field of experimentation – a fact that undoubtedly inspired More to write his polemic. Utopus, his founder, demonstrates that an inspired and wisely guided people can in fact create paradise on Earth. *Utopia*[5] is described as an artificial island that was separated from a peninsula by the residents themselves. 'The obsolete *Eutopia* – the paradise of ideal well-being of the medieval world map – is therefore squarely transferred to this world' (Billig 2010: 85). Yet irrespective of their island existence, More's Utopians do not live in a dreamlike vacuum. They have close relations with their neighbouring states: they trade, enter political alliances and prove themselves in war. 'The island of Utopia is precisely not located in an enraptured hereafter that can be filled with arbitrary views of order, but on the very borderline between reality and fiction in the period of discovery' (Billig 2010: 86).

From the fifteenth century onwards, the number of historical sources considerably increases. Nevertheless, no additional island stereotypes appear to emerge. Rather, it is worth noting an interesting structural parallel: the process of global discovery can be compared to the Greek expansion that took place around 750 to 550 BC. Also, a similar shift took place from colonisation to Roman-style colonialism, in other words from the paradigm of trade embodied in *Magna Graecia* to dominion over an empire.[6]

One of the instruments that were used to exercise such power was to terminate the sovereignty of indigenous rulers and replace them by vassals who had to pay tribute or serve the monopolies imposed on them (e.g. in Java). The colonial powers had well understood that trade did indeed lead to considerable profit but that rule could increase this profit by a long margin (Reinhard 1983: 214–218).

For Europe, what mattered was who was able to wield such power. The 1651 Navigation Act decreed by Oliver Cromwell (1559–1658) was decisive for the conflict between the Dutch and English trade fleets as it stipulated that only English ships could be used for the exchange of goods between England and its colonies. The ensuring 'First Naval War' was instrumental in the rise of the British Empire as the Dutch lost the battle and ultimately their dominant naval position (see Brook 2013).

Next to economic interests and colonial aspirations, another narrative gained outstanding significance with respect to islands and their reception: the paradigm of scientific research and exploration. The work of the German explorer, naturalist and founder of geographical sciences Alexander von Humboldt (1769–1859) is an example, as is the work of the British naturalist Charles Darwin (1809–1882) who was crucial for the reception of islands from a biological perspective in the mid-nineteenth century (MacArthur and Wilson 1967). In search for new economic possibilities, and to satisfy growing hegemonic ambitions, offering exact descriptions

[5]The term Utopia – a Greek play on words based on οὐ τόπος (ou topos) 'no place' and εὖ τόπος (eu topos) 'good place'.

[6]Turner's criticism of the general colonial discourse should be considered here: 'What is problematic with colonial discourse theory in general, is its lack of historical and local specificity: most discourse analyses focus on late 19th and early 20th century British colonialism and appear to assume that other (Western) colonial activities in the Americas or Asia or before the Victorian period were not very different. Following the broadened scope of postcolonial analysis to include all Western discourse on non-Western populations in general, the term 'colonial discourse' has come to imply a uniform global Western representation of the non-Western Other as well as the concomitant (post-)colonial imposition of a more or less coherent Western symbolic order on the Third World. In the end, colonial discourse theory thus risks to reify Western colonialism and to reinforce a dualist conception of colonialism'. (Turner 1995: 203)

Textbox 3.1: The Ideal Island of Utopia by Thomas More, 1516

Fig. 3.1 Vtopiae insvlae figvra – Vtopiensivm alphabetvm (Island of Utopia – Alphabet of Utopia, by Thomas More 1516, Henry W. and Albert A. Berg Collection of English and American Literature, The New York Public Library, Astor Lenox and Tilden Foundation)

'The island of Utopia is in the middle two hundred miles broad, and holds almost at the same breadth over a great part of it, but it grows narrower towards both ends. Its figure is not unlike a crescent. Between its horns the sea comes in eleven miles broad, and spreads itself into a great bay, which is environed with land to the compass of about five hundred miles, and is well secured from winds. In this bay there is no great current; the whole coast is, as it were, one continued harbour, which gives all that live in the island great convenience for mutual commerce.

But the entry into the bay, occasioned by rocks on the one hand and shallows on the other, is very dangerous. In the middle of it there is one single rock which appears above water, and may, therefore, easily be avoided; and on the top of it there is a tower, in which a garrison is kept; the other rocks lie under water, and are very dangerous. The channel is known only to the natives; so that if any stranger should enter into the bay without one of their pilots he would run great danger of shipwreck. For even they themselves could not pass it safe if some marks that are on the coast did not direct their way; and if these should be but a little shifted, any fleet that might come against them, how great so ever it were, would be certainly lost. On the other side of the island there are likewise many harbours; and the coast is so fortified, both by nature and art, that a small number of men can hinder the descent of a great army. But they report (and there remains good marks of it to make it credible) that this was no island at first, but a part of the continent.

Utopus, that conquered it (whose name it still carries, for Abraxa was its first name),* brought the rude and uncivilised inhabitants into such a good government, and to that measure of politeness, that they now far excel all the rest of mankind'.

Thomas More: *Utopia*. Trans. Paul Turner. London 2011: 83–84

of new (is)lands and capturing them on maps became a fundamental need in the seventeenth and eighteenth century in Europe and beyond (Teng 2007: 2, 25f.).

This period also comprises various reactivations of the sun island theme. Sun City (lat. *civitas solis*), described by Tommaso Campanella (1568–1639) in his work *La citta del Sole* (1602) (Campanella 1955), is reminiscent of Plato's Atlantis, the garden island of the *Hypnerotomachia Poliphili* and Stiblin's *Eudaimon* (Stiblin 1994). The *City of the Sun* is described as a system of seven walls that encircle a central temple mound. The concentric walls embody the solar system and the orbits of the seven planets and mark out Sun City as a microcosm par excellence. The treasure trove of information stored in the walls encompasses all fields of knowledge ranging from mathematical figures to astrology, geography, history, representation of minerals, wines, oils, plants, animals, trades and so on. Campanella's choice of an island location is emphasised even more by the enclosed city design. The sun metaphor of ancient island tales is readily taken up by Campanella in an age that was marked by the emergence of a heliocentric world view. His expectation that the world would end and his messianic calling continued the longing for paradise that dominated Western island fantasies from St. Brendan up to Columbus.

Almost in parallel with Campanella, a British dramatist spoke up on the subject in the early seventeenth century: William Shakespeare. Shakespeare (1564–1616) is unlikely to have known Campanella's work when he wrote his mysterious drama *The Tempest*, although it does somehow recall the visual appearance of Sun City. Shakespeare locates his 3-hour play on a nondescript island where a ship runs aground during a storm. The key metaphors are those of a place of rescue and isolation. Similar to Campanella's *Sun City*, events in Shakespeare's *Tempest* are also directed by an erudite, all-powerful Prospero wearing a wizard's cloak and an aerial spirit able to operate with lightning speed. 'While Campanella translates the sun of the original ancient island into the light of a modern spirit, Shakespeare's "I-land" emerges as a ready-made formula that links physical island space to the status of an empowered subject' (Billig 2010: 101).

It could be said that early modern thought enacted a transfer of imaginary islands away from the edge of the world to a subjective but factual space. Faraway islands of paradise concede their place on the world map because the texts that were written about them no longer form part of a canon of respected truth. Journeys of discovery were no longer stimulated by the promises contained in holy writs, but the desire to fill the empty spaces on the world map and to eliminate the power vacuum they represented (see Billig 2010, Brook 2013).

3.1.5 Island Narratives of Modernity

The modern period brought with it increasing differentiation of island *topoi* and their parallel expression in business, literature and art.

An important eighteenth-century figure of thought was created by Daniel Defoe in 1719 in his work *The Life and Strange Surprising Adventures of Robinson Crusoe of York, Mariner, Written by Himself* (Defoe 2001). This influential novel introduces the narrative of the Robinsonade which is about survival on an isolated, distant island. Both the expertise brought from civilisation and the tools rescued from the shipwreck are important in enabling the protagonist to survive and proving himself sovereign. Implicitly, the novel deals with the themes of island loneliness, exile, distance and isolation, but it also shows that any *topos* or place, however inhospitable, can be converted into a civilised Garden Eden as long as the competent island resident is able to prove himself.

Daniel Defoe (around 1660–1731) turns the island into a laboratory where the subjective competence of the hero is put to the test. Equipped with the intellectual and technological know-how of contemporary European culture, Defoe's hero ploughs the formerly barren and empty island until it closely resembles a bourgeois home and garden. At the same time, the scheme of the

Robinsonade also focuses on the limits of the modern interpretation of Sun Island.

> The permanent threat of death that accompanies Robinson's island existence from the very beginning highlights a fundamental uncertainty inherent in the place. In the shadows of nature tamed and a quasi paradise-like I-function, Defoe brings back the beasts that have undermined island happiness ever since. Every small victory presages a new battle to be won. Only the happy end provided by the author eventually conquers any lingering doubts (Billig 2010: 107).

Against the background of conceivable failure, limits are becoming apparent to the island happiness promised by the modern conquistadores. The flip side of the i(s)land basking in the sun of the enlightenment is another, sinister island that pulls the hard-won rug from under the feet of its inhabitants. The island as a place is therefore seclusion, desert, distance, adventure, exoticism, depression, fear, loneliness and despair, lost land as well as beauty, mystery, paradise, Eden and utopia: a place where the dreams have no end.

The impacts of the French and American Revolution brought about a change in perspective with respect to the colonies, those outposts of the European colonial powers and the islands contained therein. In his *Transformation of the World*, Jürgen Osterhammel argues that the period around 1800 marked a key shift. Rationalism came to be understood as the main method of capturing the truth. Once this had been formulated, it was irrefutable and had to be made accessible to all people. This was linked to the ideal of bourgeois society that from then on wanted to be known as the pinnacle of human development. For the colonies and islands, two models existed: either they were supposed to develop towards the Western world in close cooperation (evolutionary concept), or they had to be forced onto that path (principle of dominance) (Osterhammel 2013: 1175).

South Sea Dreams

Also in the eighteenth century, the idea of islands as paradise was strengthened by the emerging middle classes, probably building on the shepherd's fantasies that became popular in the periods of Rococo and Classicism. After a first tangle with Spanish adventurers, Tahiti was discovered no less than three times in a century in 1767 and 1768, first by Wallis, then by Bougainville and lastly Cook. When Bougainville's news of Tahiti reached Europe, the notion of 'paradise on Earth' nearly believed lost suddenly re-emerged. Tahiti was associated with tropical vegetation, good climate, beauty, intense colours and a friendly indigenous community. The island was stylised as a place of free love, often interpreting the nakedness of its residents as an invitation (Eismann 2005: 6–9). This stereotypical attribution proved highly persistent and was often linked to the *topos* of artistic inspiration. A wave of excitement was triggered in the last third of the eighteenth century that manifested itself in the limitless 'desire' that swept through literature and historiography in equal measure and which was targeted by Immanuel Kant in his writings on pure reason. In 1802, Friedrich Wilhelm August Bratring, a Berlin-based geographer and historian, gives the somewhat baffled comment that no other country had ever been observed and described in such detail within such a short period of time. And, after participating in an expedition to Tahiti, naturalist and ethnologist Georg Forster declared that Bougainville had not exaggerated '... when describing this country as a paradise' (Forster 1989: 230).

> The catalytic effect of Tahiti's discovery on the self-discovery of modern man explains why human desire was now projected onto new "islands of truth" that differed from those still praised by Kant. The inherent paradox of these new islands of bliss is that they are marked on maps as attainable landscapes, but that the thirst for them – even in the act of arrival – cannot be quenched … In fact, the programme of modern bliss consists of "missing" the island, provoking ever new occasions for travelling there (Billig 2010: 139).

The motive of the *island paradise* returns in force with the work of Eugène Henri Paul Gauguin, a Paris-born painter (1848–1903) widely known for his paintings of the South Seas. Gauguin's post-impressionist work strongly influenced symbolism and Les Nabis, an influential group of post-impressionist avant-garde artists active in France in the 1890s. As one of the co-founders of synthetism, he also paved the way

for expressionism. Gauguin was a stockbroker who decided to dedicate himself to painting after a stock market crash. His search for a simple, elemental life initially led him to Panama and in 1887 to the Caribbean island of Martinique: … 'a beautiful country with easy, cheap life – that's Martinique' (Gauguin and Költzsch 1998: 117). Initially Gauguin was enchanted by the lush vegetation. Soon, however, he contracted dysentery and malaria and was forced to return to France where he only slowly recovered. Despite these difficulties, his stay on Martinique was very successful artistically as he returned with more than 20 new paintings (Gauguin and Költzsch 1998; Staszak 2003).

In the late 1880s, Gauguin again toyed with the idea of living and painting in the tropics. He initially considered Madagascar and Tahiti, eventually settling on the latter. In Gauguin's mind, Tahiti was an exotic paradise where he would be able to live an original, happy life without the need to work and at next to no costs. In a letter to his Danish painter friend Jens-Ferdinand Willumsen, he writes in 1890: 'happy inhabitants of an unknown paradise of Oceania, only know the sweetness of life. For them, living means singing and loving' (Gauguin and Költzsch 1998: 209).

In April 1891 Gauguin boarded a ship bound for Tahiti. On arrival, he found that his expectations did not match reality at all. Christian missionary work, trade and colonial rule (Tahiti became a French colony in 1880) had destroyed the 'exotic paradise' such as Gauguin expected it. In the capital of Papeete, the indigenous population lived in shabby corrugated iron huts. Western clothes had replaced traditional garments, and religion and traditions had been suppressed by the missionaries. The lifestyle of the upper class hardly differed from that in the mother country. Fleeing Western civilisation, Gauguin rented a hut in the village of Mataiea, 40 km from Papeete. He learned to speak the local language with moderate success and soon lived with a thirteen-year-old Tahitian girl called Téha'amana (also known as Tehura) who often served as his model. Many paintings resulted with Tahitian motifs. Rather than the Tahiti that surrounded Gauguin, however, these represent the colourful exotic world he had always imagined and dreamed of.

During this stay Gauguin began to work on his book *Noa Noa* (scent) which he illustrated himself and which was published in 1897 (Gauguin 1908). In the description of his Tahitian life experience merges with invention, and it also exhibits his intention to promote understanding of his art among European audiences. Health problems were compounded by financial problems because his funds were used up, and circumstances became increasingly pressured which led him to the decision to return to France. Further failure followed, causing Gauguin, bitter and disappointed, to finally withdraw from the 'civilised world' and to return to Tahiti. He arrived in Papeete in September 1895, noting with disappointment that the Europeanisation of the island had progressed even further. Life had also become too expensive, and he was looking for new impressions and impulses for his painting. In 1901 he moved to Atuona, the capital of the Marquesas island of Hiva Oa. This island, located around 1400 km from Tahiti, was also part of the French colonial empire but had remained more original.

On Hiva Oa, Gauguin once again built a hut, and again a fourteen-year-old girl was both companion and model. Gauguin again defended the rights of the indigenous population and sharply criticised the Catholic Church. His provocative and insulting behaviour soon brought him into conflict with the authorities, culminating in a prison sentence and fine for slander. The fine far exceeded his financial means, but by now Gauguin had become bedridden and was using morphine to fight his pain. He died in Atuona before he could take further legal steps at the age of 54. He is buried on Hiva Oa.

Gauguin's paintings with South Sea motifs are characterised by bright colours, the lush vegetation, the leisurely pace of life and people clothed in colourful garments or hardly wearing clothes at all. Rather than reality, they reflect the exotic paradise the painter had been dreaming of but had found unattainable. The paradise includes an 'Eva' whose face is mostly that of Gauguin's respective partner. Although often naked or

barely clothed, these figures do not really seem seductive. They mirror Gauguin's idea of a paradisiac original state where nudity and sexuality are perfectly natural. He comments on this in *Noa Noa*: 'The purity of thought associated with the sight of naked bodies and the relaxed behaviour between the two sexes: The way vice is unknown among savages …' (Gauguin and Költzsch 1998: 94).

The romantic and symbolic attributions to island and 'the South' provided him with the model of a place where a synthesis would be possible and where archaic humanness and avant-garde art could be brought together. The vision of an inspiring southern place of art had already been present when working with Vincent van Gogh in his Provencal 'Studio of the South'. This is where he began to long for an even more 'southern South', which he imagined as rich and wild in nature and imbued by a tropical sun which set everything on fire. 'The future belongs to the painters of the tropics that haven't been painted yet' (Gauguin et al. 1960: 81). In his book *Noa Noa*, Gauguin frames his arrival on Tahiti as 'reincarnation' in the shape of another human and 'savage'. 'I forcibly entered the thicket, as if I should become one with this incredible motherly nature... The old cultural man was destroyed, dead from this day on! I was reborn, or rather, a pure and strong man began to live in me' (Gauguin 1908: 40). In Gauguin's mind and work, the 'mystery island' (Mallarmé) of pure art and the equally 'pure' and 'unexplorable' humanity of archaic islanders almost become one.

Gauguin understood the erotic component of his Tahitian natural state as a symbolic bridge which allowed him to share the 'mythical archaic consciousness' of the South Sea peoples. One of Gauguin's key works, completed in 1897, carries the programmatic title 'Where do we come from? Who are we? Where are we going?', summarising Gauguin's South Sea oeuvre like no other. The title, laden with meaning, describes the place of Gauguin's island existence and art. 'In his work the symbolic attachments of islands and the oceanic original landscape merge with the formal aesthetic perfection of a painting dictated by planes and colours' (Billig 2010: 232). It could be said that Gauguin's island images capture the romantic vision of a *fantasy island* at the very moment of its disappearance. Paradise lost?

The enthusiastic reception of Gauguin in Europe at the dawn of the twentieth century demonstrates that it wasn't just the new formulas for paintings and colour schemes that marked expressionism as a new paradigm of modern artistic self-understanding. It was also Gauguin's existential notion of art and his identification with a creative and erotic desire. Nathalie Bernardie-Tahir (2014: 7) explained Tahiti as imagined by Gauguin and his contemporaries as a European projection that mixes colonialist representations and Western origin myths. In conjunction with Nietzsche's pronouncements, the arrival of Gauguin marked the starting point of exuberant and exotic literature as well as artistic island tourism which Gottfried Benn soon came to describe as 'addiction to islands'. Once more, this demonstrated that the South Seas could be located almost anywhere and that Tahiti could just as easily be found on one's doorstep.

The wave of island motifs, ranging from the report on the Aran Islands by the Irish author John Millington Synge to Ernst Ludwig Kirchner's paintings of the island Fehmarn and Max Pechstein's work on the Curonian Spit, demonstrates that islands were perceived as places of emergence and happy origins. They were seen as 'islands of the blessed' (Max Pechstein) irrespective of their actual topographic location in Europe or Oceania.

Max Pechstein (1881–1955), a founding member of the group 'Die Brücke', was strongly influenced by the French impressionists and the work of Vincent van Gogh. Like many German artists and writers, he travelled to Paris and Italy for inspiration. In 1911 he spent a summer in Nidden on the Curonian Spit, a peninsula in the Baltic Sea, in order to 'continue with his intention to capture man and nature as one' (Pechstein 1960: 50).

At this time exhibitions drawing on German expeditions to the South Seas and Africa were very popular in the Berlin Museum of Ethnology, while features on German overseas colonies were an almost daily ingredient in the news coverage.

This may have led Max Pechstein to develop a desire to travel to Palau and spend some time in a world untouched by civilisation (Moeller 2015: 114). In 1912, Pechstein's expulsion from the group 'Die Brücke' marked a turning point not only in his artistic development but for his future life. He was keen to leave Europe behind and satisfy his longing for the South Seas. In early 1914 Max and his wife Lotte travelled to Angaur, the southernmost of the Palau islands, via Colombo (Ceylon), Singapore, Hong Kong and Manila.

The Palau islands are a Western group of the Caroline Islands in the Pacific. They had come under German colonial administration in 1899 and mainly served the economic interests of the German Empire. On the main island of Nauru and Angaur, phosphate was extracted, exploiting the indigenous population as workers, restricting their way of life and forcing them to convert to Christianity. Nevertheless, Pechstein experienced the Palau islands as paradise, cultivating his idea of an original, harmonious life in harmony with nature just as he had in Nidden.

The tropical ambience and the many new impressions fascinated him. Life seemed to be free of any constraints which corresponded to his idea of life. He even considered purchasing land on Palau to stay for longer. These plans came to an end with the beginning of the First World War. In October 1914, the Japanese occupied Palau and all Germans were evacuated. All in all, his stay on Palau only lasted for four months. In his memories he stated that he could not get over the loss of this paradise.

For years after his stay, Pechstein continued to digest his Palau experiences in painting. His 'paintings of longing' project the deeply held desire for the unattainable. Drawings, prints, woodcuts and oil paintings embody his dreams of an ideal world, mostly represented as indigenous people and pure landscapes (see Fig. 3.2). Most of this work centres on the simple life of the indigenous people in harmony with nature, where fishing played an important role. His Palau images are characterised by a high degree of stylisation and the conscious use of contours. 'This stylisation, which lends his paintings an artificial note, was possibly used specifically to express enrapture and distance of this island world, a world he had to leave early against his wishes and which seemed to him to be lost forever' (Moeller 2015: 229).

The literature of this period also mirrors projections of islands as original paradises, as places of withdrawal and adventure and as exotic and erotic places where 'noble savages' still live a 'happy life' uninfluenced by destructive civilisation (see Riquet 2014). Herman Melville's book *Typee: A Peep at Polynesian Life*, a travel and adventure report now regarded as a classic of travel and adventure literature, was published in 1846. In it the author links actual experiences on the South Pacific island of Nuku Hiva (Marquesas Islands) and imaginative reconstructions of material taken from other books. This narrative made Melville notorious as the 'man who lived among the cannibals'. Robert Louis Stevenson (1850–1894) published his adventure 'Treasure Island' in 1883, originally intended as a serial for children and teenagers. It is one of the most frequently dramatised of all novels. Its influence on popular perceptions of pirates, treasure maps, schooners, one-legged seamen and tropical islands cannot be overestimated (Stevenson 1985, 2008, 2009). This coming of age novel was typical for the time which once again saw islands as places where stories, reality, authenticity and fiction merge with each other. 'Mutiny on the Bounty', a story based on fact, had already given further stimulus to the styling of the island as a place of adventure at the end of the eighteenth century, resulting in many representations in literature and film to this very day (Eismann 2005: 16).

Reconceptualising Islands

From the end of the nineteenth century, but in particular with the beginnings of the second wave of decolonisation, the view of islands as exploitable topographical entities shifted. The First World War represented a corrective in that the notion of civilisation represented by the Western colonial powers was increasingly understood as hypocritical, one of the reasons why colonies were given greater powers of self-determination after 1918. A similar rationale manifested itself

Fig. 3.2 Max Pechstein, Palau landscape III, 1917, oil on canvas (Christie's Images Limited, London/Scala, Florence)

after the disaster of the Second World War, resulting in the political independence of most colonies, among them many islands. As new and young states, these former outposts of globalisation were looking not only for independence but also their own version of self-determination. The emerging theory of dependence showed its impact on the pathways of independent development and societal processes of self-identification. In the Caribbean, for example, these were expressed in so-called Négritude, a term coined by the French-speaking intellectual Aimé Césaire from Martinique in the Parisian magazine *L'Etudiant Noir* (1935). Négritude is understood as political self-determination and a cultural project of emancipation of black people, but above all

a comprehensive anticolonial revolutionary view of Africa (Césaire 1968). For the black population of the Caribbean island world, this was about remembering its African roots, emphasising blackness which had been considered inferior for centuries particularly in the Caribbean. In this context, the role of islands was less important. What mattered was the forging of an African bond of brothers beyond the African continent of origin and extending to all former black slaves now living in the diaspora.[7]

From the 1960s onwards, not least as a result of upcoming environmental movements in the USA and Europe, a further interpretation of islands emerged linked to the discourse of conservation, environmental protection and resistance to nuclear weapons. The post-Second World War nuclear weapon tests in the Pacific region caused riots across Polynesia as well as worldwide protests, enhancing global solidarity and connecting people that fought against the instrumentalisation of small outlying islands. Although the resistance did not succeed until the signing of a comprehensive Test Ban Treaty in 1996, it helped islands to overcome the long years of being ignored by the nuclear powers, linked to the theme of distance and the view of islands as peripheral places where nothing much happens. Along with these developments, an important reevaluation of islands also occurred as part of the themes of vulnerability and biodiversity which regard islands as natural resources and victims of biological invasions (Hay 2006: 26).

3.2 Non-European Island Images

The historico-cultural analysis of island fictions and projections has so far mainly reflected Western mythology and history, from the story of Atlantis up to Stevenson's Treasure Island. Most of these narratives can be traced back to their roots in antiquity. Do other, non-Western cultures have similar notions of islands? Three examples are presented below.

3.2.1 The Japanese Creation Myth of Islands

Japanese mythology offers parallels to the Western creation myth in that islands are created by an act of God and are topical places of origin and life. Islands as *germ cells of worlds* and as god's creation are part of the shared horizon of Japanese culture.

In the Japanese myths, Izanagi no Mikoto 伊邪那岐命 and Izanami no Mikoto 伊邪那美命 are a pair of ancient gods, the seventh generation of gods to be precise, which existed before the world was created. They are represented as siblings or as a couple and conceived to be the creators of the earthly world, in particular Japan. They are not the creators of the universe, as the mythological chronicles speak of even older celestial gods which are termed the 'three *kami* of creation' (*zōka no sanshin* 造化三神).[8] The oldest chronicles of Japan – *Kojiki* 古事記 ('Chronicle of Ancient Events') and *Nihon shoki* 日本書紀 (literally 'Chronicle of Japan') – state that in the beginning there was chaos. Izanagi and Izanami are supposed to create habitable land from this chaos. They descend from the heavens using a floating bridge and observe what is going on below them. Eventually, Izanagi stirs the sea with his spear. When he lifts his spear out of the water, droplets fall, giving rise to the first island called Onogoroshima 淤能碁呂島 (literally, 'the island that curdled'). The spear is a visible insignia which symbolises the will and authority of the gods and legitimises their plans. It is notable that representations of the gods without the heavenly bridge emphasise their raw power – they appear as omnipotent divine powers that freely move through space without any limitations. The heavenly bridge linking heaven and earth also features in several subsequent episodes and enables the gods to descend and ascend (Numazawa 1946: 151–156) (Fig. 3.3).

[7] Similar political revolutionary movements can be found in the Jamaican Rasta movement, Pan-Africanism, the Black Power movement and the Harlem Renaissance.

[8] Ame no Minakanushi no Kami, Takamimusubi no Kami and Kamumimusubi no Mikoto.

Fig. 3.3 Izanagi and Izanami giving birth to Japan, (c1870), 1925 (GettyImages, Munich)

After creating the first island the two gods descend to it. They erect a palace and complete a marriage ritual during the course of which they walk the perimeter of the island and subsequently declare their love for each other. Consummation of the marriage then leads to the birth of the eight large islands of Japan known as Ōyashima 大八島, as well as many other gods.

The first child of the two gods is a miscarriage, possibly caused by a misstep by Izanami, the female god, during the marriage ritual. Eventually, Izanami gives birth to the god of fire,

during which she contracts a high fever and 'dies'. In her case this means she is transferred to the underworld Yomi 黄泉 which she subsequently rules. In despair, Izanagi hacks the fire child into pieces, giving rise to even more gods, and follows Izanami to the underworld. Izanagi finds Izanami in the underworld, but does not honour her request to not look at her. Pursued by creatures of the underworld he has to flee. After leaving the underworld he closes off the gateway with a large rock, leading to the separation of the world of the living and the world of the dead. Both Izanami, the ruler of the underworld, and Izanagi, the god of life, make a vow: while Izanami vows to destroy a thousand lives each day, Izanagi vows to build a thousand birthing huts. Thus begins the cycle of birth, life and death.

After his flight from the underworld, Izanagi completes a *misogi* 禊 (literally 'ritual wash with water') in order to clean him of the impurities of the underworld *kegare* 穢れ. The sun goddess Amaterasu 天照 is created when washing the left eye, the moon god Mikoto 月読尊 when washing the right eye, and the god of storms Susanoo when washing the nose. Izanagi then divides his inheritance between these three children and subsequently withdraws from worldly events (Numazawa 1946; Aston 1896; Chamberlain 1932; Florenz 1901; Naumann 1988; Piggott 1982).

These myths paraphrase not only the origin of the Japanese culture but provide references to the physical existence of the Japanese archipelago and how habitable land was created from chaos. Drop-like islands in the sea, a connection between heaven and the underworld (volcanoes), cyclical relations of the past, present and future as well as close connections between islands and between islands and the sea emphasise the spatial understanding of a dominant human-marine relationship and are part of the societal horizon in Japanese philosophy. The Japanese term for *island* is *shima* (しま) with the Chinese kanji 島 (island) which also means community – an intriguing and interesting linkage of both concepts. Other than in Mainland China, the sea of islands in Japan is dominated by the themes of connectedness, dependencies and circularity.

3.2.2 Chinese Island Images

Not surprisingly, the Ancient mythology of the Middle Kingdom[9] does not offer any significant evidence of island projections that are readily accessible to outsiders. Those few references that are accessible show interesting parallels to the Western island fictions of antiquity.

Chinese mythology recognises five islands in the Bohai Sea (the Gulf of the Yellow Sea) as the place of residence of immortals. Apart from Fāngzhàng, Yíngzhōu, Dàiyú and Yuánjiāo, particularly Mt. Penglai is described as a paradise mountain island[10] whose landscape is depicted as entirely white. On the island of Penglai, the 'eight immortals' hold their celebrations in a golden palace surrounded by trees bearing jewels. The island knows neither rain nor winter, and its bowls of rice and wine glasses are always full. Magical fruits grow there whose consumption promises to heal any ills, give eternal youth and even overcome death.

Similar to Western efforts of transforming fiction into reality, there have been repeated attempts to verify and locate Penglai in the real island world of the Chinese seas. The Chinese magician and explorer Xu Fu undertook several expeditions to discover the elixir of life on one of these mythological islands.[11] Similar to the Greek Islands of the Blessed, these stories are a blend of mythical projections and specific locations. Attempting to locate the island of Penglai, various theories have identified it either as the Japanese islands, the South Korean island of Jeju or Taiwan.[12]

[9]The mandarin name of China is Middle Kingdom; the Chinese sign for China is 中國.

[10]Whether Penglai is an island or a mountain is not unambiguously clarified, but either way the projection refers to a paradisiac *topos* of eternal good.

[11]It is said that he has discovered Japan in the process.

[12]Today there is a city called Penglai City (http://www.chinaknowledge.de/History/Myth/personspenglai.html).

Apart from the story of Penglai, Chinese mythology also knows 'Islands of Happiness' (Shangri-La), as well as island attributions of escapism (e.g. from war or government), isolation and utopia. The film 'A Tale of the Fountain of the Peach Blossom Spring' is based on a famous story written in 421 AD about a chance discovery of an ethereal utopia where the people lead an ideal existence in harmony with nature, unaware of the outside world for centuries. In his tale, the author Tao Qian is critical of the current situation of political instability and government corruption. Although the leading figure in the story is not explicitly said to travel to an island, there is a clue in that he arrives at the place he is visiting in a boat.[13]

Chinese mythology is also familiar with the legend of the 'immortality herb'. Homer's Odysseus mentions this pharmaceutical stimulant as the 'plant of youth' and 'fruit of life' which points to old oriental ideas of islands and paradise. According to the Gilgamesh epic, this fabled plant grows on the seafloor. Gilgamesh manages to find and pick it with the help of his forebear Utnapishtim who resides on a faraway island. Chinese mythology also locates this 'immortality herb' somewhere in far in the East on an island named Fang-Chang.

Island projections of the East and West appear to offer amazing parallels. It would certainly be worthwhile to explore these themes through Mandarin and with more historical cultural knowledge. Unfortunately, I am not gifted with the necessary language skills and do not have sufficient insights into the respective cultural-historical contexts. The million dollar question is whether the same island fictions arose entirely independently of each other or whether there was contact between these early civilisations. Is the study of islands in the Western and Eastern world confronted with its own spaghetti mystery – did Marco Polo bring noodles to China or take them from there?

[13]Most of the tales speak of a river rather than an islands; see also film: *A Tale of the Fountain of the Peach Blossom Spring* (https://www.youtube.com/watch?v=iEJ-0SxADI8).

3.2.3 Chinese Stereotypes of Taiwan

The third example deals with the reception of the Chinese island of Taiwan throughout Chinese history which is luckily made accessible by Emma Jinhua Teng who has written an interesting text on the subject in English (Teng 2007). Taiwan is one of the larger islands belonging to the Chinese context. It plays a special role in the country's history not only after the Chinese Civil War when the Communist Party defeated the Nationalists and Chiang Kai-shek's (1887–1975) government and the army retreated to the islands of Taiwan. Teng gives an overview of the reception of the island and possible changes in its perception, differentiating between the island as a more or less unchanging geographical unit and changing stereotypical attributions over time.

In a land of predominantly territorial understanding – China understands itself as the centre of the world – the island of Taiwan certainly is on the edge of cultural history. Yet there are traces of prevailing and culturally stabilised narratives ranging from the early periods to island representations of the twentieth century. Historic maps of China, poems and stories refer to the islands in the four seas as a locus of barbarians and less educated and uncivilised people.

A Chinese seventeenth-century source describes Taiwan as a faraway place of important resources but also as a dangerous place due to savage man-eating natives and diseases. Another threat was of a political nature, as the island was a safe place for the Ming dynasty which was fighting the Manchu-Ming dynasty at the time. The Ming dynasty was defeated in 1683, leading Taiwan to become part of China.

The actual colonisation of the island was viewed with some criticism by the imperial court. Many Chinese personalities did not consider it worthwhile to invest labour and capital in the new acquisition. Another difficulty was that the Chinese considered their empire clearly delineated by geographical units such as mountains, the sea or deserts. Taiwan was located outside this perspective. The initial view of the island was therefore determined by the themes of the island as a threat, its distance to the mainland as

well as its natural resources but economic insignificance.

Between 1600 and 1800 this interpretation gradually changed. Several times the Manchu-Ming dynasty oscillated between a policy of quarantine, where the monarchy attempted to preserve the status quo on the island and sought to prevent the immigration of Chinese, and a policy of colonisation which had the opposite effect. The indigenous population was pushed out of the fertile coastal areas and forced into the craggy central mountain regions.

In 1875 the colonial perspective won out. The kaishan fufan policy led Taiwan to be entirely settled by Chinese by 1887. This success was short-lived, however, as the island was lost to Japan in 1895. Japan continued to rule it until 1945. Taiwan was only returned to China after the Second World War when it became the hotspot of national history as a place of refuge for Chiang Kai-Shek's nationalists fleeing Mao Ze Dong's communists. Taiwan was proclaimed 'Free China' to set it apart from the People's Republic of China. Both parties considered Taiwan an integral part of China, a controversy that has lasted to this day.

Information on the island was a prerequisite for these changing interpretations. From the seventeenth century onwards, more and more travel reports were published that described Taiwan in text form, images or using explanatory sketches. In the eighteenth century, the need arose for precise cartography. In the nineteenth century, Taiwan appeared as a place promising economic gains. When China lost Taiwan to Japan in 1895, this was interpreted as a loss of parts of continental China and imperialist aggression (Teng 2007: 12, 25, 26).

The history of Chinese interpretation of Taiwan as described by Jinhua Teng is primarily one of the changing themes of threat, distance, economic exploitation and dominance. Initially regarded as worthless, Taiwan then did get caught up in imperialist politics emphasising the economic value of the island and claims to power – adding value to the island.

Taiwan's image oscillated in Chinese perception over centuries between island luck and island nightmare – between retreat/salvage and isolation/relegation. These themes are constantly reflected in the framing and capitalisation of the islands, mainly without any respect or consideration of the local inhabitants.

Much still remains to be understood on how island topoi, their reception, their attribution and their historical-cultural framing influence island existence and development. The attraction of islands is not only reflected in mythology, in their use as places for experiments of thoughts, in colonial aspirations or in growing economic interests. It is also found in the emerging paradigm of scientific research and exploration which turned islands into convenient and pleasing objects of study objects from the mid-nineteenth century onwards. The concept of islands as laboratories meanders through island biology, island geology, island anthropology, island literature studies and so on, which are referred to in the next theme of island research.[14]

3.3 Island Research: Nissology

The exotic attraction of islands coupled with the image of original and unadulterated existence captured the scientific imagination, in particular

[14] In the past, there have been occasions where small islands have indeed been used as laboratories for medical and military purposes. In most cases, this was (or continues to be) highly contentious. The Scottish island of Gruinard, for example, was used to study the effects of anthrax during the Second World War. Kantubek, a town on Vozrozhdeniya Island (Uzbekistan) in the Aral Sea, was used since the early 1930s by the former Soviet Union to test biological weapons. On Plum Island of New York, an animal disease centre was established in 1954 to study the effects of foot-and-mouth disease in cattle. The island of Riems in the Baltic Sea houses one of the oldest virological research stations in the world. Here, research has been carried out on animal diseases such as BSE, foot-and-mouth disease, swine fever and most recently bird flu H5N1, throughout political regimes since 1910, including the Nazi period and the GDR. The research station still actively develops preventative and protective measures as well as veterinary vaccines.

twentieth-century social anthropology. Standard works such as Margaret Mead's *Coming of Age in Samoa* (1928) and Bronislaw Malinowski's *Argonauts of the Western Pacific (1932)* paved the way for dedicated *Island Studies* (Malinowski 2002; Mead 2001).

Ever since the beginnings of 'island literature', Greek and Roman texts have been the main sources for understanding islands. Epistemologically, this renders islands partial texts (Dommelen 1998: 17), a partiality that continued throughout the centuries. The self-perception and self-understanding of indigenous island populations were hardly ever reflected in the various island stories, partly perhaps due to a lack of written and other easily accessible sources. However, the initial wave of island research also followed this trend and mainly wrote *about* islands or rather projected culturally prevalent images onto them. This perspective only changed much later when a shift took place away from the external analysis of islands towards a more grounded and embedded understanding from within (see Ronström 2012: 153; Bernardie-Tahir 2011).

Attempts at establishing independent and dedicated island research only began in the 1990s. Grant McCall introduced the term *Nissology* to describe island research, composed of the Greek words nisí (νησί = island) and logos (Λόγος = theorem, doctrine, teaching). His call to '... study islands on their own terms' (McCall 1994) emphasises the internal research perspective which comprises an enlarged conceptual focus as well as a reflexive perspective that investigates the contingencies of one's own research. The 'outside' perspective of research is thus to be supplemented by the perspective of the indigenous or 'inside' population, containing a political corrective arising from centuries of colonialism or heteronomy (Baldacchino 2008: 37).

The discourse on establishing Nissology as a discipline in its own right is based on some attractive conceptual premises. Pete Hay, for example, demonstrates that the geographical concept of 'place' can be applied particularly well to islands (Hay 2006). Godfrey Baldacchino offers additional arguments based on the diversity, number, economic and political weight of islands with particular reference to their international organisation, their ecological functions and their scientific significance especially for anthropology, sociology, cultural history and geography. He concludes that there is a good chance of establishing Nissology as a discipline while also offering a rather precise idea of the object of Nissology. Accordingly,

> the core of 'island studies' is the constitution of 'islandness' and its possible or plausible influence and impact on ecology, human/species behaviour and any of the areas handled by the traditional subject uni-disciplines (such as archaeology, economics or literature), subject multi-disciplines (such as political economy or biogeography) or policy foci/issues (such as governance, social capital, waste disposal, language extinction or sustainable tourism) (Baldacchino 2006: 9).

Grant McCall and Christian Depraetere in turn underline the perspective of indigenous island populations in this context (McCall 1994, 1996a, b; Depraetere 1991). They define Nissology as the study of islands in the language and culture of island residents, reflexively increasing awareness about their history, environment and culture to empowering islanders to reclaim islands as their own. Consequently, Island Studies conceptualise islands as lifeworlds (Ingold 2000), yet should include reflection on the reception of special island places as laboratories or singularities for all sorts of developments.

A Geography of Islands is closely related to these epistemologies, focusing on the increasing importance of space and place especially in the context of ongoing globalisation. Geography deals with spatial questions and the implications of the historico-cultural, political and economic development of islands as geographical categories. Put differently, it is 'a dialogue between the physicality of place and the interactions of people with it' (Hay 2006: 21). *A Geography of Islands* reveals the 'structures of island spatiality' and – as Nathalie Bernardie-Tahir stated – that islands are places for the sedimentation of all manner of representations and social and cultural constructs. Islands are particularly fertile sites for geographers to experiment and validate any effort to

deconstruct and critically inspect discourses past and present (Bernardie-Tahir 2011). This makes islands attractive as 'symbolic resources' and interesting study objects – not only for geography. Special questions need to be asked revolving around the deconstruction of powerful island constructs – constructs based on scientific epistemologies that neglect the contingencies of their research object, the island and the islanders. What is the role of smallness, isolation, distance and connectedness in the context of a constantly developing island community? What about the dialectics of isolation and interconnections in such communities?

Islands are emblems of existing socio-scientific rationales as well as objects of study at the same time. Insularity means both discontinuity and relationalities which have to be thought of at the same time. Following Humboldt, Ottmar Ette speaks of the idea of multiple bonds (Ette 2011) – multiple bonds that are characterised by discontinuities and whose so-called relationalities cannot solely be ascribed to globalisation. Such questions concern geographers as well as other scholars interested in exploring and investigating islands from various scientific perspectives.

Although the various island conferences that seem to take place with increasing frequency may promise otherwise, does Nissology really exist? The various disciplines, their respective approaches and methodologies are still very much present in island research. Moreover, what does 'the study of islands on their own terms' mean in practice? The numerous case studies on islands seem to reflect all of the various projections outlined in the rest of the chapter, in particular the themes of exoticism, isolation, distance, escapism, vulnerability, etc. Is this enough to constitute independent island research? This question is still hotly debated. Philip Hayward only recently (2016: 6) speaks of a 'project of Island Studies' where he calls for a 'move away from rigid geo-topographical reference points'and a 'move to plurality and openness to discussions outside of rehearsed orthodoxies with an expanded notion of Island Studies in order to enhance its imagination and vision'. At the end of the day, is studying islands a question of the research topic, the scientific perspective or a discipline by itself? Island Studies may simply be what island scholars do.

3.4 Island Palimpsest

The previous chapters have highlighted a wealth of stereotypical island attributions or topoi that may even be contradictory but considerably contributed to developing images about islands throughout history. The view of the island as a place of individual self-determination, for example, is a direct opposite to the concept of prison islands. Expert literature not only discusses this diversity but also debates it as a theoretical problem (Ronström 2012: 153).

According to Elaine Stratford (2003), islands are paradoxical spaces which lend themselves to 'smug subordination via different discourses': 'Islands are … absolute entities … territories, territorial; relational spaces – archipelagos, (inter)dependent, identifiable; relative spaces – bounded but porous; isolated, connected, colonised, postcolonial; redolent of the performative imaginary; vulnerable to linguistic, cultural, environmental change; robust and able to absorb and modify;… utopian and dystopian, tourist meccas, ecological refugia…' (Stratford 2003: 495). Baldacchino (2006: 5) contrasts the considerable diversity of existing islands with the relatively consistent idea of islands.

The amble through cultural history has highlighted a multitude of stereotypical island attributions that can be grouped into various and historically contingent themes. Existing 'societal horizons' were shown to offer connection points to idyllic, Robinsonade, exotic, erotic, philosophic and other interpretations of islands. Ever since, it has been difficult to differentiate between authentic island ascriptions and fiction as islands are also 'landscapes of the mind' that lend themselves to different projections. But does this still apply today?

Some indication is provided by a recent publication on 'Islands and Islandness in Rock Music Lyrics' (Mezzana et al. 2012). The authors apply Berger and Luckmann's approach to analysing societal horizons in the context of islands, tracing the stereotypical island attributions contained in

rock lyrics. The study investigates to what degree the themes of islands, island existence and island imaginaries have been and continue to be transported in modern rock music. The approach was chosen because of the near-universal reach of rock music. Four hundred twelve song texts were analysed and clustered thematically, covering the period of 1960 to 2009. Punk and Reggae were also subsumed under rock music, although research was limited to English lyrics.

Quantitatively, 19 songs with island references were found between 1960 and 1969, 59 between 1970 and 1979, 103 between 1980 and 1989, 167 between 1990 and 1999 and 64 between 2000 and 2009, although the reasons for this distribution remain unclear. Twenty-four themes were identified that were classed into five meta-themes, namely, 'space', 'lifestyle', 'emotions/psychology', 'symbolism' and social-political relations'.

The authors firstly find that the songs use islands as an expression of a particular experience of space. The meta-theme of space contains the following categories:

1. Islands as a space of positive seclusion and autonomy but also the flip side of these, namely, loneliness, forced exile and imprisonment.
2. The desert island, which is ambivalent in that one might simply end up there or actively choose to go; usually a choice is required on what is most important in life and should be brought along.
3. Distance, where the island is seen as peripheral and distant space. In this stereotypical attribution the island is seen as a faraway place of desire but also as a marginal dot on the map where nothing important ever happens.

The connection to water, sea and ocean remains decisive, confirming the island as a geographical place with particular characteristics and subject to increased vulnerability. The latter is represented by the stereotypical small size of the island, but also in the assumption that island society is in a sensitive balance. Interestingly, none of the lyrics seem to refer to the ecological vulnerability of islands (Mezzana et al. 2012: 76f.).

In this analysis, islands also emerge as an individual or collective refuge. Under the meta-theme of lifestyle, the island is described as an escape from threats, but also as promising freedom and independence. Islands as places of adventure represent a world of experience, while island representations as exotic worlds include descriptions of foreignness, escapism and the idea of the noble savage. Exotic island worlds also play to the tourist cliché of islands with sand, palm trees and the wide turquoise blue ocean. The category of love and romance addresses islands as spaces of sexual or platonic love and close social relations (friendship, family) (Mezzana et al. 2012: 77–80).

The meta-theme of emotions/psychology contains five categories:

1. Depression (islands as places for coping with subjective sadness)
2. Fear (islands as places of forced isolation)
3. Loneliness and desperation (islands as places of individual and collective loneliness)
4. Islands as places of happiness (also places of freedom and self-determination)
5. Islands as places of beauty (islands as a stereotype of beauty) (Mezzana et al. 2012: 83)

The meta-theme of symbolism contains the categories of spirituality (islands as a heavenly world), mystery (islands as settings of legends such as the legend of Thule), lost lands (sunken islands such as Atlantis) and paradise (representing the longing for a perfect world). All of these can be set in a past or future world (utopia). They can also be 'morally pure', or a source of artistic inspiration based on the peace and beauty ascribed to the island (Mezzana et al. 2012: 83–86).

The fifth meta-theme of social-political relations subsumes the themes of dominance (islands as a point of departure for dominance over others), social criticism (islands as places of tension between local residents or in relation to a ruling class) and history (islands as a starting point for narratively addressing historic events, and islands as a place of crime and threat). Pirate and prison islands form the core of the cliché of perceived threat (Mezzana et al. 2012: 87–89, see also Goldings 1956).

Further stereotypical island attributions can be identified up and beyond the analysis of Mezzana

et al. (2012). Islands are readily linked to the meta-theme of movement, for example. Here, islands are described as places of departure, much like Odysseus who was born in Ithaca, as well as starting points for new discoveries and symbols for a safe place of withdrawal (Bolz 2002: 5–9). Islands represent migration, a context which describes them as thoroughfares or linked to problems of migration, exodus or overpopulation (Smith 2006: 232). But islands are also places of exchange and trade relations and a stylised depiction of innovation (Dommelen 1998: 11).

The meta-theme of ecology only appears in the mid-twentieth century. Here, islands are regarded as places of careful use of natural resources and sustainability. They are described in terms of specific biodiversity and offer the possibility of claiming marine resources vis-à-vis other interested parties. The theme of vulnerability takes on a different meaning in this context as islands are interpreted as threatened by the forces of nature and 'warning signals' of global climate change (Bolz 2002: 24, Smith 2006: 229). Islands are also represented as victims of biological invasions (Hay 2006: 26).

The topos of experiments of thought, which has persisted since antiquity, now develops into a perspective of islands as laboratories and fields of experimentation where anything is possible. Scientific self-reflexion is also described (see Ronström 2012).

A cursory analysis of contemporary written sources shows that islands retain their significance as clichés and reflections of a particular reality. One example is the uninhabited island which stands in contrast to the lonely island where one might somehow end up and is then forced to contemplate one's loneliness (Baldacchino 2008: 40). In this context islands are a metaphor of a delineated, isolated, out of bounds and inaccessible entity, such as a single block of flats, a city or mountain village (Ronström 2012: 161).

Contemporary island music demonstrates the symbolic nature of islands as metaphorical places and topoi of elements well-founded in cultural history. There are continuities from the early times as well as convergences and divergences. The list of meta-themes and their respective categories presented in this chapter reflects the majority of stereotypical island attributions. Considering the historical context shows how these attributions originally entered the horizon of society and how these ideas were able to persist to this very day. The island palimpsest incorporates themes like connection, movement and vulnerability but also includes politics of island identity and the realness of island lives. Islands, after all, do represent many things – *unitas multiplex*. They are fields of projection and ideally placed for merging fiction, dreams and the reality of islands.

3.5 Island Projections and Representations

As shown in this chapter, most stereotypical island attributions in the Western world originally arose in Ancient Greece. They have shown an astonishing persistence, as evident from the analysis of island narratives in modern rock music and the large body of available literature and cultural artefacts.

Following on from the ancient civilisation of Crete and the colonisation of *Magna Graecia,* engagement with islands intensified. This is reflected in Homer's epics whose narrative framework was received across the world. The island as an embodiment of utopian and alternative lifestyles was another theme initially introduced by Ancient Greece. Rome then added the concept of imperial rule, as well as the themes of dominance and economic exploitation.

All these themes and narratives were secured and transmitted to modern Western society via the monastic culture of the Middle Ages. It is interesting to note that some of the literature describes the structure and places of the monastic orders as archipelagic – albeit a spiritual archipelago. Ancient island narratives were thus able to persist within a structure that is close to their own inherent island nature – a poetic thought.

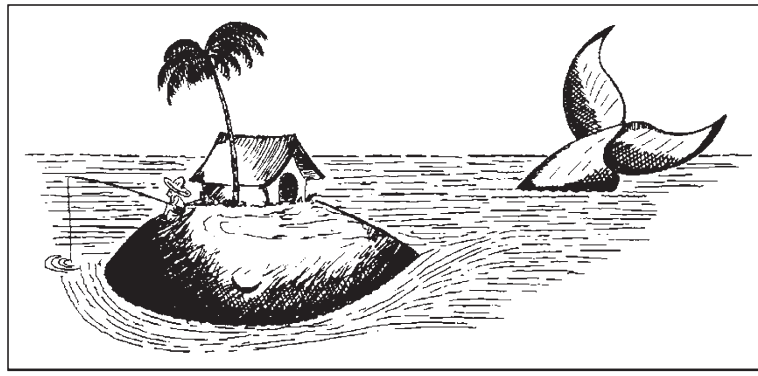


Fig. 3.4 Islands of the mind (Ossenbrügge et al. 1989)

In the early modern period, antiquity repeated itself from a structural point of view by means of exploration and the creation of global outposts of trade (the seafaring narrative). Soon this took a turn towards dominance, exploitation and the creation of colonial empires – Rome here represents a clear precursor.

In the twentieth century, entirely new stereotypical elements emerged: the ecological vulnerability of islands and their vulnerable indigenous societies, the (supposedly) sustainable use of natural resources and the theme of research as part of modern science. These new attributions are expressions of a different take on islands, mostly arising from greater environmental awareness and higher sensitivity towards otherness.

But why is it that island attributions in particular were able to find their place within society's horizon?

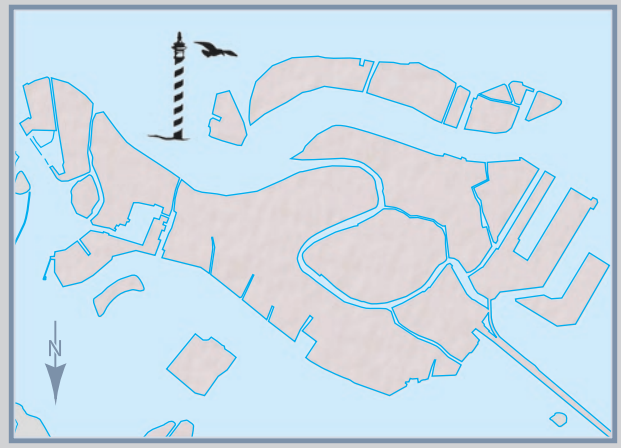
Analysing the history of island attributions enables us to better understand the effect they have had on society's horizon. Islands play an important role in Greek antiquity, a period that is fundamental to Western culture and often described as the cradle of European culture. The Greek world is a Cycladic world, leading to the ready institutionalisation of island knowledge. At the same time, islands are problematic because they are surrounded by water, rendering them remote and inaccessible. This automatically turns them into an object of communication. Antique stereotypical ideas of islands are subsequently codified and passed on via the Middle Ages to the Renaissance, the foundation of our modern world, especially through the reception of Homer. This allowed island projections to become constituent parts of our Western thinking which is mirrored in the fact that today everyone has an idea, an image or a dream of islands.[15]

The topos of the island – both as a geographical place and as commonplace – is easily linked to societal and individual mental constructs. Each of us carries their very own special island of the mind – an island full of hopes and wishes, desires and dreams of a happy life, but also an island linked to hidden ideas of morality, customs, values and religion, entangled with the peace-loving and aggressive parts of the self and connected to questions of order and disorder in this world. So even when we have measured all the world's beaches and connected all the world's islands to transport and media networks, the significance of these projections still persists (Fig. 3.4).

One thing remains unchanged: islands continue to magically attract humans because time seems to pass a little more slowly here, because all still seems right with the world irrespective of whether this is the case or not. The shining eyes of my many partners in conversation highlight that island stereotypes are to be treasured, and that we should and will continue to dream of islands.

[15] V. Billig (2010) offers the following explanation: … 'the hermaphrodite nature of language itself, oscillating between reality and fantasy, which always invents its islands even where there aren't any' (Billig 2010: 23).

Island Brain Teaser 3



This chapter's mystery island is a globally unique island building project. It is evidence of the enormous creative force of our forbears but also of the transience of every cultural product on account of creeping decay. Islands are constructs that tell stories – and this story begins in the early medieval period.

The repeated invasion of mounted armies drove an increasing number of mainland inhabitants to the coast and onto the offshore salt marsh islands for protection. A solid foundation for one of the fastest growing and most densely settled urban spaces of its time was created by ramming thousands of wooden piles into the boggy, uninhabitable ground. Up to this day, this island space extends over an incredible 118 small islands that are linked to each other by numerous bridges. A bird's eye view of the city centre gives the impression of a single large island bisected by an s-shaped canal.

Due to its favourable location between two global empires, the island city quickly advanced to one of the world's most significant trading centres. From the late seventh century onwards it was the heart of an independent republic that maintained an extensive colonial empire and numerous trade posts in many areas of the then known world. The legendary wealth of its inhabitants was not only due to trade and significant geopolitical influence but also to shipbuilding which resembled modern assembly line production long before the industrial age on account of a high degree of systematisation.

With the discovery of the New World, global trade increasingly shifted westwards. The mystery island city gradually lost its significance, and the republic abruptly dissolved in 1797 when it was occupied by an important warlord.

In its heyday the island city developed a rich cultural life; this and its unique visual appearance attracted artists and intellectuals from all over the world. The city repeatedly became the setting for world-renowned literature and it is still a very favoured location for film shoots. Its global fame has turned the urban island conglomerate into one of the most visited cities ever. Millions of arriving tourists by land and by sea, regularly overburdening the local infrastructure, leading to serious processes of social change and causing social and also environmental problems.

Rising sea levels, however, pose a much greater challenge to the island city today. The sea is gnawing away at the city's foundations, squares and streets are flooded ever more frequently, and many basements of the once magnificent houses have become uninhabitable already. Still, the city is resisting the forces of nature. A huge and very expensive flood protection system, consisting of enormous hydraulic tide gates, is to stop the town from drowning. Which island city are we looking for?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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Geopolitics of Small Islands

4

In many ways boundaries are the most obvious politico-geographical feature that exists, for we are constantly reminded of them – when we travel, when we read a newspapermap or an atlas, and in many other ways.

Glassner and de Blij (1980: 82)

Abstract

This chapter is about islands as pawns in the game of international interests and territorial powers. It deals with the spatial location of islands and the associated geopolitics, from the colonial period to the international Law of the Sea discussed in the 1980s and 1990s up to current examples of islands as pawns, from the Falkland Islands to the current conflicts in the South China Sea and the Senkaku Islands.

Keywords

Geopolitics • Guano • Law of the sea • UNCLOS III • Territorialisation • Strategic interests • Disputed Islands

Planting a flag on foreign soil not only stakes a claim but is also a demonstration to the world – this land is mine. Such claims are often linked to taking possession of islands thousands of kilometres away. Hardly anyone would assume that the Kingdom of Norway extends from the Arctic Circle to the Antarctic Circle. This is not strictly true of course, but the small island called Peter I Island is a manifestation of Norwegian territorial claims on the opposite side of the globe. Whenever they are staked, such claims need to be supported by all sorts of information. Coordinates need to be calculated, the land needs to be mapped and names need to be given to it in one's own language. 'By having drawn up the only current map of Peter I Island, Norway underlined its claim to ownership, even though under the Antarctic Treaties any territorial claims are held in abeyance' (Schalanski 2009: 20). Nobody lives on the island, and access is very limited, with only a few scientists and occasionally tourists visiting this part of the earth which is of interest to Norway only because of suspected mineral resources and opportunities for whaling.

The annexation and description put Peter I Island on the map – and not only in Norway.

B.M.W. Ratter, *Geography of Small Islands*, https://doi.org/10.1007/978-3-319-63869-0_4

Islands are used as political pawns – and not just since the twentieth century. Mostly, it is not the island itself that is of interest, but the potential territorial claims that can be linked to it or the marine resources it may hold. The numbers of conflicts in the sea are innumerable: conflicts surrounding fishing grounds, raw materials, oil and gas reserves territorial or border conflicts. Most of these are rooted in historical events and facts, so that causes are never simple and conflicts rarely single-layered. More than half of the disputes under the Law of the Sea are down to unclear ownership of small islands close to the coast or far out at sea.

There are many tales surrounding unknown islands. Some were freely invented; others use specific islands as templates for stories of discovery and adventure (e.g. Robinson Crusoe by D. Defoe 1719). Some are tales of pirates and how they hid from the arm of the law; others spin dreams of hidden treasures (Treasure Island by R.L. Stevenson 1883). Islands always take on geopolitical significance when they have something to offer – which could be resources to exploit, the promise of military dominance over shipping channels or a starting point for territorial claims. Islands have long been outposts of national territorial interests or resource claims – not just in colonial times but to this very day and age.

Three examples highlight the instrumentalisation of small islands and their reinterpretation as 'anchoring points' of specific interests: Guano Islands, military bases on islands and the newly acquired significance of islands under the Law of the Sea after its modernisation in the late twentieth century.

4.1 Guano Islands

Guano is a dried and hardened white substance consisting of the excrement of seabirds, seals and bats. In uninhabited areas, where large populations of seabirds can live relatively undisturbed and where there is little rainfall (preventing them from being washed away), these excrements can grow into sizeable deposits. Alexander von Humboldt discovered the significance of guano for agriculture in 1804 as it contains extremely high levels of nitrate and phosphorus. Prior to the invention of artificial fertiliser at the turn of the twentieth century, it was manure that kept agricultural soils full of the nutrients required for intensive farming. With its high levels of nitrogen and phosphorus, guano is especially potent. Guano soon became a very valuable commodity, and by the 1840s was a major source of fertiliser worldwide. The high sodium nitrate content was also interesting for the manufacture of explosives. The USA, then a rising young nation, needed both fertiliser and explosives. And so it happened that bird dung came to play a major role in the rise of one of the largest empires of the modern era.

The most significant deposits of this new substance were discovered on Peruvian islands. The resulting monopoly allowed Peru to sell guano at fantastic prices, mostly to European and US farmers. Very soon, however, adventurous sea captains discovered that guano could also be found on many small uninhabited cays a long way off the usual shipping routes. Untroubled by the small matter of ownership, they began to harvest it, inevitably triggering strife between the various competitors and with the territorial rulers and owners of the islands. In order to avoid unnecessary conflicts and to ensure the supply of cheap guano to America's farmers, the US government created the infamous 'Guano Island Act' of 28 August 1856 (see Textbox 4.1: The Guano Island Act). This act, the 'outgrowth of the lawless behaviour and uncontrolled avarice of semi-piratical sea marauders' (Wells 1964: 58), was to allow newly discovered islands to be claimed for the USA and placed under governmental protection. It allows the constitutional annexation of islands that contain deposits of guano, as long as they have been discovered and peaceably taken possession of by any citizen of the USA, are not within the lawful jurisdiction of any other government and not occupied by the citizens of any other government. If necessary, the army and navy can be used to protect the rights of the owner. The USA also declares a right to retain possession of the islands once guano harvesting ceases (Wells 1964: 59).

Textbox 4.1: The Guano Island Act

§1411 Guano Districts; claim by United States.

Whenever any citizen of the United States discovers a deposit of guano on any island, rock, or key, not within the lawful jurisdiction of any other government, and not occupied by the citizens of any other government, and takes peaceable possession thereof, and occupies the same, such island, rock, or key may, at the discretion of the President, be considered as appertaining to the United States.

§1412 Notice of discovery of guano and proofs.

The discover shall, as soon as practicable, give notice verified by affidavit, to the Department of State, of such discovery, occupation, and possession, describing the island, rock, or key and the latitude and longitude thereof, as near as may be, and showing that such possession was taken in the name of the United States; and shall furnish satisfactory evidence to the State Department that such island, rock, or key was not, at the same time of the discovery thereof, or of the taking possession and occupation thereof by the claimants, in the possession of occupation of any other government or of the citizens of any other government, before the same shall be considered as appertaining to the United States.

§1413 Completion of proof on death of discover.

If the discoverer dies before perfecting proof of discovery or fully complying with the provisions of section 1412 of this title, his widow, heir, executor, or administrator shall be entitled to the benefits of such discovery, upon complying with the provisions of this chapter.

§1414 Exclusive priviledge of discoverer.

The discoverer, or his assigns being citizens of the United States, may be allowed, at the pleasure of Congress, the exclusive right of occupying such island, rocks, or keys, for the purpose of obtaining guano, and of selling and delivering the same to citizens of the United States, to be used therein, and may be allowed to change and receive for every ton thereof delivered alongside a vessel, in proper tubs, within reach of ship's tackle, a sum not exceeding $8 per ton for the best quality, or $4 for every ton taken while in its native place of deposit.

§1415 Restrictions upon exportation.

No guano shall be taken from any island, rock, or key mentioned in section 1411 of this title, except for the use of the citizens of the United States or of persons resident therein. The discoverer, or his widow, heir, executor, administrator, or assigns, shall enter into bond, in such penalty and with such sureties as may be required by the President, to deliver the guano to citizens of the United States, for the purpose of being used therein, and to none others, and at the price prescribed, and to provide all necessary facilities for that purpose within a time to be fixed in the bond; and any breach of the provisions thereof shall be deemed a forfeiture of all rights accruing under and by virtue of this chapter.

§1416 Regulation of trade.

The introduction of guano from such islands, rocks, or keys shall be regulated as in the coasting trade between different parts of the United States, and the same laws shall govern the vessels concerned therein.

§1417 Criminal jurisdiction.

All acts done, and offenses or crimes committed, on any island, rock, or key mentioned in section 1411 of this title, by persons who may land thereon, or in the waters adjacent thereto, shall be deemed committed on the high seas, on board a merchant ship or vessel belonging to the United States; and shall be punishes according to the laws of the United States relating to such ships or vessels and offenses on the high seas, which laws for the purpose aforesaid are extended over such islands, rocks, and keys.

§1418 Employment of land and naval forces in protection of rights.

The President is authorized, at his discretion, to employ the land and naval forces of the United States to protect the rights of the discoverer or of his widow, heir, executor, administrator, or assigns.

§1419 Right to abandon islands.

Nothing in this chapter contained shall be construed as abliging the United States to retain possession of the islands, rocks, or keys, after the guano shall have been removed from the same.

Washington, **18th August 1856** (Federal Government of the United States 1856)

From the 1850s onwards, more and more islands in the Pacific and the Caribbean were found to contain large deposits of guano, sometimes running to several metres deep. In addition to large and small islands, the Caribbean has many tiny coralline islands or banks whose Spanish name of 'cayo' entered the nomenclature of seafarers, geographers or statesmen as the anglicised 'cay' or 'key'. They vary in size, but most are only several hundred metres long and wide. Palm trees grow on some, but others are just a single rock on a sandbank that may well be flooded during a storm. In the early nineteenth century, after the discovery of guano and its significance for agriculture, these cays of the tropical seas began their life as important providers of resources. They were used as anchoring points of strategic interest and annexed in a sea that had hithero been free (Ratter 1990: 138).

This wave of expansion outside of North America marked the beginning of the colonial period for the USA which had been largely isolationist until then. During this period, the USA bought Alaska from Russia in the late 1860s and annexed Hawaii in the 1890s, as well as the Philippines, Puerto Rico and Guam as a result of the Spanish-American war. Even though the guano boom only lasted half a century, it was brought to an end by the invention of artificial fertiliser in the early twentieth century – it led to the destruction of habitat for millions of seabirds and a huge expansion of US state territory.

The best-known examples of the USA's guano policy in the Caribbean are six islands that took on renewed significance as military bases after guano harvesting ceased. Some of these islands have remained contentious under maritime law to this day. The six examples are Aves Island, Navassa, Morant Cays, Alto Velo, Swan Islands and the Quitasueño, Serranilla, Serrana, Bajo Nuevo and Roncador Banks (see Fig. 4.1 and Table 4.1).

Aves Island, a small island of about 300 m in length, is situated west of Guadeloupe in the eastern Caribbean and commonly considered the initiator of the Guano Island Act. US entrepreneurs began to harvest guano on Aves without asking for permission. In 1854, this led to a serious conflict between nearby Venezuela, which considered itself the rightful owner of the island, the Netherlands that also laid claim to it and the USA. In 1865, arbitration by Queen Isabella II of Spain awarded the island to Venezuela (Zuloaga Ramírez 1955: 172–180). Any damages incurred from the illegal collecting of guano by US entrepreneurs had to be compensated by the American government. The US Guano Island Act was enacted as a consequence of this dispute in an attempt to avoid similar ownership disputes over uninhabited islands in the race for the coveted resource.

Navassa, a small and mostly unknown island in the waters between Haiti, Jamaica and Cuba around 50 km west of Haiti, is a prime example of the USA's nineteenth-century expansionism. In this case, the interplay of public and private interests shifted power relations in favour of the USA, affecting maritime law boundaries to this very day. The island was first discovered by Spanish seafarers in the sixteenth century, occasionally appearing in subsequent maps as Nabaça, Navaça or Navase. It is less than 3 km^2 in size and consists of a shallow coralline plateau ringed by a steep rocky coast. Lulu Bay on the southern coast is the only access point, but even this is dangerous on account of strong wave action (Nichols 1933: 505–510). On 1 July 1857, Navassa was 'rediscovered' by Peter Duncan, a US citizen and employee of the Baltimore Fertilizer Company, and was claimed for the USA under the Guano Island Act on 19 September. Haitian protests in 1858 were rejected by the US government on the grounds that Haiti had not owned the island prior to 1857 and had never laid any claim to it. From this point onwards, the island was considered US American, and various US companies collected guano there in subsequent years (Ireland 1971: 331). Haiti continued to pursue its claim by writing notes of protest to the USA and arguing that up to 1867, successive constitutions had claimed national sovereignty over adjacent islands, although Navassa was not specifically enumerated in the constitution until 1874. In the USA, it was unclear at that point whether the island should be considered as appertaining to the USA (with corresponding jurisdiction) or merely as unincorpo-

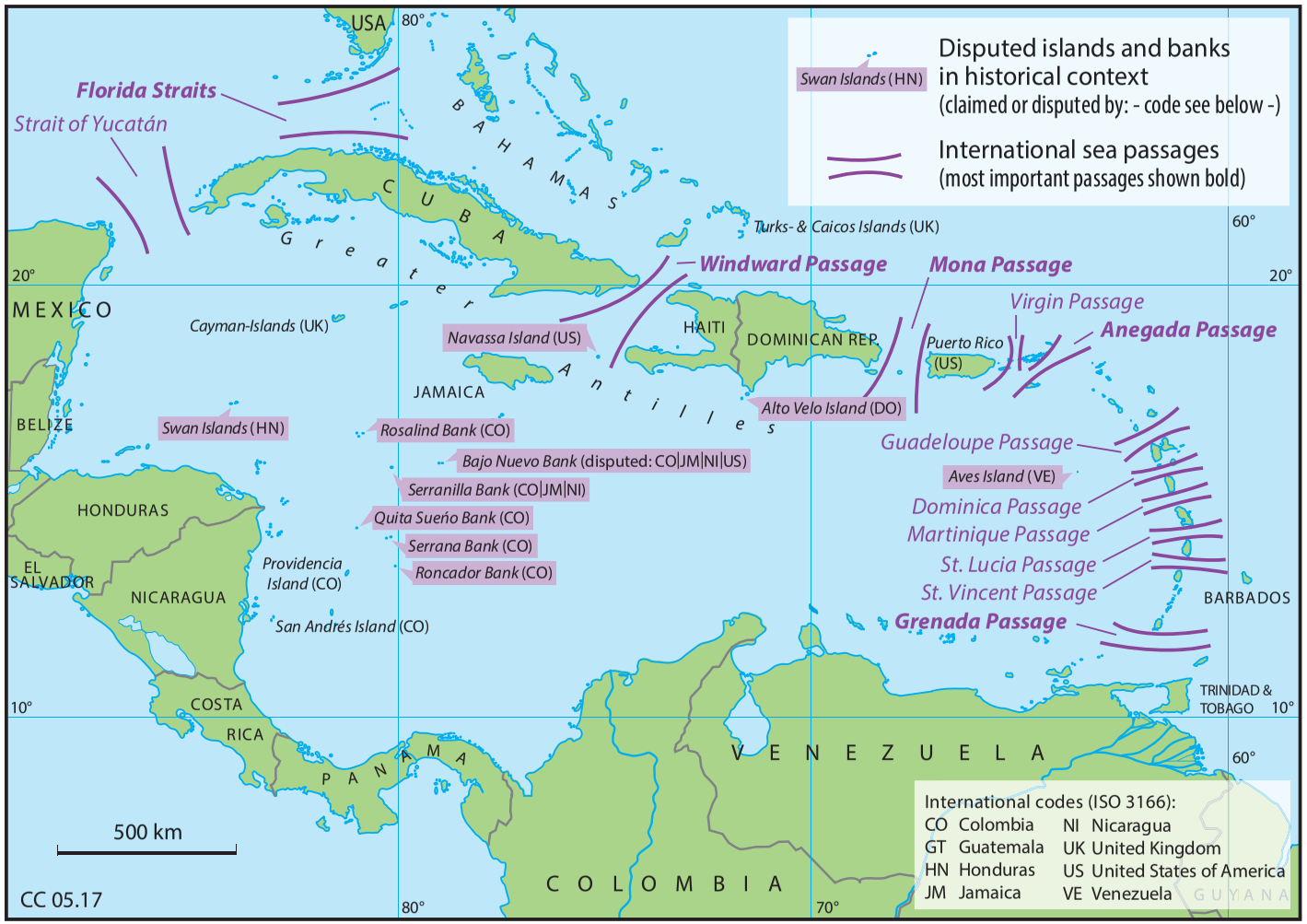


Fig. 4.1 Historical guano disputes in the wider Caribbean Sea

Table 4.1 Historical guano disputes in the wider Caribbean Sea

Island	AKA	Current status	Resolution
Alto Velo Island	Isla Alto Velo	Dominican Republic	US claim dormant
Aves Island	Isla Aves	Venezuela	1865 Queen Isabella II
Bajo Nuevo Bank	Petrel Islands	Disputed	US claim remains in place as an unincorporated territory. Also claimed by Colombia, Jamaica and Nicaragua
Navassa Island	Navaza	US Minor Islands	Claimed by Haiti; unincorporated
Quitasueño Bank	Quitasueño	Colombia	Vasquez-Saccio Treaty of 1981
Roncador Bank		Colombia	Vasquez-Saccio Treaty of 1981
Rosalind Bank	Rosa Linda Bank	Colombia	Colombia-US Treaty of 1981
Serrana Bank		Colombia	Vasquez-Saccio Treaty of 1981
Serranilla Bank		Colombia	US claim may remain in place as the Vasquez-Saccio Treaty of 1981 is silent on the matter. Colombia and Jamaica agreed to a condominium but Nicaragua also lays a claim
Swan Islands	Islas Santanilla	Honduras	Honduras-US Treaty of 1972

rated territory. In 1889, the US Supreme Court ruled in favour of the former. After a rebellion of black workers on Navassa, where a protest against the inhuman working and living conditions on the island led to the deaths of five supervisors, the status of the island as rightful territory was upheld and the perpetrators punished under US law (Nichols 1933: 509). Renewed attempts by Haiti to claim the island after 1898 failed. Referring to the Guano Island Act, which allows the USA to retain possession of the island after guano extraction ceases, the US government declared Navassa as never abandoned. On 17 January 1916, under the Presidency of W. Wilson, a proclamation was issued confirming the USA as the sole rights holder over Navassa and announced the construction of a lighthouse. That same year, in its role of 'protective power', the USA made sure that islands belonging to Haiti were no longer named in Haiti's constitution. Guano extraction had already ceased at this point, and the island lost its economic attraction. The various private companies that technically owned the island had also given up their claims. But the US government had noted the strategic importance of Navassa for controlling the important Windward Passage. Haiti continued to claim Navassa after 1916 and still continues to do so. In Haiti's 1935 constitution, the island is once again enumerated, and in a 1976 treaty with Cuba on maritime borders, Navassa is noted as Haitian-owned.

Navassa is uninhabited today, occupied only by an electronic lighthouse and a weather station. Jamaican naval units regularly patrol the island on behalf of their US colleagues to check on the lighthouse. Since landing is difficult, humans visit the island very rarely. Still, it is unlikely that the USA will renounce its claim to the island. Not only would this imply the loss of an important strategic position in the Caribbean but also the loss of an exclusive economic zone of around 4100 nm^2 which the USA is also claiming based on the new UN Convention on the Law of the Sea (see Sect. 3).

The imperialist policies of the USA were not always successful. The example of Jamaica's Morant Cays shows that assertiveness and power could sometimes thwart the possessive urge of the USA. The history of **Morant Cays** begins long before their discovery by Columbus on 14 July 1502, stopping over on a small island near Jamaica on his fourth and last journey travelling

west from Hispaniola. Shards of indigenous pottery found on the island indicate that Arawak people occasionally visited by canoe, collecting bird's eggs during the breeding season in May and June (Lewis 1946). Although the reefs and sandbanks were a considerable danger to seafarers, the three small sandy keys located on a crescent-shaped bank about 50 km southeast of Morant Point in Jamaica were also a lifesaver for stranded or injured sailors. In 1825, coconut palms were planted on the keys by prominent Morant Bay merchants specifically to help stranded sailors.

On 6 October 1862, after guano had become a source of great riches and European colonial powers began to look for it just like the USA, the Governor of Jamaica, His Excellency Lieutenant-Governor Eyre, received a message that a US-American ship had anchored off Morant Cays and that its crew had begun to collect guano. The author of the message, Commodore Hugh Dunlop, asked whether the Cays were part of the British Empire and, in case they were not, whether he should claim them for the British Crown. Britain's interest was not only to secure the existing guano deposits for 'the benefit of the British people' but also to ensure these islands so close to Jamaica could not be claimed by anyone else. Accordingly, in his reply to the Duke of Newcastle on 4 November 1862, Governor Eyre writes: 'I believe the cays are very small in size, and, for the most part, of little value, but as they are adjacent to Jamaica, lying within forty miles of the shore, it would be very undesirable that any other nation should occupy them'. After confirming the islands' ungoverned status, they were officially claimed for Britain on 12 October 1862 by Commander William John Ward. A letter patent gave the Governor of Jamaica the right to grant licences for guano collection. A claim made for the USA in 1866 by James W. Jennett, referring to the Guano Island Act and the islands' apparently abandoned status, came too late. Morant Cays was lawfully annexed by Great Britain on 1 June 1882, with the Governor, the Court of Justice and Magistrate of Jamaica given full jurisdiction. For legal purposes, the Cays were to be considered part of the Parish of Kingston.

Morant Cays has always been better known for its birds' eggs, collected and sold as a delicacy, than for its guano, which according to an 1862 estimate amounted to 11,000–15,000 tons. Like Pedro Cays further to the south, Morant Cays is only partially inhabited and mainly serves as a base for fishing the coral banks surrounding them. Fishing huts were built next to the coconut palms, housing fishermen and egg collectors during the respective seasons.

The appropriation by the USA of the small island of *Alto Velo*,[1] situated south of Hispaniola, did not go to plan either and eventually ended unsuccessfully. Alto Velo, a mountainous island of about 1 km^2 in size, lies 24 km southwest of the Dominican Republic and 12 km from Isla Beata which lies inbetween. The island was discovered in 1494 when Columbus had to stop over there on his second journey due to difficult winds. For a long time, nearby Isla Beata was a starting point for exploring the Latin American mainland. On 23 February 1860, Alto Velo was claimed under the Guano Island Act on behalf of Patterson and Murgiendo, a Baltimore-based company which immediately began to extract the lucrative fertiliser. The Government of Santo Domingo only learned of the presence of North American adventurers several months later, including the fact that they had raised the US flag. On 19 October 1860, the Dominican warship Mercedes was sent to Alto Velo to retake possession of the island and to bring the invadors to the capital. On 23 October, John A. Miller, 11 black workers, the entire stockpile of guano and all the group's possessions were confiscated and transferred to Santo Domingo. The Dominican court ordered Patterson and Murgiendo to pay for all the costs that had been incurred.

Secretary of State Seward was not inclined to jeopardise the strategic interests in the Samaná Peninsula because of the guano rights on the small island of Alto Velo. He therefore decided

[1]This island often misleadingly named Alta Vela or Alto Vela; the right name however is Alto Velo (see Tejera 1981: 225–233).

that the US claims to the island were untenable and were to be renounced. Guano extraction nevertheless took place. When Santo Domingo was returned to Spanish colonial rule, a licence for extraction was sold to the New York-based company Webster & Co. in 1861. Within 7 months more than 10,000 tons of guano was extracted, severely damaging the island ecologically through the sheer scale and speed of extraction (Mañón Arredondo 1981: 243). In 1948, a geological study showed that the remaining guano deposits no longer justified industrial extraction and that all birds had been driven off the island. Today Alto Velo has a lighthouse powered by solar batteries and remains uninhabited save for rare visits by fishermen and scientists.

US interests in Alto Velo were readily renounced in 1861 because of the country's parallel strategic interest in the Samará Peninsula. This might not have happened quite so readily had the responsible parties known that the treaty signed on 29 November 1869 would not pass the US Senate and that plans for a military base on Santo Domingo would need to be shelved.

The *Swan Islands, or Islas del Cisne*, are a group of islands in the Western Caribbean that consist of Great Swan Island, Little Swan and Bobby Cay; amounting to a total size of about 4 km^2. Columbus discovered the islands on 17 August 1502, but did not officially claim them for the Spanish Crown. West Indian pirates and privateers occupying the islands in the seventeenth and eighteenth century triggered rumours of a buried treasure (Wells 1964: 57), and the island went through several names including Islas Santa Ana, Santanilla and San Millán before being named for British Captain Swan, later wrongly translated into the Spanish 'el Cisne'. Once again, it was the Guano Island Act that brought the islands to official attention. Competing claims were made by the USA and Honduras, one of the successor states of Spanish colonial rule in Central America and geographically the closest mainland state. Referring to the Guano Island Act, Joseph W. Fabens, founder of the Atlantic and Pacific Guano Company, applied for a licence to extract guano on 19 May 1857. An 1858 study estimated guano deposits on the islands to amount to more than three million tons, with a percentage of phosphate of lime of 40–67%. 'Even allowing for a very large error in these calculations, the discovery was a multimillion dollar enterprise' (Wells 1964: 60). Disputes between Great Britain and the Central American republics over the Mosquito Coast obscured matters and meant that Honduras only contested the USA's claim of the islands years later. Meanwhile, the islands were owned by seven different US-American companies until the guano reserves were depleted in 1904 and export ceased.

The value and use of the islands then shifted to their strategic significance; US interests persisted (see Sect. 2). In 1908, the United Fruit Company installed a radio station on the islands; between 1914 and 1927, the US Weather Bureau maintained a weather station there. In 1921, a renewed attempt by Honduras to take over the islands failed. On the eve of the Second World War, on 11 September 1939, President Roosevelt gave a rather frank statement on the contentious issue of the Swan Islands, stating:

> that the question was really quite trivial, as the islands had no economic value. The only use he could see was as an anchorage for a seaplane tender to be used in anti-sub-marine warfare in the event the war spread to this hemisphere. In that event, he said, Honduras would have neither the equipment nor the money to do the job. Mr. Roosevelt then suggested that since Honduras had a weak claim anyway and since she had no use for the islands, that she be asked, in the name of hemispheric solidarity, to relinquish her claims (Wells 1964: 66).

The most intensive ownership disputes over Guano Islands in the Carribean concerned the Columbian *Cays Serrana*, *Serranilla*, *Roncador*, *Quitasueño* and *Bajo Nuevo*. These five coralline islands and their surrounding coral banks are located on the submarine ridge between Nicaragua and Jamaica in the Western Caribbean and form part of the Columbian archipelago of San Andrés and Providencia. The dispute began in 1853 when Baltimore-based US adventurer and businessman S. R. Kimball hired freed slaves from San Andrés, loaded a ship full of guano in

Roncador and brought it to the USA. Despite protests by the Columbian government, a second ship was loaded, prompting the Governor of Cartagena, Ragael Núnez, to issue a decree in 1854 that forbade the exploitation of guano on any of the islands and keys of the San Andrés archipelago.

In 1868, after the end of the American Civil War, James W. Jennett declared that he had discovered Serrana Bank and the surrounding islands and had claimed them for the USA under the Guano Island Act. This is inconsistent with the facts since the islands had been marked on maps of the Caribbean since the sixteenth century; also several stories of castaways were known involving the keys. Nevertheless, on 11 September 1868 the US State Department accorded Jennett the right to extract guano from Serrana and the surrounding keys, and referred to the islands as unincorporated US territory. Protests by Honduras which is claiming Bajo Nuevo and Colombia which considers the entire group of islands to be part of its territory went unheeded. In 1873, Jennett's successor, a Philadelphia-based company, extracted guano on Serrana, the largest island, but the last documented extraction took place on Roncador. In 1891, the Colombian Compañia de Fosfato y Guano left behind 12 Jamaican workers on the island after closing down operations.

A new era of interest in the islands began in 1919 with a decree by US President W. Wilson who had navigational lighthouses installed on Roncador, Serrana and Quitasueño. Considering this an intervention in its sovereign territory, the Colombian government once again protested. However, with the increasing strategic significance of the islands in the context of the forthcoming Panama Canal, the USA was even less willing to renounce their claim.

A first step in a long series of diplomatic negotiations was taken in 1928 when an agreement between Colombia and the USA was reached, agreeing to preserve the status quo on Roncador, Serrana and Quitasueño. This meant that the interest of the USA to maintain navigational lighthouses on the islands (which are in close proximity to Caribbean shipping routes) and Colombia's interest in using the island's fishing grounds were not considered conflicting and could therefore be accepted by both sides.

The dispute surrounding the keys came to a temporary end in 1981 with the ratification of the 1972 treaty between Colombia and the USA on the return of the islands. This treaty accords Colombia sole sovereignty over the entire San Andrés archipelago, under the condition that the existing navigation aids continue to be maintained. The USA was also granted fishing rights. Contention remains, however, involving not only Colombia and Honduras but also Nicaragua. Increasingly after 1979, in the years after the Sandinista Revolution, the Central American country asserted sovereignty over San Andrés, or at least the Cayos of Roncador, Quitasueño, Serrana, Serranilla and Bajo Nuevo, arguing that these islands were part of the Nicaraguan Rise on Nicaragua's continental shelf (Drekonja-Komat 1983; Ratter 2001; Sandner 2003).

Honduran claims to Serranilla and Bajo Nuevo culminated in a treaty between Honduras and Colombia on their maritime boundaries and the separation of Serranilla Bank into two-thirds of Colombian territory encompassing the Cayos and a smaller Honduran part. Although it was signed in 1986, this treaty was never ratified because of massive protest of the Honduran opposition, based on the view that Serranilla, as part of sovereign Honduran territory, could not be 'surrendered' and that a division of the Bank into two sovereign territories was unacceptable.

Overall, the USA was able to register 59 different islands within the first 10 years of the Guano Island Act. Some were in the Caribbean, but most were small unclaimed Pacific islands with guano deposits. Out of all the islands claimed under the act, only ten remain under US jurisdiction today. Most of the Pacific islands were given to the Pacific countries of Kiribati and Tuvalu (see Table 4.2, Fig. 4.2). Two islands have since been incorporated into Hawaii and American Samoa, while seven islands spread throughout the Central Pacific remain under the administration of the

Table 4.2 List of Pacific US-Guano Islands in Oceania and the Pacific

Island	AKA	Current status	Resolution
Atafu	Duke of York Group	Tokelau	Treaty of Tokehega
Baker Island	New Nantucket	US Minor Islands	Unincorporated
Birnie Island		Kiribati	Treaty of Tarawa
Butaritari	Makin Atoll, Touching Island	Kiribati	Treaty of Tarawa
Caroline Island	Millennium Island	Kiribati	Treaty of Tarawa
Carondelet Reef		Kiribati	Treaty of Tarawa
Clipperton Island	Passion Island	France	Victor Emmanuel III of Italy arbitrated
Ducie Island		British Territory	Administered by Pitcairn Islands. US claims dormant
Enderbury Island	Guano Island	Kiribati	Treaty of Tarawa
Fakaofo	Bowditch Island	Tokelau	Treaty of Tokehega
Flint Island		Kiribati	Treaty of Tarawa
French Frigate Shoals	Ka-nemiloha'i	Hawaii	Claim dormant, obtained by USA in annexation of Hawaii
Funafuti		Tuvalu	Tuvalu-US Treaty of 1983
Howland Island	Worth Island	US Minor Islands	Unincorporated
Jarvis Island	Bunker Island	US Minor Islands	Unincorporated
Johnston Atoll		US Minor Islands	Unincorporated
Kanton Island	Canton Island	Kiribati	Treaty of Tarawa
Kingman Reef	Danger Fock	US Minor Islands	Unincorporated
Kiritimati	Christmas Island	Kiribati	Treaty of Tarawa
Makin (islands)	Little Makin	Kiribati	Treaty of Tarawa
Malden Island	Independence Island	Kiribati	Treaty of Tarawa
Manihiki	Island of Pearls	Cook Islands	Cook Islands-United States Maritime Boundary Treaty
Manra Island	Sydney Island	Kiribati	Treaty of Tarawa
McKean Island	Wigram Island	Kiribati	Treaty of Tarawa
Midway Atoll	Middlebrook Islands	US Minor Islands	Unincorporated
Minami Torishima	Marcus Island	Japan	Treaty of San Francisco gave to US; returned to Japan in 1968
Nikumaroro	Gardner Island	Kiribati	Treaty of Tarawa
Niulakita	Sophia Island	Tuvalu	Tuvalu-US Treaty of 1983
Nukufetau		Tuvalu	Tuvalu-US Treaty of 1983
Nukulaelae	Bowditch Island	Tuvalu	Tuvalu-US Treaty of 1983
Nukunonu		Tokelau	Treaty of Tokehega
Orona	Hull Island	Kiribati	Treaty of Tarawa
Palmyra Atoll		US Minor Islands	Incorporated (3)
Penrhyn Island	Tongareva	Cook Islands	Cook Islands-United States Maritime Boundary Treaty
Pukapuka	San Bernardo Island	Cook Islands	Cook Islands-United States Maritime Boundary Treaty
Rakahanga	Grand Duke Alexander Island	Cook Islands	Cook Islands-United States Maritime Boundary Treaty
Rawaki Island	Phoenix Island	Kiribati	Treaty of Tarawa
Starbuck Island	Volunteer Island	Kiribati	Treaty of Tarawa
Swains Island		American Samoa	Treaty of Tokehega
Tabuaeran	Fanning Island	Kiribati	Treaty of Tarawa
Teraina	Washington Island	Kiribati	Treaty of Tarawa
Vostok Island	Staver Island	Kiribati	Treaty of Tarawa
Winslow Reef		Kiribati	Treaty of Tarawa

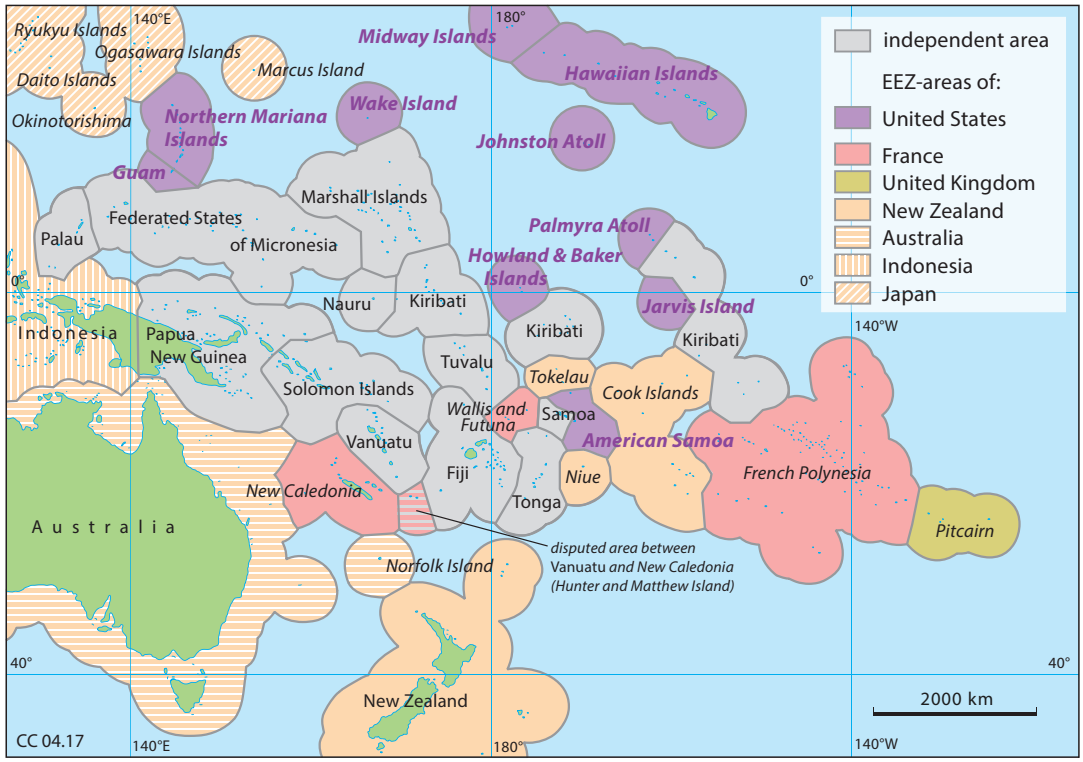


Fig. 4.2 US and other possessions in the Pacific and their exclusive economic zone (EEZ)

USA. The islands themselves are protected areas managed by the US Fish and Wildlife Service, but their federal administration is overseen by the Office of Insular Affairs, a unit of the United States Department of the Interior.

With the Guano Island Act, the USA was allowed to take possession of lands it had no intention of incorporating into the federal union. A new category of insular areas was created, including not just islands annexed under the Guano Islands Act but all US possessions outside the union, such as Puerto Rico, Guam, American Samoa and the Northern Mariana Islands. These islands are US possessions, not US territory – a small but important and above all discriminatory difference for the island's residents. Unresolved claims are dormant or have not been contested by the USA in many years. But like volcanoes, these claims are never dead – they merely sleep and can erupt at any time.

While the guano boom only lasted half a century before it was supplanted by newer artificial fertilisers – still leading to the destruction of habitats of millions of seabirds – the amount of land and water controlled by the Americans as a result of the Guano Islands Act was massive. Many of the islands came into play during the Second World War when the USA used its Pacific territories as a series of military bases. A more lasting legacy of the Guano Island Act is that it gave the USA control of millions of square kilometres of exploitable seafloor under the new UN Law of the Sea. Because of these islands, the USA possesses 11.676.586 km^2 (US Commission on Ocean Policy 2004: 5) of ocean floor, the largest EEZ on the planet. It is therefore true to say that bird dung was decisive in substantially altering the political map of the world.

4.2 Strategic Island Military Bases

The USA quickly came to strategically use its Guano Islands to expand its geopolitical sphere of influence. Very soon guano only played a secondary role; what was more important was the strategic location of these islands. Even before the US Civil War, the USA had begun to extend its influence up and beyond its continental borders, with its interests shifting from resource extraction in the Caribbean and Pacific to strategic or security-related matters. Often, this was linked to the construction of military bases and radar stations on islands that were situated outside US territorial waters but could be annexed by the USA. Many of these insular military installations have long since been abandoned; some, however, such as Guam in the Pacific Ocean and Diego Garcia in the Indian Ocean are still of significance today (Royle 2001).

Strategic bases are particularly important in semi-enclosed seas where access and defence are decisive. The Caribbean is separated from the open Atlantic by an arc of islands, and defence can be affected by limited possessions at strategic points. The major current is the Gulf Stream which enters the Caribbean in the southeast and leaves it through the Florida Strait in the north to head for Europe. The major wind directions are following the same trajectory – southeast to northwest. Several passages in the eastern and northwestern part represent major gateways. In the days of sailing, currents and winds were the main determinants of travel routes – not just for pelagic fish but also for seafarers.

Nowadays, as physical support for ships has become less important, the importance of the sea passages has also declined. Nevertheless, they still represent important gateways to the Caribbean, many of which can be monitored from the seemingly insignificant Guano Islands. Over the centuries, these small islands therefore held on to their significance for various geopolitical and strategic reasons. One example already mentioned is the Swan Islands in the Western Caribbean, positioned at the entrance to the Yucatan passage between Cuba and the Central American mainland. A radar and weather station built there in the early twentieth century lent them regional political significance as they were ideally suited for the installation of an anti-Communist radio station. Rumour has it that the CIA-sponsored military invasion of Cuba in April 1961 (the Bay of Pigs invasion) was directed from a command centre on Grand Swan Island. It was not until 1966 that the USA was forced to enter into negotiations, when Honduras, with the support of other states, threatened to bring the unjust occupation of the islands before the UN. On 29 June 1972, after 3 years of negotiation, a treaty was signed that returned the Swan Islands to Honduras and agreed on a jointly operated weather station and radio control post on the islands for monitoring Caribbean air traffic. Still, the islands continue to hold strategic significance, and so they have attracted repeated speculation. In the 1980s, when the USA actively supported the Nicaraguan Contras, the Swan Islands were thought to be a covert US military base. And even though Honduras clearly holds sovereign rights over the islands, what really happens there is not discussed in the USA or in Honduras and remains obscure (Sandner 2003).

The USA has long considered the Caribbean their backyard, resisting any interference with the American continent even before the 1823 Monroe Doctrine. Many of these islands came into play during the Second World War when the USA used its island territories as a series of military installations. In the Caribbean, numerous such installations existed on the Bahamas, the Turks and Caicos Islands, Cuba, Haiti, the Dominican Republic, Puerto Rico, Antigua, St Lucia, Aruba and Curacao. Their functions were varied and ranged from military radar surveillance to supply stations, military test sites and even test sites for the US space programme. Out of this diversity of military bases – which are not necessarily huge in size – only several installations on Antigua and Barbuda, the Bahamas, Curaçao and the bases of Aruba, Guantánamo Bay on Cuba and Honduras can be classified as active today (US Department of Defense 2015: 68–85).

US-American military bases on Caribbean islands took on renewed significance more recently in the context of fighting the Latin American drug trade. Under the so-called Plan

Colombia, Queen Beatrix International Airport on Aruba and Hato International Airport on nearby Curaçao became a forward operating location based on a 10-year contract agreed in 2000 between the Dutch and US governments, designed to facilitate surveillance and intervention against drug smugglers in the Caribbean. This small military base initally had two medium-sized and three small airplanes, a permanent crew of 15 and a temporary staff of 20–25 to carry out missions and maintenance work. Since 2006, the number of military personnel has continued to grow; the contract between the two governments was extended in 2009.

Roosevelt Roads Naval Station on Puerto Rico's Vieques Island opened in 1938 for the purpose of military exercises and supply. The navy gradually took over Vieques, expropriating land owners or buying up land until it owned 75% of the island, at which point further expropriation proved politically untenable. The island was mainly used as a firing range and testing ground for munitions and a storage site for bombs. As a consequence, the soil is highly contaminated with cadmium, lead, mercury, depleted uranium and other toxic compounds, causing a comparatively high incidence of medical conditions in the local population. After numerous protests the navy withdrew from Vieques on 1 May 2003 although the land remained in federal hands; the base was finally closed on 31 March 2004. The regional headquarters for the army, navy and special forces have moved out of Puerto Rico to Texas and Florida; headquarters of SouthCom (the joint command) is located in Miami. Of the former Roosevelt Roads Naval Base, only some portions were kept under the US Armed Forces Reserve Centre (AFRC).

The Bahamas also continues to house important US military bases. *Mayaguana Army Airfield* in Mayaguana was once the home of a US military base and former tracking station built in the 1950s along with a 10,000 foot runway. The tracking station was used to help keep astronauts on course in the early stages of the US space programme. It has been closed for many years; all that remains are abandoned buildings next to rusty DC-3's. Much of the runway is overgrown, but 5300 feet is still usable which now function as the island's only airport. Also in the Bahamas, the *Eleuthera Auxiliary Air Force Base* (AAFB) began operations in 1957 as part of the Atlantic Ballistic Missile Test Range. The Eleuthera AAFB was part of the Air Force Missile Test Center's Atlantic Missile Range, which was used for long-range monitoring of rocket and guided missile launches, controlled targets, drones, satellites and lunar probes for the air force, army and navy. Andros Island continues to house the US Navy's *Atlantic Undersea Test and Evaluation Center* (*AUTEC*). AUTEC is a laboratory that performs integrated three-dimensional hydrospace/aerospace trajectory measurements covering the entire spectrum of undersea simulated warfare. Based on a joint US/UK agreement signed in 1963 with the concurrence of the Bahamian Government, the USA was able to develop the area off the coast and certain territory on the east coast of Andros Island, with ready access to the deep-sea area 'the Tongue of the Ocean' (TOTO) and to install equipment there to build three offshore test ranges. Under this agreement, the UK's Royal Navy has equal access to the test facility. Construction of the navy's main base and the downrange tracking sites on Andros Island began in March 1964, and the initial cadre of officers and men arrived by US Navy LST in August 1965. The AUTEC continues to be one of the main employers on the island.

Guantánamo Bay Naval Base, a US military base on Cuba, has been of questionable significance historically and is even more questionable today. It is located in the south of Guantánamo Bay, about 15 km from the town of Guantánamo, in an area leased to the USA by the Cuban state. It serves as a logistics base for counterdrug operations; since 2002, it has also served as an offshore detention centre. Harsh criticism has been levelled at the USA for violating human rights and the rights of detainees ever since January 2002 when the USA brought hundreds of prisoners from the Afghanistan war to Guantánamo (see de Zayas 2004: 277–341).

Historically this naval base is an interesting case since it has contravened international law ever since its creation. Before 1897, the USA

attempted to buy the entire island of Cuba from the Spanish colonial power. In 1898, during the Spanish-American War, US naval forces occupied Guantánamo Bay as it represented an ideal place for major port infrastructure. In the Treaty of Paris of 10 December 1898, Cuba gained its independence from Spain, but became politically and economically dependent on the USA. Washington exerted control by supporting pro-American presidents and through several military interventions; from January 1899 to May 1902, Cuba was placed under US military administration. On 2 March 1901, the Platt Amendment was passed by US Congress, setting out conditions for the withdrawal of US troops from Cuba and defining the terms of Cuban-US relations in a way that severely limited Cuba's sovereignty. An amendment to the Cuban constitution allowed the USA to intervene unilaterally in Cuban affairs and required Cuba to lease land to the USA for several naval bases on the island. This agreement supported US geopolitics in the Caribbean, confirmed in a note by Roosevelt to the American Congress which terms Guantánamo as 'la base estratégica absolutamente necessaria para dominar el Mar Caribe y el consiguiente dominio de la ruta del canal' (Toste Ballart 1983: 59). Although this was supposedly about securing peace and security in Cuba, the main intention here was to secure the important Windward Passage by ensuring an immediate US presence. On 23 February 1903, the constitutional assembly of Cuba entered into a lease agreement with the USA, ceding land in Guantánamo Bay for 99 years but reserving the right of free passage for Cuban merchant vessels (Núñez Jiménez 1982: 135). The lease agreement also concerned a second port in Bahía Honda which was returned to Cuba in 1912.

Up to 1934, the USA paid US$ 2000 as an annual lease payment. In 1934, the Cuban President Ramón Grau San Martín was deposed and the lease agreement was annulled. After its renewal in the same year, only Section 7 remained which is concerned with the right of using the bay as a naval base. The lease agreement was also extended indefinitely retrospectively, and the annual lease payment raised to US$ 4085. In 1941, the US government proclaimed a 3 nm wide maritime defence zone adjacent to the leased area, as well as a 'Naval Airspace Reservation Zone' to defend US interests in Guantánamo, made possible by 'Executive Order 8749' and passing without Cuban appeal. The area of the military base therefore grew from 117 km^2 to around 145 km^2 (see Fig. 4.3).

Under international law, the border between Guantánamo and the rest of the island separates Cuba into two jurisdictions on the same state territory. Guantánamo, after all, is not owned by the USA, but only on lease from the Cuban state. Sovereignty and jurisdiction only remain in the hands of the USA as long as it occupies the naval base. The Cuban government considers the 1903 lease agreement and its 1934 indefinite extension invalid, arguing that indefinite lease periods are invalid under international law and that leases are restricted to a maximum duration of 99 years. Since the 1959 revolution and Fidel Castro seizing power, Cuba has no longer accepted the American presence on Cuban soil and continues to demand the return of the bay. The annual lease payments by the USA have not been accepted either; the cheque sent every July has only been cashed once since 1959. Socialist Cuba also contested the validity of the altered agreement on the grounds that it came about through military pressure. The USA, on the other hand, considers the one-off cashing of the rent cheque after the Cuban revolution as confirmation of the lease.

Guantánamo military base is of strategic importance for US interventionist policy. Numerous interventions in the matters of other Caribbean states, such as Haiti and the Dominican Republic, in Central America and on Cuba itself had their starting points here. During the revolutionary struggle in Cuba, the former ruler Batista received hands-on support against the 'insurgents' through American air strikes flown from Guantánamo. It is unsurprising that the subsequent Socialist government was keen to oust this base of 'imperialist aggression' from the island, and it is just as unsurprising that the USA was not willing to give it up. In 1960, Cuba thus closed the border which had so far been open, forbade any trade with the military base or employment

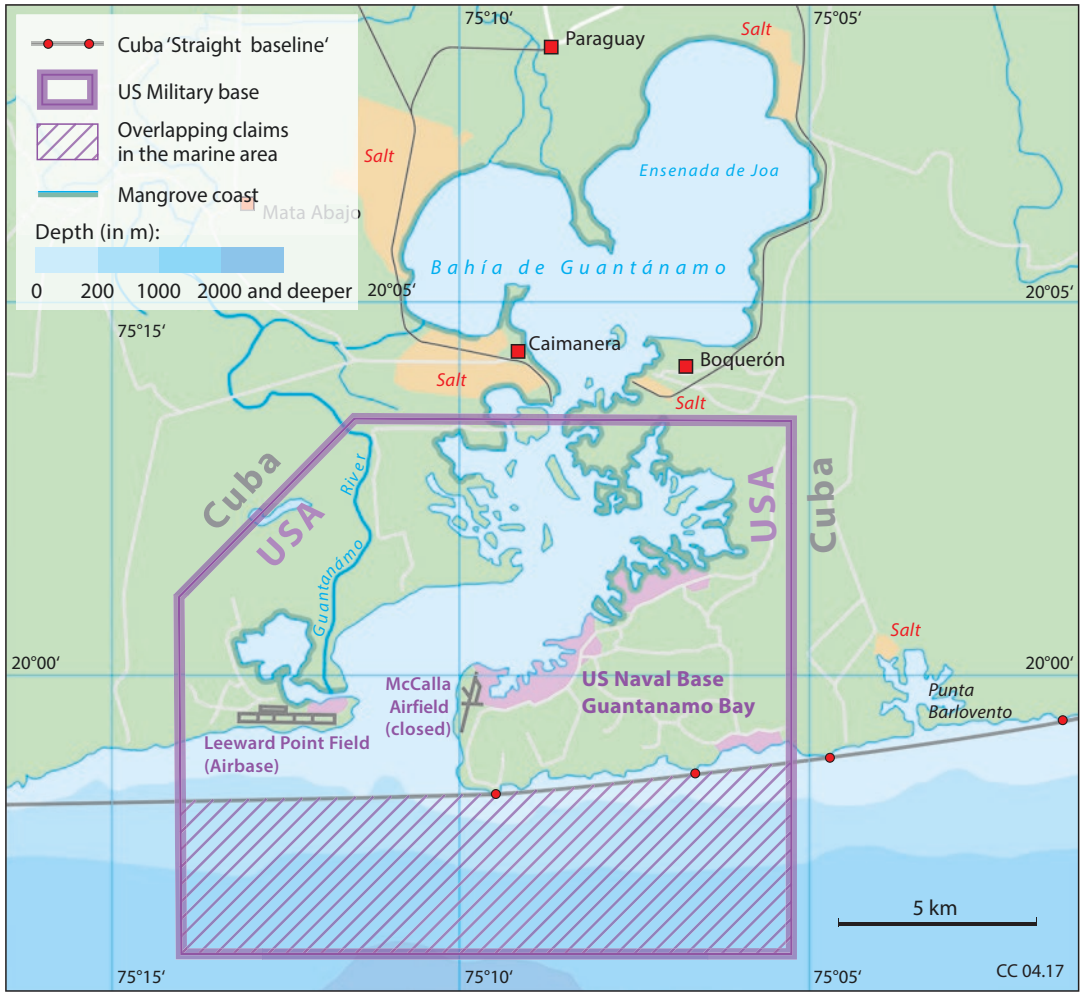


Fig. 4.3 US Naval Base Guantánamo Bay on Cuba

there, refused the USA's lease payments and declared null and void any treaties and agreements that had been entered into under duress or from a position of inequality and that limit Cuban sovereignty in any part of the state territory (Art.10b of the Cuban constitution) (Núñez Jiménez 1982: 126). From a Cuban perspective, the Guantánamo problem is to be resolved by diplomatic means rather than military conflict. Nevertheless, the occupation of this part of the island was considered unlawful and an act of violence against Cuba and the Cuban people. As Cuba's President Fidel Castro declared: 'La base naval es un puñal clavado en el corazón de la tierra cubana (…) Base que no le vamos a quitar por la fuerza, pero pedazo de tierra al cual no renunciaremos jamás' (Toste Ballart 1983: 95).

Since the installation of the military prison in 2002 and the ensuing publicity, the world is waiting for this story to come to an end. The repeated promise by US President Obama to close the military prison and to either rehabilitate the detainees, transfer them to friendly countries or subject them to legal criminal proceedings has not yet been fulfilled. Several Guantánamo prisoners have since been transferred to other states – in 2009 four Uigurs became stranded in British Bermuda, one in Urugay and the royal family of Saudi Arabia decided to take nine Yemenis into their custody (Ackerman 2016). In August 2016,

15 prisoners were transferred to the United Arab Emirates and most recently in January 2017 another 4, reducing the number of inmates to 55.

The historical development of disputed islands and cays shows that territorial imperialism is often carried out on the back of small islands. This not only applies to the USA but many other colonial powers. Natural resource exploitation or securing important sea passages have only been parts of the game – the overarching theme has been, and continues to be, geopolitical control of sea areas. The sea is a resource, a sphere of influence and a security belt. Apart from fish, a considerable number of other resources are extracted from the sea, including oil, gas, phosphates and metals. Small islands often represent the territorial anchoring points of claims that may have started with bird's egg collection or guano extraction but have shifted over the centuries. As a security zone, the sea is patrolled by various naval forces that are using small or remote islands as bases or surveillance stations against foreign interests. But the sea only became a global arena of conflict when the Law of the Sea enabled states to extend their territorial claims far beyond their terrestrial limits. The territorialisation of the sea in the late twentieth century dramatically altered the political map of the world – about 40% of the world's sea area is subject to national rights of use – with small islands, as outposts of these interests, once again playing a key role.

4.3 The Territorialisation of the Seas: United National Law of the Sea Convention (UNCLOS)

Looking at standard topographical and political maps, most of us would remember the land areas and possibly coastlines of national states. Unless the map explicitly depicts maritime borders, the seas of the world, which after all comprise around 71% of the earth's surface, mostly appear as uniform patches of blue. Except for some islands erratically dotted about, the political map of the seas is blank. It seems that the scale of the maps that show large oceans prohibits the exact positioning of islands – or is it simply too much effort to worry about every tiny bit of land, too much to capture and communicate their exact position never mind their form? Small islands are often missed off the maps of this world – or consciously overlooked.

The failure to map maritime borders may be due to difficulties with mapping, the unclear legal status of maritime delineations or simply the fact that the significance of maritime borders is underestimated. If all states agreed to a territorial sea the width of 12 nm,[2] around 3% of the world's oceans would be subject to the unlimited sovereignty of nation states. If the 200 nm zones and the outer continental shelf were taken into account – areas in other words where national sovereignty is limited – this percentage would jump to 40.6% (Studier 1982: 52). This amounts to 40.6% of the earth's surface which is not depicted in almost any of the standard maps.

The territorial appropriation of the seas is based on international law of the sea, one of the oldest subject matters of international law. International law of the sea not only refers to territorial waters but also to sea areas beyond national jurisdiction. The *modern* law of the sea goes back to the idea of 'free seas' (*mare liberum*) put forward by Hugo Grotius (1609), a Dutchman and representative of a seafaring nation. He essentially argued that the sea was international territory and that all nations should be free to use it for seafaring trade. In 1635, the Englishman John Selden developed the opposing doctrine of *mare clausum*, amounting to a division of the sea into national spheres of interest to the exclusion of third states. In 1703, Cornelis van Brynkershoek suggested that coastal states should have a right to the adjoining waters in line with their capacity of exercising effective control over it. He argued that effective control was determined by the range of the coastal state's weapons. The range of the most advanced cannon at the time was calculated to be 3 nm – the birth of the 3 nm zone (Anand 1983: 137–141, see also Buchholz 1986; Tanaka 2012; Vitzthum 1981; Brook 2013).

[2] 1 nautical mile, nm = 1852 m.

Technical advances in military and seafaring technology, as well as shifting economic interests in the face of growing globalisation meant that new rules were soon required. Using the customary international law principle of a nation's right to protect its natural resources, President Truman in 1945 extended US control to all the natural resources of its continental shelf. This fundamentally changed the conception of maritime areas surrounding national territories. Claiming maritime areas and their living and nonliving resources quickly became standard practice, as modern development problems, including the need for food and minerals, suddenly seemed less intractable given the vast riches offered by the sea. Expanding national claims were followed by a series of international negotiations in the 1950s, including the Convention on the Territorial Sea and the Contiguous Zone (1958), the Convention on the Continental Shelf (1958) and the Convention on the High Seas (1958); these in turn were followed by ever more new national claims.

In the 1970s, a new spirit arose that aimed to no longer divide the oceans or cover maritime areas with boundaries. The new idea of a 'common heritage of mankind' was to allow every nation – whether rich or poor, insular, coastal or landlocked – to participate in the richness of marine resources. A new convention was to be drawn up, comprising regulations not only for international shipping, but also for the common use of marine resources. Especially the discovery of manganese nodules on the ocean floor and the growing need for minerals and ore reinforced calls for more coordinated exploitation. Proposals for the new maritime convention's regulations were thus embedded in the idea of a New International Economic Order which was to lead to a more equitable distribution of global wealth and could be capable of resolving the problems of the first, second and third worlds. However, national selfishness soon dampened these burgeoning dreams. Negotiations on the third United Nations Convention on the Law of the Sea began in 1973, but new national claims of maritime areas based on the new possible extensions were made even before the conference came to an end. New regulations enabled the nationalisation of ever larger areas of open sea. With the convention opening for signature in Montego Bay, Jamaica, in 1982, most of the newly agreed regulations became a legal reality in most countries – long before the new United Nations Convention on the Law of the Sea (UNCLOS III) was ratified and came into effect on 1.1.1994.[3]

New Claims in National Maritime Jurisdiction

For a long time, the definition of national territory referred to the continental or insular masses only; territorial perspectives ended at the state's coastline. This changed with the first claim to the continental shelf, after which the annexation of maritime areas became standard practice (see Fig. 4.4 and Ratter and Horx (1990)). The 3 nm wide *territorial sea* had originally stood as a defensive 'protection belt'; new arrangements now enlarged this zone to 12 nm. Nations' full sovereignty now extended over their land-based territory, inland waters and the newly extended territorial sea, including also the airspace above these areas. From this point onwards, sovereignty was no longer a question of expressing and exercising power as a physical presence. Rather, it became a matter of declaring interests and staking a national claim, either in line with or disregarding international guidelines.

The extension of the territorial sea from 3 to 12 nm measured from the low-water mark soon proved insufficient. The former base for measuring the width of the territorial sea, the so-called cannon shot rule, was substituted by a

[3]Negotiations on the new law of the sea continued after the ratification of UNCLOS III because no agreement could be reached on the seabed and its resources. A seabed authority was established (based in Kingston, Jamaica) and an independent court, the International Tribunal for the Law of the Sea, based in Hamburg which took up work in 1996. The USA have so far failed to ratify the convention, even though it is making use of all the territorial claims made possible by the convention, such as designating a 200 nm EEZ for Puerto Rico, the US Virgin Islands, American Samoa, Guam, Johnston Atoll, Palmyra Atoll, Midway Island, Wake Island, Jarvis Island, Kingman Reef, Howland Island, Baker Island, Northern Marianas and Navassa Island.

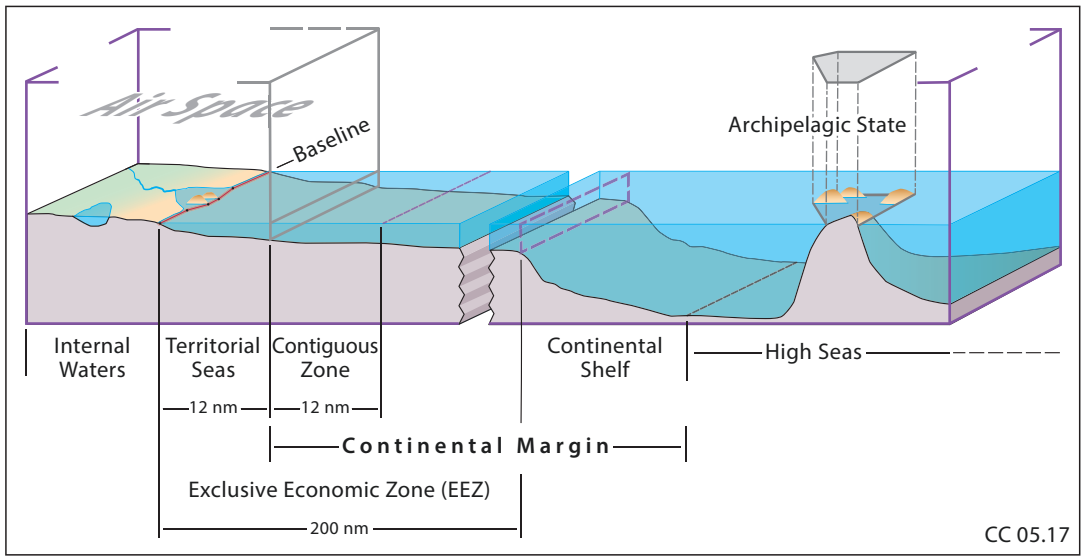


Fig. 4.4 National rights and possible claims following the UNCLOS III regulations (Ratter 1993)

straight baseline system that connects deeply indented coastlines and includes islands off the coast. This system extends the area of full national sovereignty in that all waters and waterways on the landward side of the baseline are classed as internal waters. In internal waters, coastal states have full sovereignty, including special rights to regulate maritime transport and shipping (even excluding the right of innocent passage), to prevent and control overflight and to regulate any resource use such as fishing, mining, dredging, laying submarine cables or marine research.

The territorial sea, extending out to 12 nm, is adjoned by the so-called contiguous zone which is also 12 nm in width and where limited national sovereignty applies. This is an area where coastal states can institute special regulations, for example, to control customs and punish any infringements, or immigration or sanitary rules.

The *continental shelf*, in other words the seabed beyond the territorial or insular masses, is also considered a possession of the coastal state, with economic sovereignty but no full national sovereignty. Geological and geophysical concepts have been used to define a nation's submarine areas. Accordingly, the continental shelf comprises the submerged prolongation of the land mass of the coastal state, consisting of the seabed and the subsoil of the shelf, the slope and the rise, but does not include the deep ocean floor with its oceanic ridges or the subsoil thereof. Complicated rules were found to define the width of the continental shelf. According to UNCLOS, it extends to the outer edge of the continental margin but at least 200 nm from the baselines of the territorial sea if the continental margin does not extend this far. It can be no more than 350 nm from the baseline or 100 nm from the 2500 m isobath. Coastal states have the right of exploration and exploitation of its natural resources, including minterals and nonliving resources of the soil and subsoil, as well as sedentary species. The nation has the exclusive right to authorise and regulate drilling on the continental shelf, and reserves the right to take reasonable measures for the prevention, reduction and control of pollution from pipelines. Other states can lay cables and pipelines if authorised by the coastal state. Other nations also retain the right to innocent passage except in specially declared safety zones. Furthermore, foreign nations retain the right of overflight, the right to fish all mobile species and the right to undertake marine scientific research in the water column.

The truly new invention of UNCLOS is the *exclusive economic zone* (EEZ). This became important as the fishing nations of the world were more interested in living rather than nonliving marine resources; also not all coastal countries have a continental shelf. Responding to pressure especially from African and South American fishing nations the EEZ became the cornerstone of UNCLOS III. Every coastal state was given the right to declare an area of 200 nm as an EEZ, measured from the same baseline as the territorial sea. As the name implies, the EEZ conveys the right of exclusive economic use, meaning that although sovereignty is restricted, states have the right to exploit, conserve and manage living and nonliving, mineral and nonmineral natural resources of the water column, seabed and subsoil. Furthermore, they have the rights and the authority to establish and use artificial islands and installations, to establish protection zones, to undertake marine scientific research and to protect and preserve the marine environment in line with international law. Foreign nations retain the freedom of navigation and overflight, and even the right to fish any possible surplus, although this requires the special consent of the coastal state; also, access of neighbouring landlocked states or traditional fishing fleets must be respected (Hoyt 2011: 15).

For island states, the most important innovation of UNCLOS III was the introduction of the special category of *archipelagic state*. An archipelagic state is defined as '… a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such' (Art. 46 UNCLOS III). Archipelagic states clearly illustrate the appropriation of extensive sea areas by nation states as they were given the right to establish an archipelagic baseline which joins the outermost points of the outermost islands of their insular possessions. The rules state that one segment of such a baseline must not exceed 100 nm, although up to 3% of the segments can have a maximum length of 125 nm. Providing that the land/water ratio of the area circumscribed by the baseline is between 1:1 and 1:9, the nation's full sovereignty extends to the islands, the archipelagic waters, the territorial sea following on from the baseline and the airspace above. All other claims to the contiguous zone, the continental shelf and the exclusive economic zone can also be made.

So far, 22 states have officially declared archipelagic status, giving them opportunity to significantly enlarge their sovereign territory. They are Antigua and Barbuda, Bahamas, Cape Verde, Comoros, Dominican Republic, Fiji, Grenada, Indonesia, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Papua New Guinea, the Philippines, St. Vincent and the Grenadines, Sao Tome and Principe, Seychelles, Solomon Islands, Trinidad and Tobago, Tuvalu and Vanuatu. Some of these territorial claims are based on UNCLOS III; others are solely based on national interpretations or even disputed due to conflicts with riparian states. The affected states are particularly disputing those regulations that prescribe the conditions to be met for valid borders to be drawn by an archipelagic state (see Table 4.3).

The largest territorial gains as a result of the archipelagic rule resulted in the Pacific Ocean. Islands there tend to be far apart and were often grouped into states during decolonisation. This, plus the open ocean which leaves plenty of room between neighbouring states, can turn small states into huge maritime territories. The three island groups Gilbert, Line and Phoenix Islands together with the Atolls and reef islands of Kiribati, for example, are spread across 4567 km from the easternmost Caroline Atoll to the westernmost Banaba Island as the crow flies, and 2051 km from the southernmost Flint Island to the northernmost island of Teraina (Washington island). A connection of the outermost points would result in a total area of around 5.2 million km^2, making Kiribati one of the largest territorial states in the Pacific (for comparison: Australia has 7.7 million km^2 of territory). Out of this vast area, however, only 811 km^2 are dry land, actually making Kiribati quite a small state (Thomas 2002: 164). However, Kiribati has not drawn up a baseline

Table 4.3 Archipelagic states under UNCLOS III and contested national jurisdictions

Nation	UNCLOS III ratification, accession date	No. Of baseline systems for each island group	UN-accepted baseline systems	Water area enclosed (approx. sq. km)	Infringements
Antigua and Barbuda	02.02.1989	1	Yes	3182	Art. 52; art 53
Bahamas	29.07.1983	1	Yes	218,292	–
Cape Verde	10.08.1987	1	Yes	35,963	–
Comoros	21.06.1994	1	Yes	15,612	Sovereignty dispute[a]
Dominican Republic	10.07.2009	1	No	49,709	Contested[b] art. 47; art. 52; art 53
Fiji	10.12.1982	1	Yes	130,470	–
Grenada	25.04.1991	1	Yes	555	–
Indonesia	03.02.1986	1	Yes	3,081,756	Art. 47; art. 52; art 53
Jamaica	21.03.1983	1	Yes	22,200	–
Kiribati	24.02.2003	No baseline	–	–	–
Maldives	07.09.2000	1	No	53,000	Art. 47; art. 52; art 53
Marshall Islands	09.08.1991	No baseline	–	–	–
Mauritius	04.11.1994	2	1 yes, 1 no	7285	Sovereignty dispute[c]; art. 47; art. 52; art 53
Papua New Guinea	14.01.1997	1	No	565,551	Art. 47
Philippines	08.05.1984	1	Yes	589,739	Contested[d]; Art. 52; art 53
Sao Tome and Principe	03.11.1987	1	Yes	3886	–
Seychelles	16.09.1991	4	3 yes, 1 no	7309	Art. 47; art. 52; art 53
Solomon Islands	23.06.1997	5	4 yes, 1 no	128,104	Art. 47
St. Vincent and the Grenadines	01.10.1993	1	Yes	1482	Art. 52; art 53
Trinidad and Tobago	25.04.1986	1	Yes	7134	Art. 47; art. 52; art 53
Tuvalu	09.12.2002	1	Yes	3426	
Vanuatu	10.08.1999	1	Yes	71,114	Art. 52; art 53

Source: Baumert and Melchior 2015: 63; Office of Legal Affairs of the United Nations, Division for Ocean Affairs and the Law of the Sea 2011: 1–19

Comments:

Article 47: Archipelagic baseline was drawn in an impermissible way

Article 52 and 53: No designated or adequate archipelagic sea lanes and air routes

[a]contested due to the inclusion of French Mayotte which is considered as a Département by France and since 1 January 2014 has been accepted as an 'Outermost Region' ('OMR') by the European Union

[b]contested by the USA and the UK due to its inconsistency with the definition of an archipelagic state

[c]contested due to the inclusion of British Indian Ocean Territory and the island of Tromelin which is part of the French Southern and Antarctic Lands

[d]contested due to the inclusion of large parts of the Spratly Islands (also claimed by China and Vietnam) and Scarborough Reef (Huangyan Dao) administered by China

according to UNCLOS III rules,[4] as it is not possible for the country to achieve the prescribed land/water proportion and/or the maximum length of a baseline segment prescribed (Baumert and Melchior 2015: 76). The three groups of islands are spread over an expanse of over 3 million km^2 of ocean, and the existing formula as spelled out in Part IV of the convention would divide Kiribati's three island groups into three distinct exclusive zone waters and international waters. The Government of Kiribati is keen for the formula to be revisited in the future to take into consideration these concerns (UN Division for Ocean Affairs and the Law of the Sea 2013).

Apart from archipelagic states and those with a long coastline, it is mostly island states and states with separate islands that benefit from the designation of all five UNCLOS areas. According to Breuer, a ficticious island of only a few metres in diameter could gain 430,000 km^2 if it laid claim to a 200 nm wide EEZ (Breuer 1982: 13f). This however only applies if the island meets Article 121 of the new convention on the 'regime of islands'. According to this article an island only has the right to claim its own UNCLOS areas if it is 'a naturally formed area of land, surrounded by water, which is above water at high tide' and which can 'sustain human habitation or economic life of their own' (United Nations Conference on the Law of the Sea 1982: 66). The last part in particular is intepreted very generously. As a result, islands that have long been unnoticed or forgotten can suddenly take on geopolitical significance. Apart from further decimating the 'common heritage of mankind', such contested islands can bring about conflicts and even military conflicts (see Sect. 4).

[4]*Art. 47 Archipelagic baselines* 'An archipelagic State may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago provided that within such baselines are included the main islands and an area in which the ratio of the area of the water to the area of the land, including atolls, is between 1 to 1 and 9 to 1' (United Nations Conference on the Law of the Sea 1982: 40).

Maritime Jusrisdiction: The Caribbean Example

With the establishment of the new regulations, and especially the extraordinary growth of EEZ claims, the high seas have been reduced in size by one-third. New forms of state boundaries have been created as a result, comprising areas of full and partial national sovereignty and ranging from sovereignty over living marine resources to sovereignty over nonliving resources. Transferring the concept of divisible territory to the fluid medium of water has effectively transformed the sea into a seventh continent criss-crossed by geopolitical power lines. The sea has become territory, or rather a blue annex to national territories.

The expansion of sovereign areas in the sea as part of UNCLOS III creates new conflict potential, coming to the fore when the claims of neighbouring states meet or overlap. In such situations, the convention calls upon states to come to an agreement based on the principle of balance and equity of interests, using the principle of equidistance if necessary. In cases where a bilateral agreement cannot be reached, a specifically instituted 'International Tribunal for the Law of the Sea' can be called upon for resolution (Prescott 1975; Ratter 1993).

The Caribbean region is particularly well placed for highlighting the effects of new Law of the Sea Convention and the resulting advantages and disadvantages of physical proximity. The Caribbean Sea is a semi-enclosed sea, delineated by the island arc of the Greater and the Lesser Antilles in the North and East, by Central America in the West and South America in the South. The biological richness of the Caribbean is incomparable to the northern Atlantic or the South American continent where cold currents provide the necessary food supply for huge swarms of fish. Offshore oil resources are concentrated in limited areas in the Gulf of Venezuela, the Gulf of Paria, around Trinidad and north of Cuba; in some areas such as the Pedro Bank, the Gulf of Honduras or the San Andrés Archipel exploration is yet to take place. Manganese nodules have not yet been found and cannot really be

expected anywhere except possibly in the Windward Passage between Cuba and Haiti. As a result, the Caribbean is probably overvalued in terms of its marine resources. The dream of a 'protein solution' arising from the sea had to be buried faster than expected, and the hope of finding major oil reserves is dying slowly or being sidelined by the realities of low oil prices on the world market which makes expensive drilling with uncertain results unprofitable.

The scarcity of marine resources, as well as the short distances between islands, makes it necessary for the respective nations to delimit their sovereignty. Conceivably, Caribbean nations would benefit from a coordinated approach to exploitation and management, but although the close physical proximity could suggest easy communication and ready cooperation, there is in fact insufficient space for any one nation to claim the whole range of sea areas that can be claimed under UNCLOS III.

For most of the Caribbean countries, whether coastal or insular, UNCLOS III has nevertheless become a legal reality. Nationally and internationally, regulations were implemented long before the convention came into effect, in some cases even before the convention's national ratification. Bilateral agreements were negotiated in the 1970s

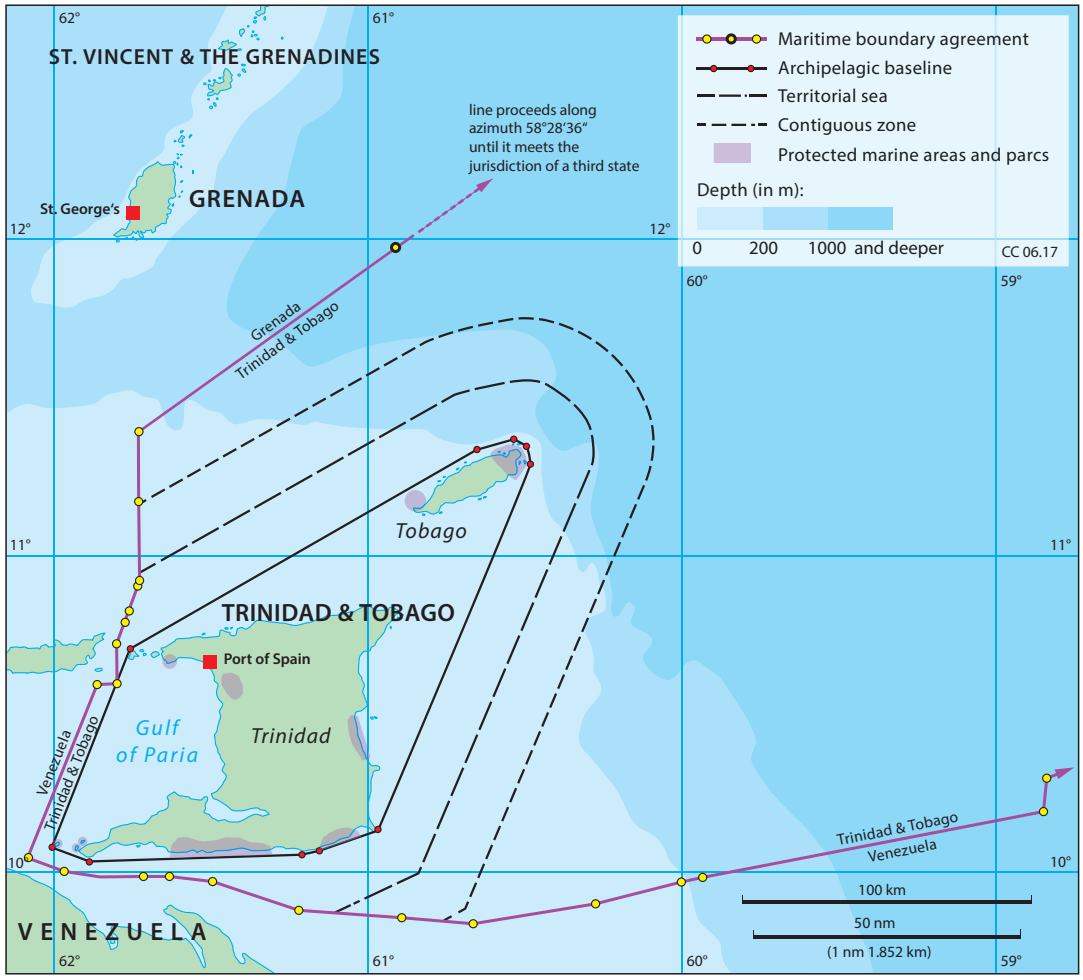


Fig. 4.5 Maritime delimitation of Trinidad and Tobago

to delimit the main traffic routes in the Caribbean; some bilateral agreements were revised to reflect new developments in the international debate. In most Caribbean countries, the full range of possible claims to sea areas became a legal reality at the national level. Interestingly, the largest countries in the wider Caribbean including Colombia, Venezuela and the USA have not yet ratified the convention, failing to accept it as international law. However, even they have established a 12 nm territorial sea, a continental shelf and a 200 nm wide exclusive economic zone. Except for Part XI, UNCLOS III has thus become customary international law (UN Division for Ocean Affairs and the Law of the Sea 2013).

The very first maritime boundary agreement in the Caribbean was signed by *Trinidad and Tobago*. The delimitation of the shelf area with neighbouring Venezuela in 1942 was the initial step in a series of consecutive agreements. On 25 April 1986, Trinidad and Tobago joined the UN Convention and declared archipelagic status; based on this, a baseline was determined for defining a 12 nm territorial sea, a 24 nm contiguous zone, a 200 nm EEZ and a continental margin based on the UN Convention (see Fig. 4.5). This information has been deposited with the Secretary-General in compliance with articles 16(2), 47(9), 75(2), 76(9) and/or 84(2) of the 1982 Convention. In 1990, a treaty was signed with Venezuela to replace the existing treaties between the two countries; this was ratified in 1991. The border of the continental shelf is causing a dispute with neighbouring Guyana which is holding that a boundary agreement still needs to be negotiated (Curiel 2010: 40–48). Negotiations with St. Vincent have been adjourned indefinitly. The boundary dispute with Barbados was settled on 11 April 2006 in an Award of the Arbitral Tribunal Constituted 'pursuant to article 287 and in accordance with Annex VII of the United Nations Convention on the Law of the Sea in the Matter of Arbitration between Barbados and the Republic of Trinidad and Tobago'. Negotiations with Grenada have resulted in a bilateral agreement on 21 April 2010 delimitating marine and submarine areas including the cooperation with each other in areas of common interest (Art. VI Cooperation), such as (a) exploration for and exploitation of the nonliving natural resources; (b) management of the use of living natural resources; (c) protection and preservation of the marine environment; (d) surveillance, monitoring and enforcement of laws in accordance with the laws of each Contracting Party and in conformity with UNCLOS; and (e) the conduct of marine scientific research.

In its national legislation, *Cuba* declared a 12 nm territorial sea, a 12 nm contiguous zone and a 200 nm EEZ as early as 1977 (Decree Law No. 1 and 2, 1977, G.O. No. 6/1977). Cuba joined the UN Convention on 15 August 1984. Cuba proactively labelled its territory archipelagic in the 1970s (see Núñez Jiménez 1982); national legislation thus provides for a straight baseline that incorporates the thousands of islands and cays around the main island. However, as the criterion of a minimum land-water ratio of 1:1 is not met, some of Cuba's straight baseline is contested as an infringement of international maritime delimitation laws (see Fig. 4.6). Maritime boundary negotiations enjoyed some positive developments in the 1970s when Cuba was able to agree maritime boundaries with Mexico (1976), Haiti (1977) and even with the USA (1977), then a major political opponent – delimiting three important international waterways, namely, the Yucatán Channel, the Windward Passage and the Florida Passage. Minor violations of the border to the Bahamas, as well as outstanding definitions and changes in national declarations, hampered further negotiations with other states for some years. In 1994, an agreement between the Government of the Jamaica and the Government of the Republic of Cuba on the delimitation of the maritime boundary between the two states was signed (Charney and Alexander 1997). On 3 October 2011, an agreement between the Commonwealth of the Bahamas and the Republic of Cuba for the delimiting line between their maritime zones was signed, including arrangements on cooperation in the preservation and protection of the marine environment, marine research, safety of navigation, etc. (Art. IV). A maritime delimitation treaty between the

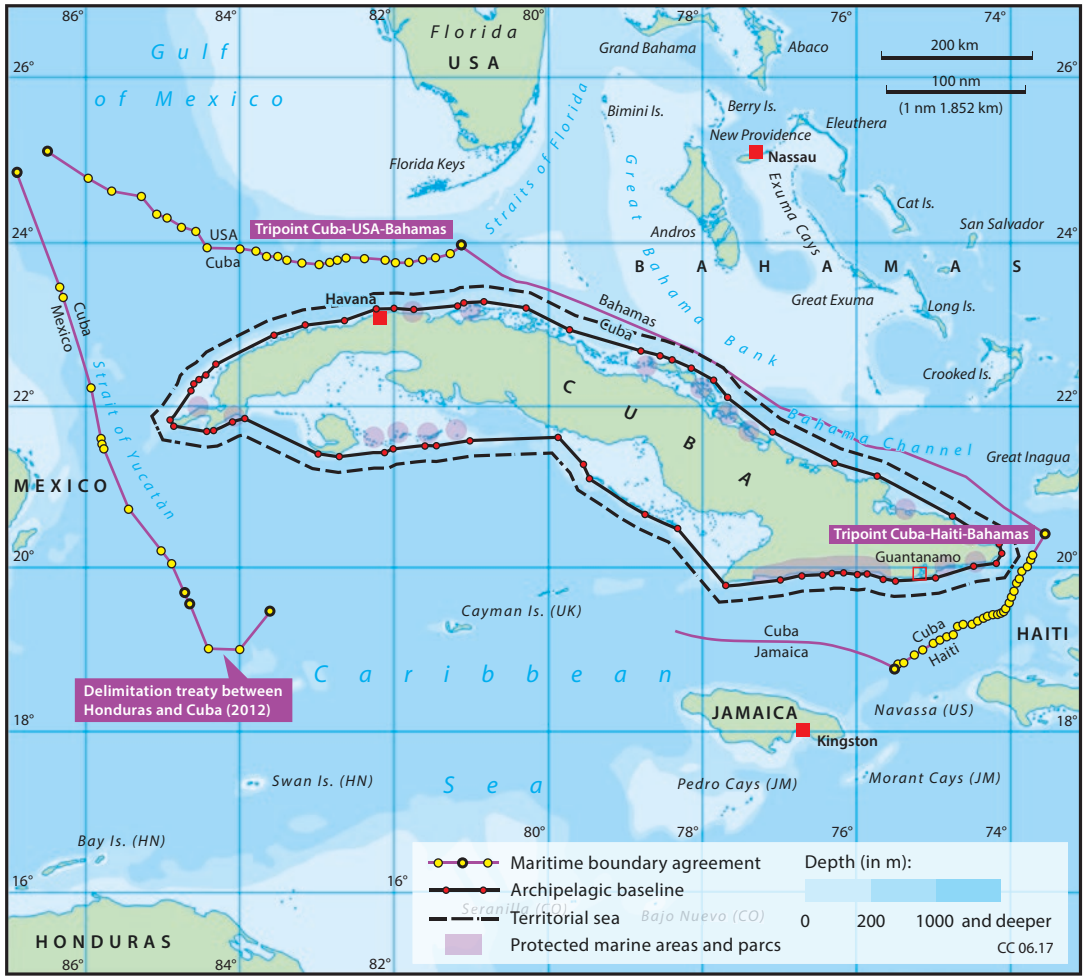


Fig. 4.6 Maritime delimitation of Cuba

Republic of Honduras and the Republic of Cuba could be agreed upon on 21 August 2012, including Article V on mutual cooperation in the development and implementation of common interests in navigation safety, research, preservation and protection of the marine environment and responses to illicit acts against the safety of maritime navigation and the illegal trafficking of drugs and migrants by sea. This has left only one open boundary issue with the UK and the Cayman Islands, respectively. The status of Guantánamo Bay is also conflict-ridden, as it is situated right on the border between the Cuban straight baseline and US-American leasing rights. Maritime claims around the naval base are thus bisected.

Colombia appears to be a winner under the new Law of the Sea in the Caribbean. Colombia never joined the convention, but its national law declares a 12 nm territorial sea, a 200 nm EEZ and a continental shelf (Law No. 10/1978). A 1984 decree also declares a straight baseline (Decree No. 1436/1984) which serves as a starting point for delimiting these areas. In addition, based on its claims of San Andrés y Providencia, the banks and cays of Serrana Roncador and Quitasueño, Colombia is claiming the largest part of the Western Caribbean Sea as sovereign territory, gaining a total EEZ area of 603,340 km^2 (see Fig. 4.7). The claims of these banks and islands are based on a 1928 treaty with Nicaragua

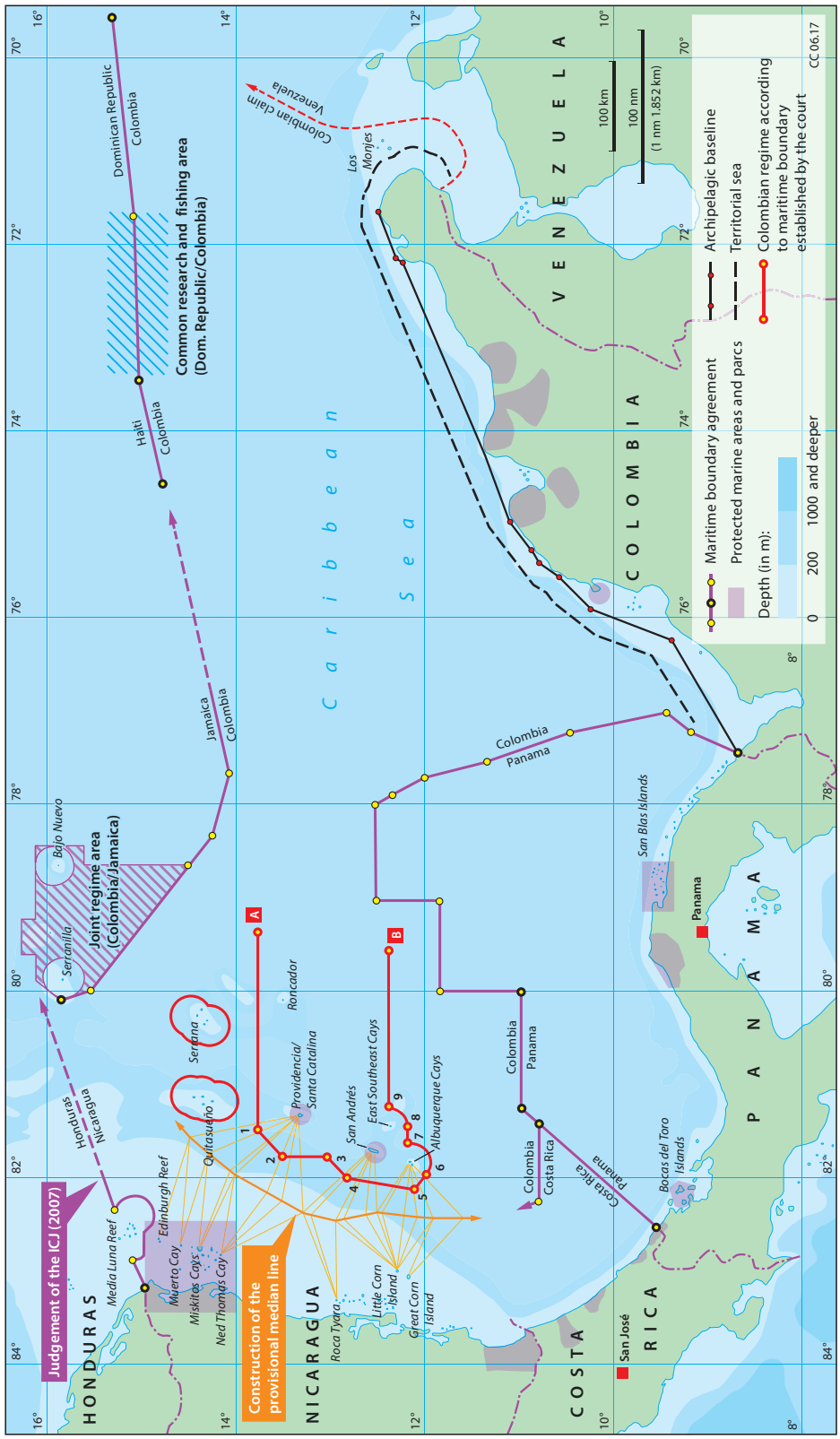


Fig. 4.7 Maritime delimitation of Colombia

which was declared null and void in 1980. Nevertheless, Colombia has long since created facts, not least through an agressive settlement policy on the island of San Andrés (Ratter 2001) and the establishment of military posts on all cays since the 1980s to demonstrate a physical presence. These claims were cemented further by a series of maritime treaties, not all of which are universally accepted. A 1928 treaty with the USA concerns the status of the banks of Serrana, Quitasueño and Roncador; this was modified in 1972, approved by Colombia on 26 March 1974 and by the USA on 24 August 1981, and came into force on 17 September 1981. Further bilateral treaties exist with Panama (1976), Costa Rica (1977), the Dominican Republic (1978), Haiti (1978), Honduras (1986) and Jamaica (1994),[5] highlighting the dominance of Colombia as a regional power. Although Colombia never tires of pointing out that its 'mar territorial' extends from the mainland to the furthest sandbanks such as Alice Shoal and Rosalind Bank, maritime borders in this western part of the Caribbean are not only unclear but also irreconcilable with UNCLOS III provisions. After long periods of dispute about the contested islands and former Guano Cays, on 19 November 2012, the International Court of Justice (ICJ) in The Hague, rendered its judgment in the case concerning the Territorial and Maritime Dispute between Nicaragua and Colombia. The Court found that Colombia has sovereignty over the maritime features in dispute (the islands at Alburquerque, Bajo Nuevo, East-Southeast Cays, Quitasueño, Roncador, Serrana and Serranilla), but also found admissible Nicaragua's claim to a continental shelf boundary, dividing by equal parts the overlapping entitlements to a continental shelf of both parties, Colombia and Nicaragua. The final result of this arbitration is a complicated structure of responsibilites and delimitations between islands, cays and a single martime boundary between the two conflicting parties (see Fig. 4.7).[6] Even if Colombia's claims to the cays were lawful and internationally accepted, its definition of 'territorial waters' as an area of full sovereignty is to be viewed with healthy caution. According to UNCLOS III, every island can only claim a 12 nm territorial sea and a potential 200 nm EEZ, which is yet to be clarified, but the EEZ only conveys the right to the exclusive use of marine resources. Unlike territorial waters, national law does not fully apply in the EEZ.

Colombia is not the only example for inconsistencies between the convention's regulations and national claims. Popular inconsistencies include the declaration of a 200 nm wide territorial sea or the declaration of a 'Total Shelf Area' without defining its exact limits. In the case of some dependent territories – somehow left behind in these developments – the colonial mainland is responsible for foreign relations, including claims to maritime zones and the negotiation of bilateral maritime boundaries. Other dependent territories have declared certain maritime areas in their national laws but have failed so far to define a proper archipelagic baseline or a baseline from which to measure the territorial sea or the EEZ. It is debatable whether this is due to a lack of technical knowledge, interest or capacity. While some countries seem wholly uninterested in maritime questions, others clearly lack the required information, instruments or skill. However, some governments are also overzealous, using the law of the sea and sometimes military conflict to detract from internal problems and arguments (see Sect. 4).

Problems are growing in different contexts and at different levels. One of the major problems is the lack of clarity of the convention's provisions, making it possible to instrumentalise the new guidelines to pursue national interests. For example, the various concepts of maritime zones frequently lead to intended or unintended misunderstandings and/or misinterpretations, suddenly turning an EEZ into fully blown national waters

[5] In Art. 3 of the agreement a 'Joint Regime Area' is established around Serranilla Cays and Bajo Nuevo together with a Joint Commission to commonly manage and control exploration and exploitation of the living and nonliving resources (Charney and Alexander 1994).

[6] A summary of the judgement appears in the document 'Summary No. 2012/5' and the full text of the judgement can be found on the court's website (www.icj-cij.org), under the heading 'Cases'.

or even a territorial sea, claiming full sovereignty without a proper legal basis. A long forgotten island can suddenly take on new significance, and small islands and even uninhabited cays can become the basis for extensive claims to huge maritime areas.

Importantly though, with the new convention a nation can no longer be defined and delimited by its coastline. Islands can no longer be considered isolated. National boundaries have been pushed out to sea and been brought closer together. National territories now vary in size, shape and position relative to their neighbours, creating new political maps of nations and through these triggering changes in entire political regions.

A look at the new political map of the Caribbean makes these changes evident. New claims to maritime areas have created new neighbourhoods, and nations that were separated by the sea for centuries suddenly became neighbours. Bilateral talks and agreements became necessary to avoid conflicts and serious disputes, and new shapes of nation states have arisen from adding large sea areas to their territory – sea areas that used to be no man's land. To emphasise the changes brought about by the new Law of the Sea, Fig. 4.8 does not show any coastlines and does not distinguish between areas under full and partial sovereignty. Taking into consideration all the national claims, it is evident that the Caribbean no longer has any high seas. They have been swallowed by the growing spheres of national influence – victims of the division of the natural environment into national territory. UNCLOS III may have failed to create a new economic world order but it certainly contributed to the emergence of a new geopolitical world order.

The development of the new Law of the Sea led to geopolitical changes. However, it should not be forgotten that the changing maritime situation also had serious knock-on effects on the legal and economic situation of countries and the bilateral and multilateral co-existence of nations. These changes and their impacts not only affect

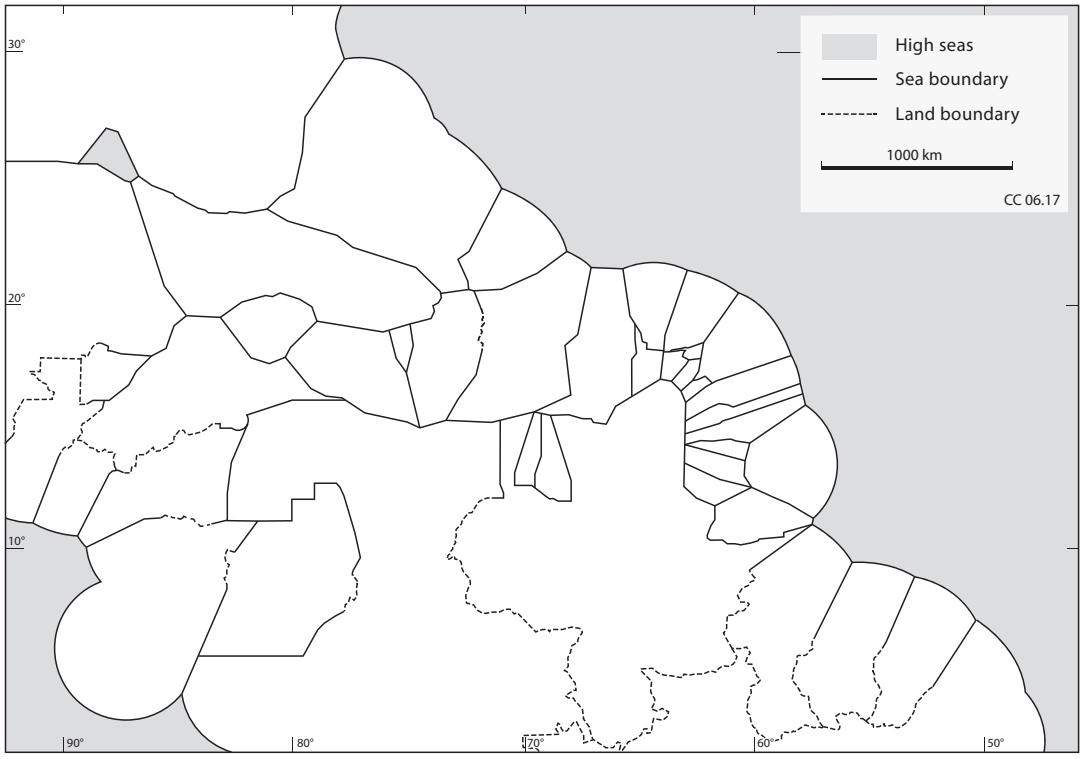


Fig. 4.8 The new political map of the Caribbean

governments but also the life worlds of coastal and island people. Agreements and new boundaries can cut traditional links between people. Traditional practices, such as fishing on banks far away from the mother (is)land or using secret fishing grounds, can suddenly become a problem. Overvaluation of marine resources can cause new competition for their use, frequently without creating the necessary means for cooperation. Nevertheless, at a regional level, waters that connect could lead to new forms of cooperation and co-ordination, aiming to protect scarce resources for example, or protecting the environment in the face of growing human pressure (such as overpopulation, shipping safety, oil tankers, tourism, etc.). When the Law of the Sea discussions began, some hope was placed in regional solutions. However, even the last idealists surrendered as regional solutions in many cases had to be abolished due to the self-interests of too many countries. Nevertheless, the latest generation of bilateral agreements, at least in many cases includes articles on cooperation, bilateral efforts for the preservation and protection of the environment or common research and fishing areas.

4.4 Contested Islands

There are many examples of disputes surrounding small islands, either arising from the new Law of the Sea or from active interests in marine resources (Smith and Thomas 1998). Three examples are described here to illustrate the geopolitical background of such 'contested islands'. The dispute surrounding the Falkland Islands is an example of far-flung and largely unnoticed islands that were instrumentalised in the dialectic relationship between foreign and domestic policy. The disputed Senkaku Islands represent the re-evaluation of resources and national pride, and the recent case of the Paracel and Spratly Islands in the South China Sea highlights the global political implications that even tiny islands can suddenly take on.

4.4.1 The Falkland Islands in the Southern Atlantic

The small goups of islands in the South Atlantic with a size of 12,173 km^2 and an estimated number of inhabitants of 2931 (2014 est.) is known as Falklands to the anglophone and Las Malvinas to the Spanish-speaking world. With an estimated GDP of $164.5 Mio (2007 est), the economy was formerly based on agriculture, with 95% of the GDP produced by sheep farming. Exported goods primarily include wool, furs and animal skins, meat, game, fish and squid, although fishing and tourism, especially ecotourism, contribute most to the local economy (57,000 visitors in 2012). In 1987, the government began selling fishing licenses to foreign trawlers operating within the Falkland Islands' exclusive fishing zone. These license fees net more than US$ 40 million per year, which help to support the island's health, education and welfare system. The waters around the Falkland Islands are known for their squid, which accounts for around 75% of the annual 200,000 ton fish catch. Dairy farming supports domestic consumption; crops furnish winter fodder. Foreign exchange earnings come from shipments of high-grade wool to the UK and from the sale of postage stamps and coins.

The British Falkland Islands made international headlines in 1982 when Argentinian troops attempted to take the 'Islas Malvinas'. This was triggered by a centuries-old dispute concerning the ownership of the islands which dates back to the early sixteenth century. The actual trigger, however, was domestic difficulties that led the Argentinian dictator to play the nationalist card and demonstrate international 'strength' in this ownership dispute (see Royle 2001; Boyce 2005) (see Fig. 4.9).

Looking back in history, the first confirmed sighting of the islands took place in 1592 by the Englishman John Davis who christened the islands Davis Islands. But it was not until 1690 that another Englishman, John Strong, landed on the Falklands/Malvinas Islands to claim them for

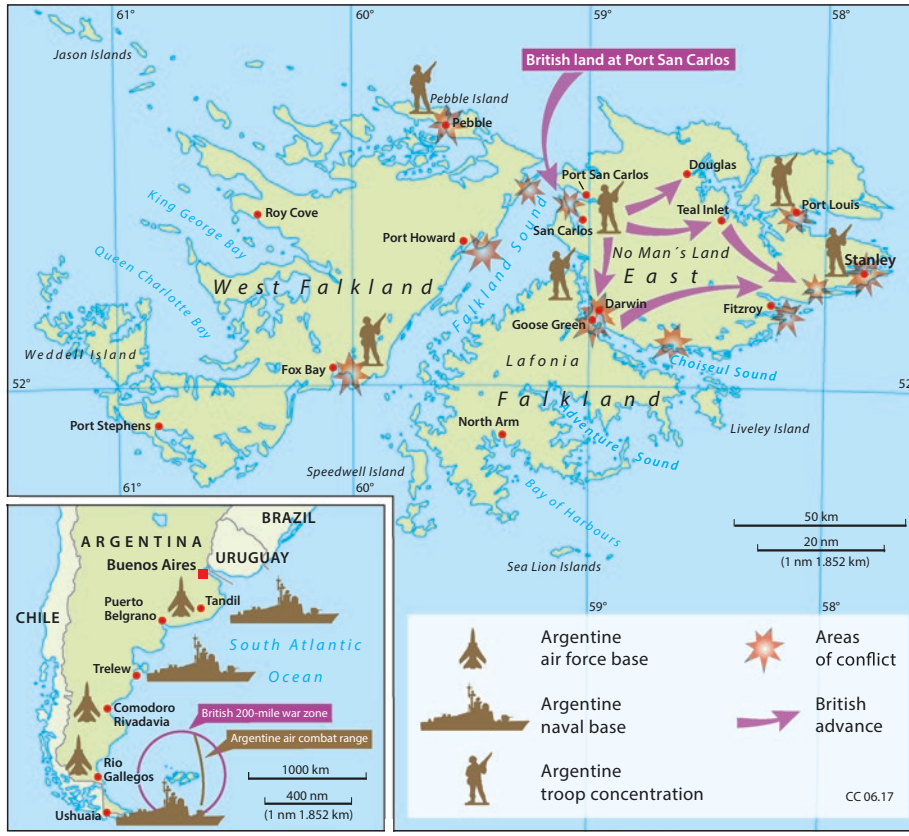


Fig. 4.9 The Falkland Islands

the English crown. In 1764, Louis Antoine de Bougainville founded a first French settlement on East Falkland Island (Port Saint Louis), on what the French call 'Les Nouvelles Malouines'. In 1766, a British outpost was founded on Saunders Islands near West Falkland Island (Port Egmont). In 1769, the French sold their property to the Spanish who rennamed the islands 'Les Malvinas'. In 1770, the Spanish expelled the British from Port Egmont, only for them to return a year later in 1771. In 1774, the British gave up Port Egmont. In 1775, James Cook landed on Southern Georgia; shortly afterwards, he discovered the Sandwich Islands.

In the nineteenth century, in 1810, Argentinia rebelled against Spanish colonial rule, leading Spain to abandon the islands in 1811 which were taken to be uninhabited from then. After its self-declared independence in 1816, Argentina laid claim to the islands; at Argentinia's request the USA expelled British whalers from Eastern Falkland Island in 1820. In 1826, Argentinia approved a colonisation project on the Malvinas and constituted an island command in 1829. In 1831, US warships destroyed the port, after which the islands were once again declared no man's land. In 1832, the British returned to Port Egmont and, despite intense protest by Argentinia, proceeded to occupy the entire archipelago in 1833. The USA did not intervene. In 1837, British colonial administration was established, followed by the founding of Port Stanley in 1843 which became the capital in 1845. When Spain recognised Argentinia's independence in 1859, no mention was made of the Falklands/Malvinas.

In the twentieth century, during the First World War, the Falklands/Malvinas were an insignificant British supply station. A sea battle

ensued in the waters of the archipelago, leading to the destruction of the German East Asian fleet. During the Second World War, the islands served as a strategic base for the British to help them control the Southern Atlantic. In the 1960s, during the period of decolonisation, a UN resolution was brought that called for a solution for the islands that benefitted their residents. Up until the 1970s, the situation was relaxed, and treaties between the UK and Argentinia enabled cooperation, not least the use of hospitals and schools on the Argentinian mainland. In 1979, Margaret Thatcher was elected Prime Minister in the UK; in 1981, a military coup brought to power General Galtieri in Buenos Aires. Although there were promisinig talks on the future of the islands from 1980 onwards, the conflict eventually escalated. In the night of 1 April 1982, 80 Argentinian elite soldiers landed on the Falklands, followed by another 600 1 day later. Only 81 British soldiers were stationed on the islands at the time; they surrendered immediately given the clear superiority of the Argentinian forces. By the evening of that day, 2000 Argentinian soldiers were on the island; on 3 April, they began to occupy Southern Georgia. During the first week of April alone, more than 10,000 Argentinian soldiers were transferred to the Falklands. The British counter-attack began in the second week of April with air strikes. On 23 April, South Georgia was back in British hands, followed by the defeat of the Argentinian navy on 1 May. During the night of 20 May, the British began their invasion and the gradual recapture of the Falklands. On 13 June Port Stanley fell; on 14 June Argentinia officially capitulated. Although the naval battle was short, the Falklands still carry a heavy burden. About 90,000 land mines were buried on the islands; more than 10,000 are still lying undiscovered in fields and roads – or are washed up the beach.

The Falklands War was a short but intense exchange of blows that lead to 905 dead (255 British and 650 Argentin soldiers) but was only intended to detract from the domestic difficulties of the Argentinian government. Following on from this internationally noted conflict, the island's residents were given full UK citizenship in 1983. In 1985, South Georgia and the Southern Sandwich Islands were split off from the Falklands administratively, now forming an independent British overseas territory. Diplomatic relations between the UK and Argentinia were only restored in 1990. The conflict surrounding the islands died down, but never entirely went away.

The British military presence provides a sizeable economic contribution. The islands are now self-financing except for defence. In 1993, the British Geological Survey announced a 200-mile oil exploration zone around the islands, and seismic surveys suggest substantial reserves capable of producing 500,000 barrels per day. Political tensions between the UK and Argentina remain high (Boyce 2005). After the severe economic crisis in Argentina, leading to the collapse of the financial system in 2001/2002, a period of severe political instability followed. On 2 August 2012–10 years after the country had declared bankruptcy – Argentinia paid off the last of its debt, with a rate amounting to US$ 2,300,000,000. In 2012, President Kirchner brought an Argentinian request to the UN Committee for Decolonisation, arguing that the islands were 'part of the Southern Atlantic and Argentinia'. In January 2013, she wrote an open letter to the British Prime Minister Cameron, calling upon the UK to return the islands. It never came to this. A referendum was called on 10 and 11 March 2013, asking islanders to vote on the future political status of the islands. An overwhelming 99.8% of Falkland Islands voters backed keeping their government just the way it was: a British Overseas Territory.

4.4.2 The Senkaku (jap.)/Diaoyu (chin.)/Diaoyutais (Taiwan) Islands in the Eastern Chinese Sea

The conflict surrounding the uninhabited islands located between China, Japan and Taiwan in the East China Sea is about material value but even more so about symbolic value. No less than China's national pride is at stake. Anti-Japanese sentiment is virulent in China, still as a result of

the war crimes committed by Japan in the Second World War, but mainly this is a dispute over pre-eminence in the Pacific region, with China seeking to prevail against the USA at all costs and not hesitating even to make threatening gestures towards the Philippines. The case of the Senkaku Islands shows how small islands can supposedly strengthen a major international power – Chinese nationalism in its purest form.

The islands have been administered by Japan for more than 100 years, but now that oil and gas reserves have been suspected there, the sea area surrounding the islands has taken on high economic significance. For this reason, the purchase of the islands by a Japanese businessman is being called into question, and national claims have not only been declared by China and Japan but also Taiwan.

Historically, the governments of China and Taiwan both claim that the first written documentation of the islands goes back to 1372 and Chinese seafarers in the Ming dynasty. From 1534 onwards, the islands have repeatedly been represented as part of the Chinese empire. On John Seldon's famous map of China (Seldon 1672), however, they were merely unnamed rocks between Okinawa and Taiwan, making it 'ridiculous to use them to justify any possessions in this part of the ocean' (Brook 2013: 137). Japan, in turn, claims to have discovered the islands in 1884. One year later an investigation was instigated by the prefecture of Okinawa which allegedly found the islands uninhabited, without traces of any earlier Chinese presence and therefore incorporated the islands as terra nullius to Japanese territory (Eldridge 2013).

On 14 January 1895, shortly before China's defeat in the First Sino-Chinese War, Japan decided to install area markers on the islands and to declare them part of Japanese sovereign territory. Initially, the new territory was incorporated in the district of Yaeyama; from 1896, the islands were administered by the town of Ishigaki. In the late 1890s, the Japanese entrepreneur Tatsushirō Koga (古賀 辰四郎) bought the islands of Uotsuri-shima, Kuba-shima, Kita- and Minami-Kojima and built factories there for the processing of bonito and albatross feathers. In 1932, these were passed on to his son Zenji Koga (古賀 善次; also read Yoshitsugu), only for operations to cease in 1940 during the Second Sino-Chinese War.

After Japan's capitulation in the Second World War, the San Francisco Peace Treaty required Taiwan to be ceded to China. In Article 3, the islands south of 29 degree north latitude (including the Ryukyu and Senkaku Islands), Nanpo Shoto south of Sofu Gan (including the Bonin Islands, Rosario Island and the Volcano Islands) and Parece Vela and Marcus Island were placed under US administrative rule. Neither the Republic of China nor the People's Republic of China was among the signatories of the treaty. Nevertheless, during the 1950s and 1960s, everything stayed quiet for the islands.

In 1970, the USA announced that it would return control of the Ryukyu and Senkaku Islands to Japan, implying it did not consider these island's Chinese territory. In the wake of this announcement, both Taiwan and the People's Republic of China formally laid claim to the islands in 1970/1971. The Okinawa Reversion Agreement, which also covered the Senkaku islands, was signed on 17 June 1971; the USA formally reverted the islands to Japan on 15 May 1972.

In 1990, a group of nationalist students erected a lighthouse on one of the islands and raised the Japanese flag, sparking a renewed diplomatic crisis. From 1995/96 onwards, the People's Republic of China began to use drill ships to carry out deep drilling in the quest for oil. In 1996, the EEZ surrounding the islands was claimed by both Japan and China. On 14 July 1996 the ultranationalist (Uyoku) Nihon Seinensha group erected another lighthouse on Kita Kojima. This was destroyed by a storm soon after, but rebuilt just as quickly on 9 September 1996. On several occasions, Chinese fishing boats were antagonised by the Japanese marine or coastguard.

On 7 September 2010, a Chinese fishing boat rammed two vessels of the Japanese coastguard, in one case at least intentionally, leading to the arrest of the Chinese captain. When Japan refused to extradite the seafarer, China suspended bilateral relations with Japan at the level of central and provincial government. For 2 months, China also suspended the export of important metals for the

high-tech sector and arrested four Japanese persons who had entered a restricted military area. Japan considered these arrests an act of revenge. The incident led the then US Secretary of State Hillary Clinton to reassure the Japanese Foreign Minister Seiji Maehara that the islands fell under the Treaty of Mutual Cooperation and Security between the USA and Japan. US Secretary of Defence Robert Gates also stated that the Senkaku Islands were covered by the treaty and that this obliged the USA to come to the defence of Japan in case of a military conflict.

In April 2012, the Governor of Tokyo, Shintarō Ishihara, announced that the Tokyo Metropolitan government wanted to purchase three of the islands from Kunioki Kurihara, who himself had purchased four islets in the 1970s from Koga Tatsushirō's son. This was to prevent their purchase by a Chinese or Taiwanese national or by the PRC or Taiwan.

On 11 September 2012, the Japanese government nationalised its control over the islands by purchasing them from the Kurihara family for ¥2.05 billion (€ 19.6 million). The islands were to be taken over as soon as possible, in order to control them 'in a peaceful and stable way' which, they argued, would not be guaranteed if they were purchased by the Toyko metropolitan government. The Chinese government responded with sharp protests, considering this a 'serious violation of Chinese sovereignty', and proceeded to repeatedly send patrol boats for observation, for the last time on 14 September 2012. The Japanese Prime Minister Yoshihiko Noda responded by announcing that 'all possible measures' were to be taken to ensure the safety of the Senkaku islands. In China, violent protests ensued, leading several Japanese companies to temporarily close their factories and subsidiaries, among them Canon, Panasonic, Honda, Mazda, Nissan, Fast Retailing, Seven & I Holdings and Æon.

On 19 October 2012, the official Chinese news agency Xinhua announced that 11 ships, eight aeroplanes and several helicopters were carrying out a military exercise in the vicinity of the islands. Because of the Senkaku conflict, but also the territorial conflicts surrounding the Paracel and Spratly Islands in the South China Sea, the USA deployed the aircraft carrier USS George Washington to the Vietnamese coast on 20 October 2012. According to a BBC report, a Chinese frigate sighted and targeted a Japanese boat with its fire control radar on 30 January 2013. The boat apparently accompanied a large freight ship, although the freighter would have been capable of defending itself in case of an attack. This incident led Japan to summon the Chinese ambassador.

What drives the parties in this conflict that has been smouldering for decades? China's motives are the most obvious. China has replaced the USA as the world's largest trading nation; 90% of Chinese trade is seaborne. The country is pushing into the world's seas, and it is irritating that access to the Pacific is barred by a chain of islands controlled by US allies. This strategic obsession has also turned into a political one, and it suits China's leadership to demonstrate an uncompromising attitude on the international stage. For China's leadership, the conflict with Japan is a convenient means of raising the country's profile. The motives of the other adjacent states are sovereignty but also resource exploitation – oil and gas fields are suspected in the sea area around the islands (Drifte 2014; Koo 2009). Same old (small island) story.

4.4.3 Woody Island, Paracel Islands and Spratly Islands in the South China Sea

The latest conflict surrounding small and insignificant islands to cross news desks around the world occurred in 2016. On 17 February 2016, the German Press Agency announced that Beijing had positioned missiles on a disputed island in the South China Sea (dpa 17.02.2016, 19:40 Uhr), opening up a new chapter in the territorial struggle for the marine area. While the then US President Barack Obama was still discussing a peaceful solution with China's neighbours, Beijing was already stationing anti-aircraft missiles on Woody Island, an island off the Paracel Islands that are also claimed by Vietnam and Taiwan (Inquirer 2016).

The South China Sea is 3.5 million km^2 in size and stretches between China, Vietnam, Malaysia and the Philippines (see Fig. 4.10). It is the second most used sea lane in the world, a third of the world's shipping is handled there and large oil and gas reserves have been proven to exist. The southern Spratly Islands, shoals, spits and reefs with their surrounding sea area are contested by not less than six regional nations: Brunei, Malaysia and the Philipines claim some, China, Taiwan and Vietnam all of them, respectively (Royle 2001: 154) (see Fig. 4.10).

China's claims to the territory are based on the so-called nine dash line that dates back to the 1940s and represent a huge U in the sea between Vietnam and the Philippines (Dzurek 1996). China is claiming 90% of the area, including islands and reefs 800 km off the Chinese coast but only 220 km off the Philippine coast. China is cementing its claims, among others, by creating artificial islands and mili-

Fig. 4.10 Contested islands in the South China Sea

tary bases; it has also kept Philippine fishermen from Scarborough reef by means of patrol boats. The PRC has built several landing strips on the Spratly Islands, enabling it to land there with any type of military plane, and is installing radar and communication equipment and larger ports for their ships. Observers note that China has already militarised the islands, although Bejing emphasises that all of this is merely in the interest of safe international shipping.

'We call it the East Sea as it is east of our coast. Just because it is called South China Sea around the world does not make it part of China', a representative of the Vietnamese foreign ministry states (Dorloff and Bodewein 2016). Vietnam's sovereignty over the Spratlys and Paracels goes back to the seventeenth century; the country has administered the islands ever since and attempted to defend its sovereignty peacefully. Up until 1949, Chinese maps indicated the island of Hainan as the country's most southerly possession. John Selden's seventeenth-century historical map only shows some islands in the vicinity of navigable coastal routes. The northern Paracel Islands are drawn in the shape of a sail, pointing to a long and hazardous navigational route that was to be avoided. The hundreds of other reefs in the eastern part of the South China Sea, where the Spratly Islands would be located, are missing entirely on this map, and no sea route is shown going through them. Thus, according to Brook (2013: 167):

> it would be tendentious to argue, as some eager nationalists might, that the Selden map proves anyone's claim of sovereignty over any rock in this sea' and he adds that the navigational chart was drawn up for merchant ships, and not drawn to demonstrate any claims of sovereignty over what lay out in the ocean, simply showing merchants where to go. 'These were islands nobody wanted.' (Brook 2013: 167)

By now, though, the Chinese view has changed.

The Philippines term the contentious waters the 'Western Philippine Sea'. They too are claiming parts of the Spratly Islands and several contested reefs. In his presidential campaign, the President of the Philippines, Rodrigo Duterte, rather undiplomatically stated '… if they [the Chinese] don't want to talk, then I will ask the Navy to bring me to the nearest boundary at Scarborough, I will ride the jetski and plant the Philippine flag there in their port. I will say this is ours, do what you want to do to me' (Dorloff and Bodewein 2016).

In recent years, the USA has increasingly intervened in the conflict. In October 2015, the US destroyer 'Lassen' approached one of the Spratly Islands to within less than 12 nm. In January 2016, a US warship entered the waters surrounding the Paracel Islands. Washington justified this by referring to freedom of navigation and the fact that the area is classed as international waters. 'We will continue to help our allies and partners strengthen their maritime capabilities' (The White House 2016), President Obama stated after the ASEAN summit and continued: 'Disputes between claimants in the region must be resolved peacefully, through legal means, such as the upcoming arbitration ruling under the UN Convention of the Law of the Seas, which the parties are obligated to respect and abide by'.

In July 2016, more than 3 years after the Philippines asked the permanent court of arbitration in The Hague to dismiss many of China's sweeping claims in the resource-rich region, the court ruled in favour of the Philippines in the case over territorial control. China has refused to recognise the five-judge court's authority and has repeatedly said it will not change its approach or its sovereignty claims in the South China Sea. China claimed it was a US-sponsored conspiracy to stifle its rise (Phillips 2016). The Chinese Foreign Minister Wang Yi warned that the court's decision could lead to increasing tension and confrontation in the region, and stated that the deliberations had been a farce from the beginning. Nevertheless, China still wanted to resolve the conflict peacefully by means of dialogue.

The South China Sea is on the direct shipping route from Europe to Eastern Asia. Whoever rules the contested islands also rules the South China Sea with its rich fishing grounds and mineral deposits. Although the decision of the court in The Hague is legally binding, the court has no means of ensuring it is implemented. Nevertheless, it is an important signal as this was the first time the case was arbitrated by an inter-

national court. Brunei, Malaysia, Taiwan and Vietnam can also call upon the judges with their existing claims.

The contested islands presented here are merely examples for a huge number of similar cases (Royle 2001: 154ff). They have in common that they are political pawns in the international game for riches and resources, or are being instrumentalised in domestic political struggles (Fig. 4.11). The permanent court of arbitration in The Hague, the oldest supranational institution for the arbitration of disputes between states, is tasked with finding 'the most objective means of ensuring to all peoples the benefits of a real and lasting peace' (PCA 2017). Whether it suceeds in doing so ultimately depends on the goodwill of the participating conflicting parties.

4.5 *Beati Possidentes* or the Common Heritage of All

Territories used to be defined solely by referring to firm soil. Now that all continents have been comprehensively divided, interests have shifted to the sea, giving small islands ongoing territorial-political significance on top of their economic significance. UNCLOS III has not prevented the sea from being 'divided to death'; to the contrary, it has served to tacitly approve rather than condemn coastal state's extensive appetite for power. State territories no longer end on the shore, but extend far out to sea up and beyond the traditional coastal waters. Sovereign territory now includes marine areas the size of the entire land mass of the Earth, causing the high seas to shrink in size by one-third. An ever larger sea area is becoming geographically and legally annexed.

In the context of the above, questions need to be asked surrounding the location, shape and size of state territory. Enlarging the 'mainland' significantly alters the shape and size of individual states, an effect that is most extreme in the case of archipelagic states which can not only claim archipelagic waters but also coastal waters and an EEZ. More than ever, the absolute location of a state decides on its fortune or misfortune – on their being *beati possidentes*, having the luck to possess islands, sea areas or access to marine resources. Whether a country is geographically favoured has become enormously important as this affects the distribution of political and economic gains. The industrialisation of the sea is finding its normative complement in the territorialisation of the sea (Vitzthum 1981: 50), and what used to be treated as *res omnium communis* (common heritage of all) is increasingly being incorporated in new coastal and island economic empires, corresponding to the colonialisation of the continents in earlier times.

The questions arising from the new Law of the Sea are therefore not limited to jurisdictional issues. The new Law of the Sea leads to changing concepts of space, revised shapes of national territories, different roles of islands, re-evaluation of maritime areas and marine resources and the development of new political arenas – all of which are profoundly geographical. The new Law of the Sea may be able to provide new rules, but it falls short of offering true solutions and sometimes seems to cause more problems than it can solve.

Islands have long been stepping stones for the territorial claims of continental powers. Today they have become veritable territorial ping-pong balls – not least on account of marine resources that could be prospected and hold the promise of new wealth. As the examples have shown, in many instances it is not the island itself that is of interest, but the various claims that can be staked around it – for territory, marine resources and mineral resources. The political map of the world has changed, once more turning small islands into 'anchoring points' of specific, egotistic interests. The new Law of the Sea, however, has had one other effect, namely, the creation of entirely new neighbourhoods and responsibilities – and a need to talk. Negotiations are now required between formerly distant lands, offering not only the potential for conflicts but also new opportunities. Whether the 'creative solutions to ongoing disputes over islands' (Baldacchino 2016) will include shared, divided or expunged sovereignty or the co-development or co-exploitation of natural resources only the future will tell.

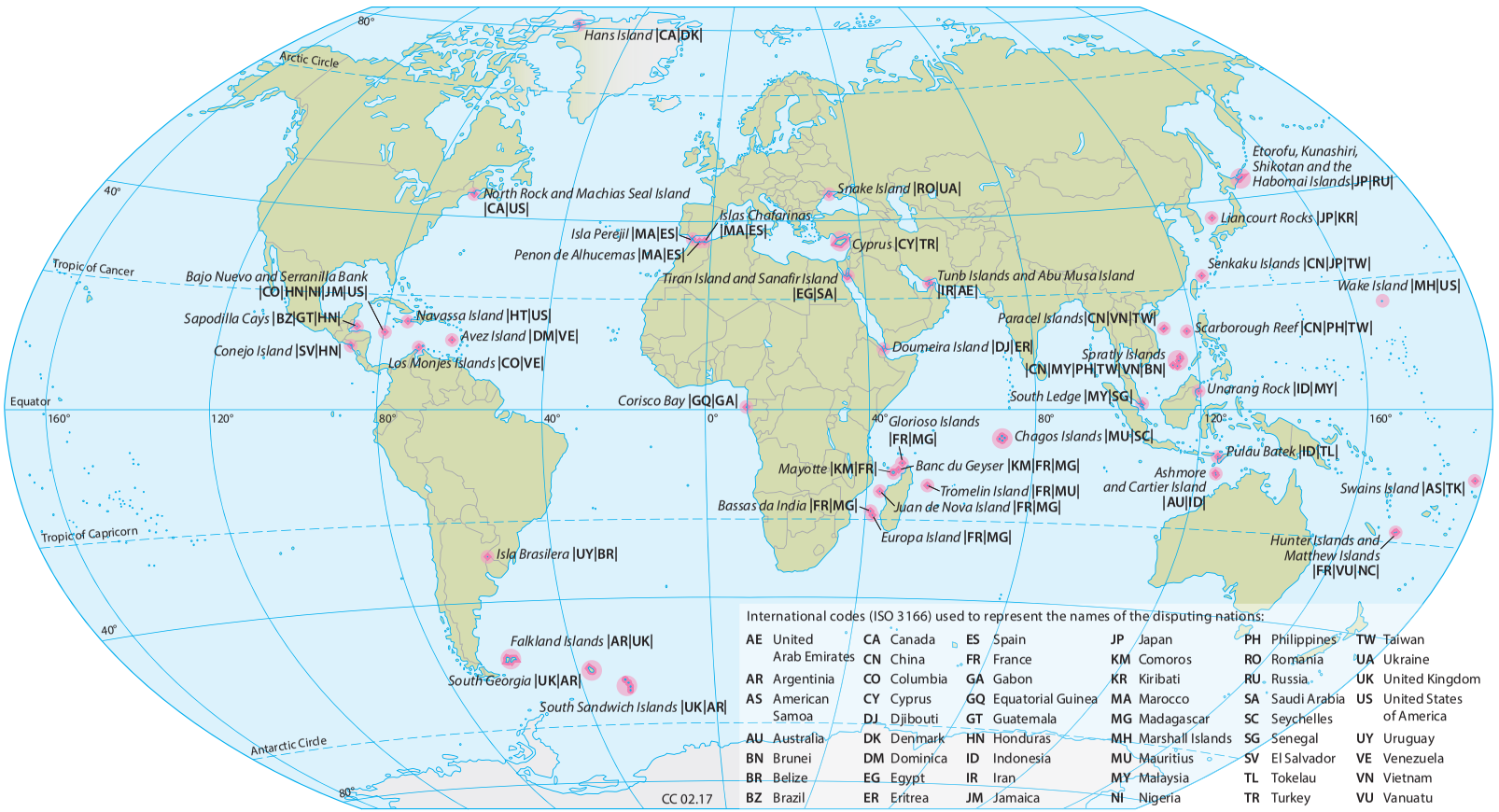
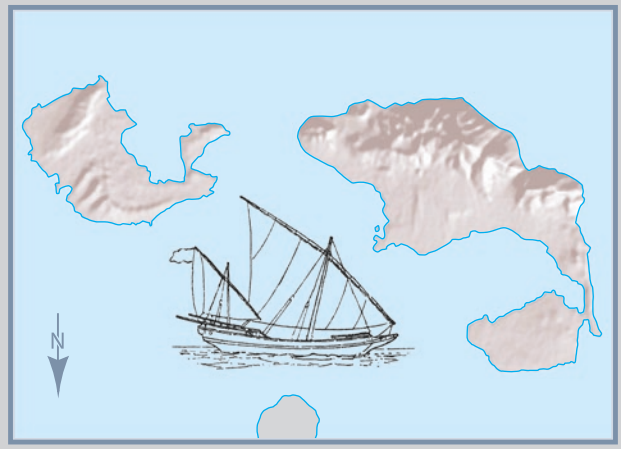


Fig. 4.11 Disputed islands worldwide

Island Brain Teaser 4



Two desolate mounds of sand or key geopolitical nodes? Approaching the two islands in a boat without any prior knowledge, it is hard to imagine that the two bare and dusty elevations whose arid surfaces resemble an inhospitable moon landscape could hold any political significance at all. A brief look through the history books, however, quickly reveals the enormous geostrategic relevance of the two neighbouring islands.

In 1956, the two islands were occupied by the troops of a state that had only existed for 8 years by then. The purpose was to secure the supply of oil for its European allies. Relations between the states involved in this conflict remained tense and escalated eleven years later into another war which only lasted six days. Once again, the *casus belli* for the military conflict was the occupation of the two islands – this time by the troops of another party to the conflict, cutting off its regional arch enemy's access to the Indian Ocean. The world had become divided into blocks by then, and both blocks held their breath. The closure of the strait between the two islands was regarded as a clear breach of the 1958 United Nations Convention on the Law of the Sea which granted freedom of navigation to all nations of the world.

In later decades all went predominantly quiet on the two islands. They are still not inhabited by civilians, but 1900 soldiers and 12 multinational peacekeepers, and the Multinational Force and Observers (MFO) are stationed there. In April 2016, the islands suddenly leapt back to international attention when their mother country made to give them to a major neighbouring power as a sort of diplomatic gift. For many citizens this was close to treason, and a few months later an international court stopped the transfer. This caused a political scandal and a severe setback for the rulers of the two states involved.

The islands are likely to remain a contested talking point. Despite the continuing territorial uncertainties, there are plans to link the two islands with a bridge spanning 32 km, creating another land link between the African and Asian continents. The associated road and rail links will also run across one of the islands. It is questionable whether the regional powers will really warm to this gigantic construction project which will yet again shift the geopolitical architecture of the wider region. So which are the islands we are looking for?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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Socio-spatial and Globalised Economies

5

Place-making practices are deeply intertwined with the organisation of the world economy.

Peter Mörtenböck and Helge Mooshammer (2011: 130)

Abstract

This chapter is concerned with outposts of globalisation from an economic point of view, i.e. the subjectivation of islands and the resulting spatial reorganisation. Using selected examples (the historical sugar trade, the recent financial business and tourism), the chapter highlights how islands have contributed to the global economy and discusses what they have gained in return. Establishing an export-oriented agrarian economy led to comprehensive ecological change and the full-scale reorganisation of society. Connecting to the global financial sector by means of offshore financial centres and tax havens once again changed the organisation of space, as did international tourism which is both a blessing and curse. The problems of delimitation and disadvantageous economies of scale are countered by specific island assets such as favourable locations, connectivity, regional cooperation and also economic particularities in island branding and niche economies.

Keywords

Plantation economy • Offshore financial centres • Tourism • Migration • Regional cooperation • Niche economy • Spatial structure • Spatial organisation • Socio-spatiality • Connectivity • Isolation

On 4 May 1626, Dutchman Peter Minuit, an employee of the Dutch West India Company, bought the island of Manhattan from the indigenous Algonkin Indians for goods worth 60 guilders. The Dutch West India Company intended to support the colony of the New Netherlands (Nieuw-Nederland) in its development, especially by organising trade with the motherland. Originally known as New Amsterdam, the tiny colony eventually developed into the pulsating megacity of New York.

B.M.W. Ratter, *Geography of Small Islands*, https://doi.org/10.1007/978-3-319-63869-0_5

On 13 June 1733, the Danish Crown purchased Saint Croix from the French West India Company. In 1754 the Danish West Indian Islands (Danish: *De dansk-vestindiske øer*) officially became royal Danish colonies and were used thereafter for sugar cane production by means of slave labour. Sugar cane drove the islands' economy during the eighteenth and early nineteenth centuries until the abolition of slavery in 1848, when the economy declined and the islands ceased to be economically viable. Significant amounts of money were transferred from the Danish state budget to the island authorities. At the onset of World War I, during the submarine warfare phases, the USA feared that the islands might be seized by Germany as a submarine base and approached Denmark with a view to buying them. After several attempts, a selling price of $25 million in the US gold coin was agreed. The USA took possession of the islands on 31 March 1917, renaming the territory the Virgin Islands of the USA.

On 13 April 2013, international media reported that 25-year-old Ekaterina Rybolovleva, daughter of the Russian billionaire Dmitry Rybolovlev, had bought the Greek island of Skorpios in the Ionian Sea for US$ 158 billion from the Onassis family. These days, private islands have become something of a status symbol. Although the sale of state-owned islands to private investors is prohibited, Greece still earns real estate tax when private islands change hands.[1] In December 2014, at the height of the Eurozone debt crisis, Eurocritic Frank Schäffler demanded that the Greek state radically sell its shares in companies and also sell off state-owned property, including uninhabited islands. It was one of the most debated and controversial proposals in the Euro crisis.

These are just some selected examples that highlight the possibility of doing business *through* islands, *on* islands and *with* islands. But are islands themselves also doing good business? The economies of small islands are manifold. There has been some debate on whether small is beautiful[2] or outright dangerous[3] as smallness might imply a lack of power, placing islands at the mercy of external interests. Small islands have long been of strategic interest, but it was the colonial expansion of Europe from the sixteenth century onwards that turned them into outposts specifically of economic development. At the same time, considering islands mere economic objects overlooks the fact that they are also living worlds with resident communities – in other words, socio-spatial entities whose roles and functions frequently changed during the course of the last centuries.

Using a number of examples, the following highlights how islands have been instrumentalised and turned into an economic stage to serve the interests of foreign powers. During the initial stages of European expansion, it was primarily the colonial powers that established islands as production sites for desirable raw materials. Later it was global companies that turned them into subjects that could serve their respective economic interests. Seen through Immanuel Wallerstein's concept of centre and periphery (see Taylor and Flint 1999; Massey 1995, 1999), islands often carry the stigma of dependent peripheries in a network of global economic development directed by centres. Viewed through this lens, their development becomes dependent on decisions taken in the few global centres of power. In addition, developments, not just economic ones, are path-dependent, meaning that current as well as future stages of development follow previously chosen paths or trajectories. This means developments are contingent – not wholly determined but at least influenced by his-

[1] The most expensive Greek island currently on offer is Dulichium Island, a private island 540.26 ha in size, located in the Ionian Sea near the entrance to the Gulf of Corinth and part of the Echinades Islands. Its price tag is US$ 44,845,161. The cheapest Greek island currently available is Stroggilo Island, a 21.85 ha island located near the popular island of Marathos, in the Aegean Sea – available for a mere US$ 5,045,081. (http://www.privateislandsonline.com/).

[2] Ernst F. Schumacher 1989. *Small is Beautiful: Economics as if People Mattered*, Harper Perennial. (1st edition 1973)

[3] Sheila Harden 1985. *Small is Dangerous: Micro States in a Macro World*, St. Martin's Press.

tory and, moreover, impossible to understand without knowledge of that history. Economic development is always closely linked to societal development, and political decisions, power relations and also geographical organisation of space all play a role.

Island space has been reshaped in every phase of island development. Structures have been reorganised and adapted to the respective economic needs, often radically so and paying little attention to existing social structures and needs. Geographically speaking, economic development is driven by the location of islands in space – their remoteness and isolation – as well as potential connections and networks. So are there any examples that point to alternative solutions for the economic development of islands, solutions that take proper account of their socio-spatial situation? Are niche economies an option for small island states, or is self-determination only possible as part of regional alliances? Last not least, what is the role of the numerous diasporas of island communities that are dispersed all over the world?

5.1 The Case of the Caribbean Sugar Islands

> Sin azúcar no hay país – There is no home without sugar. (Cuban proverb)

Exactly what the Caribbean ecosystem looked like at the time of Europe's arrival in America in the late fifteenth century can only be guessed at based on the travelogues of European discoverers[4] or scientific reconstruction. In the fifteenth century, large parts of the Caribbean island world were probably covered in forest, mostly consisting of semi-arid rainforest. Tropical rainforests existed on the rain-fed Lesser Antilles and the central mountains of the Greater Antilles. Savannah was mostly found on the Cuban plains, in the northern Bahamas, parts of Hispaniola and on some clearings in the Trinidadian rainforest.

[4]See, e.g. Christopher Columbus ship's log 1981; B. de las Casas 1951; de Oviedo y Valdés 1851-55; de Acosta 1954.

The indigenous population of the Caribbean relied on subsistence agriculture supplemented by hunting and fishing. Agriculture was based on the so-called *conuco* system, where small areas of forest were clear-felled to grow sweet potatoes, manioc, arrowroot, peanuts, pumpkins, beans and maize. When yields began to decrease after several years, the land was left fallow, allowing the forest to return. Since the population density allowed for sufficiently long fallow periods, the *conuco* system had no substantial impacts on the ecosystem.

The *Europeanisation* of the Caribbean Island World

Originally looking for a trade route to India, the Spanish more or less discovered the economic potential of the Caribbean islands by accident. After a brief phase of exploiting the meagre gold reserves, enslaving the indigenous population in the process, the islands were completely restructured. What originally existed here was of no interest as all attention focused on the favourable growing conditions for a raw material highly desired in Europe: sugar. Sugar cane had been brought to Hispaniola from La Gomera in 1493 by Christopher Columbus who recognised that Caribbean growing conditions were as favourable as those on the Canary Islands, the traditional Spanish producing region.

Apart from introducing sugar cane as an export product, the Europeans began to adapt the 'new world' to the 'old world' (Crosby 1972: 66). Despite the rich island vegetation praised in the first travelogues, the Spanish did not want to do without their staple diet. They brought wheat seed, beans, onions, radishes, lettuce, melons, various fruit trees, olive trees and vines. While wheat, olives and grapes failed in the hot and humid climate, the freshly introduced citrus fruit did exceptionally well. Indeed, the success of the Spanish expansion to a large degree depended on the 'Europeanisation' of the foreign island environment. In many tropical regions of Africa and Asia, similar opportunities arose to cultivate products desired for the European market – a first form of globalisation. Apart from sugar cane,

ginger and bananas came to the Caribbean from Asia and coffee from Africa (Cobo 1956: 420ff).

European livestock such as cattle, pigs, sheep, goats and chickens was also introduced in the late fifteenth century, with significant impacts on island ecosystems and leading to considerable changes in their fauna (Crosby 1972: 68f). Some of the animals were left to roam free on the islands, where they multiplied rapidly due to plentiful food and a lack of natural predators. Feral pigs even became a pest on some islands (Hensel and Ratter 1992: 43). When the French and English began to colonise the islands of St Kitts and Barbados in the early seventeenth century, they had to protect their fields and plantations from the pigs introduced a century before by the Spanish (Watts 1987: 154).

Apart from the intentional transfer of agricultural crops and livestock, a number of 'blind passengers' also reached the Caribbean. The worst ecological consequences resulted from the introduction of the European rat. Rats came with virtually every ship, and since they had no natural enemies but preyed on indigenous species, they significantly disrupted the ecosystem. Diseases brought from Europe and Africa also played their part in the quick 'victory' over the indigenous population. Caribs and Arawaks had never been in contact with smallpox, plague, tuberculosis or other infectious diseases and therefore had not built up any immune defence. The first recorded epidemic occurred in 1519 when it spread from the Greater Antilles to Mexico and Central America and probably all the way to Peru, decimating the indigenous population on the Caribbean islands in the process.

The Capitalist Plantation Economy

The integration of the Caribbean island world into the production networks of the European colonial powers began directly after their discovery. Sugar cane cultivation and the plantation economy had a lasting influence on the economic structure and lifestyle of many Caribbean countries. Sugar cane cultivation was planned and built up quickly initially under Spanish rule. Forests were comprehensively cleared, and the first sugar mill was built on Cuba as early as 1501. From 1503 onwards African slaves were used to do the heavy physical work on the plantations, introduced to replace the heavily decimated indigenous population. The capitalist mode of production, which relied on capital brought over from Europe, Caribbean soil and labour in the form of African slaves, turned the islands into first outposts of the global economy.

In conjunction with the progressive colonialisation by the Spanish, and later by the English, French, Dutch and Portuguese, sugar cane spread to other Caribbean islands and a little later also to Latin America, the Indian Ocean and Pacific. In the Caribbean in particular, the sugar-based economy – King Sugar – continued to rule economic, social and spatial structures for centuries (see Watts 1987; Mintz 1987; Thomas 2005).

Plantations operated in an industrial capitalist manner, in that places of production and consumption were clearly separated, as were workers and capital goods. Sugar cane was grown in monocultures using African slaves and processed in nearby sugar factories. Plantation owners were often represented by an employed administrator (absenteeism; see Galloway 1989). The various steps in production (clearing arable land, planting the cuttings, weeding, watering, harvesting and transporting canes to the mill) were carried out by division of labour. Organisation of labour was based on strict efficiency and discipline.

With the expansion of sugar cane cultivation, large plantations arose on Cuba from the sixteenth century onwards. They not only fundamentally changed ownership patterns but also social and settlement structures. Everything was oriented towards the cultivation and direct processing of sugar cane. This required flat expanses of land that could be systematically planted. The sugar mill was located at the centre of such growing areas, as sugar cane quickly loses its sugar content after harvesting and needs to be brought to the mill as quickly as possible. The mill was not only the centre of sugar cane processing but also the central living space for slave labourers, maintenance workers and administrators (Fig. 5.1). A network of footpaths connected the mill to the fields which were later replaced by railroads. In the mill, juice was mechanically

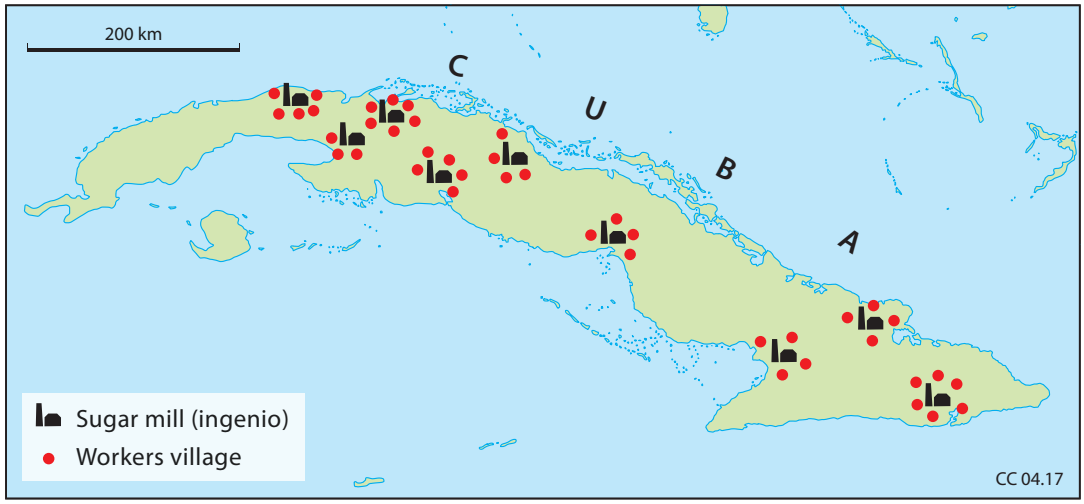


Fig. 5.1 Spatial organisation of *sugar towns* in Cuba (Sketch) (Sources: Boyer 1939; Monzote Funes 2016; San Marful Orbis 2008; Santamaría García 2015)

pressed from the cane and then boiled down in several stages. The raw sugar thus generated was then shipped to Europe for further processing. The last stage of production, the refinement of raw sugar to fine sugar, took place there, with the product then sold throughout the European continent.

What was introduced on Cuba soon also applied to the French and British sugar islands. Sugar cane fields, sugar mills and plantation workers in the form of African slaves formed virtually closed production units that resembled veritable 'sugar towns' and were independent in terms of their technical equipment, repair and food supply. Energy needs were mostly met by using local wood; by 1650 nearly all the natural forests had been lost as a result. Smaller islands had to meet their energy needs by importing wood from the surrounding islands; later wood was even imported from the North American colonies (Canada).

Economic Relations in the Transatlantic Triangular Trade

Other colonial powers soon began to vie for preeminence in the Caribbean. As Spanish interest in the splintered island world began to fade in the wake of discovering more promising gold and silver reserves in Latin America, other European powers began to gradually occupy the small islands of the eastern Caribbean. The Greater Antilles were divided between the three leading colonial powers of Spain, the UK and France, with sugar production on Cuba, Jamaica and later Haiti (Hispaniola) decisively contributing to the economic upswing and development of the colonial rulers.

Economically, the plantation was an independent production unit with few links to the rest of the island's economy. Both its organisational structure and technology were wholly imported. In the early sixteenth century, a trade triangle developed as a result of this production structure, linking the West coast of Africa, the Caribbean islands and Europe. Britain was the hegemonial power; Africa and the Caribbean were degraded to resource peripheries. It is estimated that 10–20 million people were taken from their homelands to become plantation slaves in the Caribbean where conditions were favourable for sugar cane production. The technology for sugar cane processing was brought to the New World from the Canary Islands, while refinement took place in Britain, yielding huge profits to the plantation aristocracy of the period. The British were also able to strengthen their position on the global market by exporting British goods and products to overseas territories.

Jamaica, a Spanish colony from 1509 and conquered in 1655 by a British fleet led by Sir William Penn, was formally ceded to England in 1670 under the Treaty of Madrid. In the late seventeenth century, a growing number of British immigrants came to the island. The plantation economy grew rapidly, and African slaves were brought in to cover the enormous need for labour. Jamaica became one of the most significant centres of the slave trade in the world and at the same time the most important sugar-related outpost of the British Empire.

The Spanish claim to the island of *Hispaniola* and its colonial empire was also threatened. British and French settlers increasingly occupied the western part of Hispaniola. Up until the end of the Haitian revolution, the three nations fought for pre-eminence on the island. France established its claim to Hispaniola in 1640; from the 1670s French settlers began tobacco production. In 1685 indigo plantations were introduced to Saint-Domingue, thus initiating the transition to a plantation-oriented economy. The need for plantation labour once more accelerated, with slaves brought in from Africa in increasing numbers. With the Treaty of Ryswick of 20 September 1697, Spain recognised the French claim to the western part of Hispaniola, leading to two territories called Saint-Domingue and Santo Domingo, respectively. Saint-Domingue, known as the 'Pearl of the Antilles', became France's most lucrative colony, holding world production records for sugar and coffee by the end of the eighteenth century.

As a consequence of the slave revolt on Haiti in 1791, many French landowners who had owned sugar and coffee plantations there fled to *Cuba*. Under their influence, and using their technical skills, Cuba became for the Spanish what Jamaica had been for the British and Haiti for France: A sugar and coffee island. In 1840 Cuba first became the world's largest exporter of sugar, and even after independence from Spain – now predominantly under US-American influence – the sugar industry was expanded even further. In the early twentieth century, sugar production rose to over 5 million tons per year, generating around 80% of the Cuban GDP (Pollitt 2004: 319). Nearly 72% of Cuba's agricultural land was given over to sugar cane (Instituto de Planificación Física 2001: 49). Over half of the sugar exports went to the USA, with the country securing the continued existence of the Cuban sugar plantations by annual purchase guarantees for 2.9 tons of raw sugar (Nova González 2004: 4; Peters 2003: 3).

Sugar cane cultivation was export-oriented from the beginning. This established production systems and sales structures that continued to influence the way the Caribbean sugar industry operated long after the abolition of the colonial plantation economy. Current problems of economic development on former Caribbean sugar islands can be partly understood by reconstructing the development trajectories of the Caribbean sugar economy, leading to the identification of so-called lock-in situations. Lock-in situations are dead ends of development; they not only exist with respect to technology but also political and socio-cultural constellations that impede progress or transformation (Ratter and Dröge 2005). Apart from economic dependence, today's lock-ins are predominantly of a political and cultural nature that hamper the restructuring of the sugar industry in Caribbean island states. The owner of a Jamaican sugar mill expresses this thus: 'In my view, the biggest problem is the mentality of sugar – that it's not really a business but a way of life' (Harrison 2001: 19).

For centuries this 'way of life' brought lucrative profits to European colonial powers and their economic elites. For island communities it mainly brought structural dependence and entrapment in path dependency. Socio-spatially, this is not only visible in the Great Houses of the former landlords. Societies on the former sugar islands continue to be divided into a small elite with European roots and an underprivileged majority with African roots. Although Indian contract workers were imported to the British colonial islands after the abolition of slavery, and although the elites of power were partially exchanged during decolonisation, an 'upstairs, downstairs' within society remains. Additionally, a gradient from the centre to the periphery is still visible

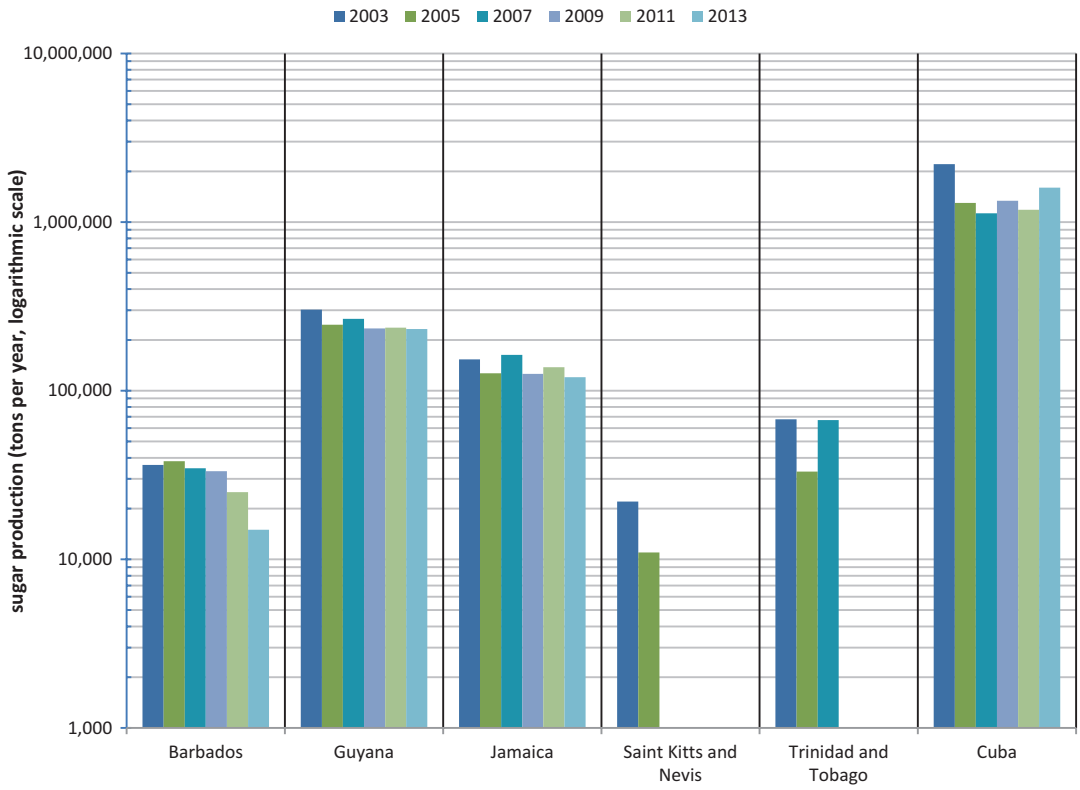


Fig. 5.2 Raw sugar production in the Caribbean 2003–2013 (in t per year) (Sources: FAOSTAT 2016; US Department of Agriculture and Foreign Agricultural Service 2016)

even after the decline of the sugar-based economy (see Mintz 1987; Thomas 2005).

The Dependency of the Sugar Economy

Despite competition from European sugar beet and cheaper production conditions in the large territorial states of continental America, Caribbean island states remained some of the largest sugar exporters until the 1960s (Thomas 2005: 171).[5] Today, however, they lag behind the dominant sugar producers both technically and quantitatively, contributing less than 1% of global sugar production (see Fig. 5.2). In 2014/2015 the world market leader Brazil produced 34,650,000 metric tons (raw value) compared to only 1,625,000 metric tons in Cuba, with Cuba the only Caribbean state among the world's top 25 sugar producers in that year (US Department of Agriculture 2016). The fierce price war put enormous pressure on Caribbean producers due to their high production costs. The world market price oscillates around 11 US cent for a US pound of raw sugar (Haley et al. 2006: 44) and in 2016 climbed to 18.13 US cents per pound (US Department of Agriculture 2017). The low competitiveness of Caribbean producers has two consequences: generally, Caribbean countries are drastically reducing their sugar production, and those countries that do continue to support their sugar sector strongly depend on favourable trade deals with the USA and especially Europe.

Trade preferences for former colonial regions have existed since the 1970s. The EU gave a commitment to sugar-producing countries from the African, Caribbean and Pacific (ACP) states

[5]Better economies of scale were achieved by greater averages of arable land per farm. These range from 0.4 ha in Mauritius to 75 ha in Australia, 230 ha in Louisiana (USA) and up to 10,000 ha in Brazil (Zick 2005).

to purchase and import specific quantities of cane sugar, known as the sugar protocol. The distribution of these quotas to the ACP countries was purely based on history and not supported by economic or development-related arguments. The main beneficiaries were Mauritius, Fiji, Guyana, Jamaica and Swaziland (Gramm et al. 2013: 12f; Forum Umwelt & Entwicklung/EED 2004: 26; ACP Sugar Group 2005), with about 1.3 billion tonnes of raw sugar imported to Europe duty free every year. The EU guaranteed prices for the agreed quantities that were linked to the domestic intervention price for white sugar; this was considerably above the actual world market price. The USA also gave support to the CARICOM countries,[6] although this was significantly less generous in terms of quotas and guaranteed prices (Ratter and Dröge 2007).

Although these preferential sugar agreements, and in particular the EU sugar protocol, were lifesavers for the sugar producers of small island states, they perhaps encouraged the persistence of a traditional economy beyond its natural lifespan. It was policy change that eventually led to the irrevocable decline of the Caribbean sugar trade. The guaranteed prices the EU had been paying up to the mid-2000s were first reduced and then abruptly ended: The establishment of the European Everything but Arms (EBA) initiative in 2001 introduced a more market-friendly trade regime that grants preferential import arrangements for sugar to the least developed countries. This led to a reduction of the sugar quotas for CARICOM countries, decreasing to a mere 32,200 tonnes in 2003/2004 (James 2005: 1; McDonald 2004: 5). Along with similar reforms to other colonial products such as bananas and rum, this traditional pillar of the Caribbean economy was effectively 'cut loose' from the EU and made to brace itself – or more likely buckle – against the winds of global competition (Richardson and Richardson Ngwenya 2013).

[6]The CARIbbean COMmunity is an economic alliance of 15 Caribbean states, of which six (Guyana, Jamaica, St. Kitts and Nevis, Barbados, Belize and Trinidad and Tobago) produce sugar or did so up until 2005.

Since the world market does not offer a profitable alternative at present, Caribbean sugar producers are forced to re-think. In Trinidad and Tobago and Barbados, the sugar industry was reduced to its bare bones. In St Kitts and Nevis, all state-owned sugar factories were closed down in June 2005. In 2003/2004 Jamaica only produced 153,542 tons – half the amount of sugar it had produced in the 1960s; in 2013 production fell to 120,400 metric tonnes. Currently only six Jamaican factories and two private enterprises still produce sugar; these are expected to be able to compete on the world market (Grant 2015). The last traditional large-scale sugar exporter in the Caribbean, Cuba, has lost in significance in recent years and is now ranked seventh in a worldwide comparison (US Department of Agriculture, Foreign Agricultural Service et al. 2016). Still, according to the FAO production, figures have been almost steady since 2005 (FAOSTAT 2016).

A Bitter Lesson

Caribbean sugar production is part of a century-old system of centre and periphery that has always hampered the independent development of sugar-producing island states. Despite their political autonomy, the 'sweet temptation' – the belief that the former colonial powers will somehow continue their support – has left Caribbean sugar producers economically dependent. Reliable subsidies for export sugar have long served to hide the urgent need for reform. The 'bitter lesson' is that the sugar industry ceased to be competitive decades ago, a fact that became painfully obvious when EU subsidies ceased. Independent national restructuring measures are therefore inevitable if the sugar industry is to survive.

At the same time, sugar has a cultural and societal significance in the Caribbean far beyond the economic utility of the product (Dröge 2006). Apart from financial bottlenecks, it was mainly the cultural, societal and political framework conditions that impeded the necessary change and restructuring of the industry after the Second World War. Traditional dependencies made it more difficult to depart from set development

paths and hampered the search for economic alternatives (Richardson and Richardson Ngwenya 2013). Today it is becoming ever more difficult for workers and small farmers to access stable jobs and land – especially when wealthy investors seem to effortlessly convert vast swaths of former sugar lands to golf courses and large hotel complexes. International tourism has long since become the new source of hope and foreign currency.

5.2 Tourism: Blessing or Curse for Island States?

> To travel is to discover that everyone is wrong about other countries. (Aldous Huxley)

Incipient mass tourism seemed a logical consequence of the demise of the sugar industry. Weaver (1988) went as far as suggesting that the plantation economy was a logical forerunner of modern tourism, with similarities mostly in the dominance of non-local capital, control and markets (Hills and Lundgren 1977; Richards 1982; Butler 1993). Further parallels between the plantation economy and modern tourism include 'the relative ease with which tourism was accommodated in post-war years within the core-periphery structure of much of the Caribbean (…), the importance of expatriate capital and entrepreneurial activity, including ownership and management of facilities, reliance on cheap unskilled labour, a narrow market, seasonality and the focus of activity on external not internal needs' (Weaver 1988: 322).

Global processes of change, however, were also instrumental in this development. The reorganisation of wage labour in the Western industrial states – the source countries of tourism – was just as important as the technical innovation of affordable air travel that first became available in the 1960s.[7] Even remote islands were suddenly within easy reach. Tourism development on many islands thus coincided with the rapid growth of long-haul flights and the veritable mass movement of sun-seeking tourists from the industrialised world of North America, Europe and Japan, all suddenly looking for the island 'pleasure peripheries' of the Caribbean, Mediterranean, Indian Ocean and North Pacific (Gössling and Wall 2007: 433). Islands were discovered as attractive destinations because they appealed to 'the very real feeling of separateness and difference, caused in part by their being physically separate, and perhaps therefore different' (Butler 1993: 71). More than remote locations, islands also became attractive destinations because of their 'innate romanticism' – a fact that was used as a unique selling proposition for islands both close to home and far away (Royle 2001: 193).

Location plays a key role for the rapid development of mass tourism on islands. Apart from the USP set out above, the Caribbean 'has a tremendous locational advantage relative to the North American market which has always provided the majority of its visitors (Caribbean). This locational advantage may be strengthened economically if fuel costs rise, making longer-haul vacations from North America proportionally more expensive. The climatic attraction coupled with landscape and cultural appeal and with English as the primary language makes this region highly attractive to North Americans' (Butler 1993: 87–88). What took place in the Caribbean based on North American tourists also happened in the Mediterranean with European and in the Pacific islands with Asian tourists from Japan, Korea or Taiwan. Developments first began to take off in the 1970s and then accelerated, sometimes rapidly, until the early twentieth century. A crucial aspect was the link to affordable mass transport by boat and plane, initially available to shelf islands only but later extending also to islands beyond the shelf regions (see Fig. 5.3).

By 2000, international tourist arrivals had reached 700 million worldwide. According to the World Tourism Organisation (UNWTO), international tourist arrivals grew by 4.4% in 2015 to reach a total of 1,184 million in 2015 (UNWTO 2016). Year 2015 marks the sixth consecutive

[7] For example, connections between the USA and Antigua were established with the inauguration of jet aircraft service in 1959.

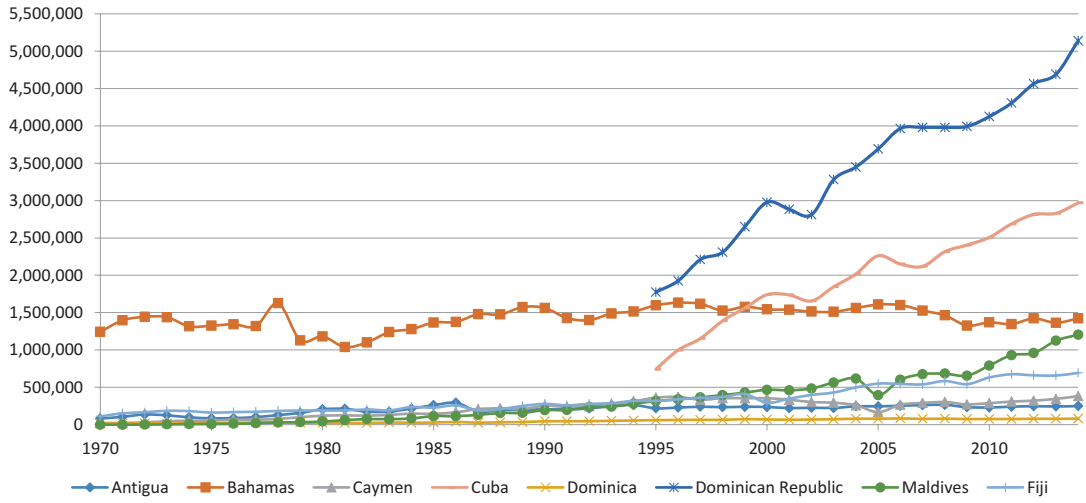


Fig. 5.3 Development of visitor numbers 1970–2015 in selected countries (Sources: UNWTO 2016; WTTC 2017)

year of above-average growth, with some 50 million more tourists (overnight visitors) travelling to international destinations around the world than in 2014.

Small islands with their clear physical boundaries are particularly attractive to tourists seeking to escape routines, stress and responsibility. The imagination of being isolated contributes to the sense of being 'out of time' and being caught instead in 'an atemporal context of legends, buried treasures and surviving customs' (Gössling and Wall 2007: 429). Wide long beaches, pristine blue waters, lush vegetation and smiling islanders are the symbols that frequently appear in travel catalogues (Gössling 2002) where they perpetuate the romanticism of islands. Apart from the classic threesome of sand, sun and sea, tourists however increasingly also look for safety and security. 'Political instability in any island (…) could easily result in a decline in tourist numbers, as Jamaica and Grenada have experienced in the past, and possibly Trinidad and Tobago in 1990-1' (Butler 1993: 88). Tourism is a terrible coward. Once they reach the living rooms of potential holiday makers, natural disasters such as earthquakes or tropical cyclones are just as damaging to the tourist economy as reports of political upheaval or revolution. Events such as 9/11 or the Islamist terror attacks in Europe immediately lead many to question the wisdom of flying to another country. Unexpectedly, this could be one of the reasons for the recent upsurge in popularity of cruise tourism. Unlike a foreign island, a cruise ship carries beds, familiar food and entertainment and even allows tourists to take along their own language and currency. As a result, cruise ships feel even more secure than small islands, where one is never quite safe from hustling beach vendors selling kitsch and souvenirs or wanting to plat one's hair.

The development of tourism inevitably led to further spatial restructuring and reorganisation on islands. Everything was now oriented towards the sought-after resource of the beach, including hotel complexes, international airports, road networks along the coast and to and from the tourist centres, related infrastructure such as water and electricity supply, waste water treatment, telecommunication, marinas, cruise ship terminals or tourist harbours, food imports and refuse tips. Pearce speaks of a 'frequent clustering of accommodation' and 'the development of enclaves, both physically and in economic terms' (Pearce 1987: 154). To these we might add *geographical terms* as the search for new sources of income leads to a geographical transformation – one that was once again dominated by foreign interests.

In order to keep up with the rapid development of international tourism, small islands with limited accessibility and resources need to rely

on special market niches. The islands of Mustique (part of St Vincent and the Grenadines) in the Caribbean or the Cook Islands in the Pacific are anything but mass tourism destinations. As a result of their exclusivity – and the prices they command – they seem reserved for the rich and beautiful. Unattainable though they may be to ordinary mortals, they still take on the role of an example for the rest of the market.

After the decline of colonial resource exploitation, tourism development was quickly regarded as an important development option for islands as other choices often seemed limited. However, just like previous island economies, international tourism is also constrained by the lack of local financial capital and human resources (see McElroy and Parry 2010). Small domestic markets, poor infrastructure, high transport costs and dependence on single commodities and export markets all need to be contended with. As a consequence, the tourism economy was unable to develop without external technical and financial support. Infrastructure was often financed by foreign development aid or investors attracted by tax breaks – with the consequence that a major proportion of tourism-related gross revenue is now repatriated (Gössling and Wall 2007: 434). Weaver notes that the end result has often been a tourist industry which perpetuates (and reproduces) underdevelopment (Weaver 1988: 320).

Case Study: Development of Tourism in the Dominican Republic

The Dominican Republic is a classic example of world market dependency, with the development of the island firmly situated within the centre-periphery system of the global economic web. The former Spanish colony was one of the traditional sugar islands of the Caribbean (see Sect. 5.1); tourism began to develop there in the late 1970s against a declining sugar economy. The economic, social and spatial structures of the country were transformed as a result. Tourism initially established itself along the palm-fringed beaches on the island's northern coast. A construction boom ensued, leading to numerous all-inclusive hotel complexes built on the coast. Soon afterwards the country was included in the programmes of international travel agencies, turning it into an important destination for international mass tourism. Tourism expanded considerably in the late 1980s, becoming the most important source of foreign revenue within a short period. Up until the early 2000s, the number of tourist arrivals continued to increase, and architectural eyesores further changed the landscape of the northern tourist centres. Infrastructure in the tourist regions is nearly exclusively provided for this sector of the economy, with northern airports and harbours representing the main gateways for international tourists (see Fig. 5.4). In more recent years, tourism shifted from the North (between Puerto Plata and Samaná) to the East (near Punta Cana and Bávaro). In 2015, 52.1% of all arriving flights landed in Punta Cana, followed by Santo Domingo (28.2%), Santiago (10.3%), Puerto Plata (6.4%), La Romana (1.7%) and Samaná (1%).

Within a few short years thus, the Dominican Republic became the 'king of Caribbean tourism', attracting more visitors to its shores than any other country in the region. In 2015 there were 5,599,859 international arrivals and another 766,903 Dominican non-residents visiting the island (see Fig. 5.5). About 56% (2014) of all tourists came from the USA and Canada and many others from western Europe, mostly from Scandinavia, Germany, Austria, Switzerland, Italy, Spain and the Benelux countries, although eastern European countries are catching up fast, with large numbers of tourists now also from Russia, Hungary and Poland. Structurally, the country is dependent on foreign booms, which is a considerable disadvantage as it makes the Dominican Republic highly sensitive to any economic downturn in the Western home countries of its visitors.

Even though the development of the tourism industry in the Dominican Republic can be classed as an economic success, the corresponding statistics often fail to reflect the reality of life on a tourist island. The Dominican population sees little of the money generated by tourism. This is because the Dominican tourism industry is dominated by all-inclusive clubs owned by international travel companies. In these clubs,

Fig. 5.4 Spatial organisation of tourism in the Dominican Republic (Sketch) (Sources: Meyer-Arendt et al. 1992; Padilla and McElroy 2005)

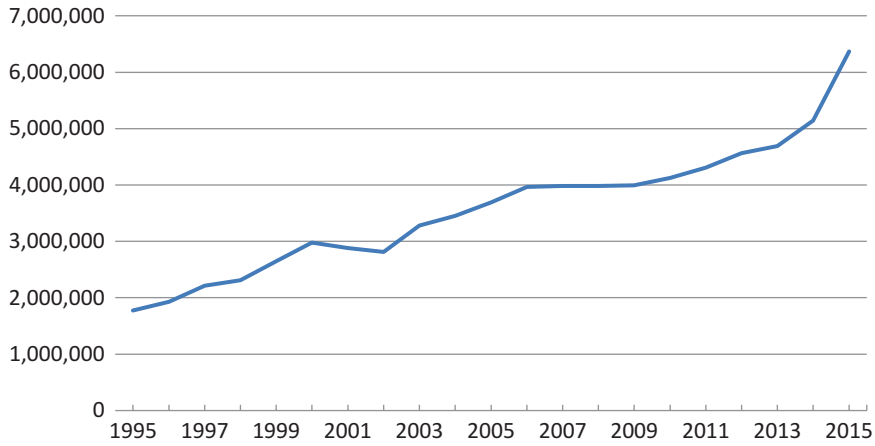


Fig. 5.5 Tourist arrivals in the Dominican Republic 1995–2015 (Sources: World Bank 2017)

tourists can eat and drink as much as they want; their daily entertainment is also part of the all-inclusive package. There is no need to leave the premises at all. This excludes the local population from generating their share of the profits, as even food for tourists is often imported. This form of tourism can be seen as a nearly autonomous, isolated development in chosen enclaves, where only infrastructure and workers are supplied locally.

Generally speaking, the Dominican population continues to suffer from a high poverty rate. More than 42% of the population are officially classed as poor (as of 2015). This is accompanied

by low education standards – the majority of young people living in rural areas have no opportunity to attend school. Only 87.8% of the population are literate. Government has instigated programmes to ensure anyone aged 15 and older is able to read, and there are regular reports on the successes of these courses, but only around 30% of attendees successfully complete a course. Unemployment averages 15%, reaching 29% in women and around 27% in young people. This means children are often forced into work, such as cleaning car windscreens, polishing shoes, selling goods or simply begging.

Sex tourism followed in the wake of mass tourism. The small, single-friendly hotels in the respective resorts are firmly in the hands of Germans, Dutch, Italians or Austrians. Other than Sousa, which is in the North of the island, Boca Chica is the best-known destination for sex tourism (Ebner 2007). Corresponding websites and fora for men advertise this exotic holiday paradise with its supposedly hot-blooded women and allow sex tourists to exchange detailed experiences there, often accompanied by secretly taken photographs or videos. Among the world's sex tourism destinations, the Dominican Republic is classed as affordable, with the added attraction that Dominican women are apparently regarded as 'hypersexual' and supposedly irresistible to white men. This seems to sufficiently motivate many men to travel half way around the globe to pay cash for some quick love (Darren 2004).

The difficult attempt is now being made to rid the Dominican Republic of its image as a cheap mass tourism destination. By the end of the twentieth century, the former well-kept secret had become the 'Caribbean for the poor' or the 'long-haul party location'. The cheap holiday boom was supported by the low oil price, affordable land prices and a government attracting investors with generous tax breaks. Investments often paid for themselves within 3 years instead of the usual 12–15. Cheap all-inclusive holidays contributed to a negative image that stubbornly persisted for many years. With the rising value of the US dollar and higher kerosene prices, it eventually became difficult to operate the quickly constructed cheap hotels at a profit and to properly maintain them at the same time. Soon, the hotels began to crumble and the image of the tourism destination suffered. The party was over.

The Dominican Republic has not been a cheap destination for some time now. At present, a tourist spends an average of US$ 133 a day (2016). Supermarket prices are nearly on a par with those in Europe. This turnaround, which began in 2000, is down to a masterplan developed by Felix Jiménez, then Minister for Tourism. Support was given to ecotourism, and between 2008 and 2016, nearly half a billion euros was spent on expanding the country's infrastructure. A new motorway now links the northern coast to the capital of Santo Domingo in the south, former gravel roads were secured and tarmacked, and new luxury hotels were built so that over 90% of holiday makers now reside in four or five star hotels.

With 36,000 hotel beds, Punta Cana is one of the largest destinations in the world. The diversity of accommodation is high, ranging from all-inclusive hotels to luxury residences. No building can be higher than 18 metres, and a joint decision was taken to not build any giant hotels. The airport has become the second largest in the Caribbean and is developing into a hub for connections to South America. Greater accessibility from North America, Europe and also South America makes the country increasingly interesting for conference tourism. Tourism revenue has increased from US$ 2.9 to 5.1 billion between 2000 and 2013 (Asonahores 2015; Duffy et al. 2016).

No Holiday for the Environment

Pearls of the Caribbean or the Southern Seas, lonely beaches in nature untouched, green islands in blue waters – these and similar images are used to attract Europeans or North Americans to far-flung holiday destinations. As we only hear what we want to hear and see what we want to see, these descriptions are indeed highly attractive. It is commonly reported that the tourism industry is one of the cleanest sectors – no dirty smokestacks, no overuse of resources – and independent of the worsening terms of the international commodities trade. The industry offers advantages to islands often poor in raw materials

and intent on catching up with worldwide development. But how clean is the tourism industry really? How green is international tourism on small islands, how resilient is this economic development? And, last not least, what fruits of their labour actually remain in the countries themselves?

The list of problems associated with tourism is long. Its dependency on the global economy and global security has already been mentioned. An economic downturn in the source countries immediately affects tourism activity and with this revenues in the destination countries. Tourism is also strongly seasonal, responding to the habits of its source countries – peaks in northern winters and summers are also felt in the everlasting summer of the tropics. The average length of stay varies with source countries and destinations. US-American tourists usually stay between six and seven nights, Canadians eight to nine and Europeans more than ten. Spending also varies considerably, with US Americans spending as much during their shorter stays as Europeans during their much longer stays.

For the islands themselves, tourism is little more than a service industry with limited innovation potential. Lack of investment and innovation result in a lack of regional products, and higher standards in competing destinations or new destinations attractively advertised inevitably lead to losses of revenue in the traditional destinations.

Still, a lot of profit can be generated from tourism through direct and indirect taxation, for example, such as airport tax, hotel tax, demurrages for cruise ships, sales tax, import and entertainment tax, licensing fees for taxi drivers and so on. Tourism also generates revenue through direct employment in the hotel and restaurant sector, as well as indirect effects in the construction sector, souvenir shops or bars. At the same time, tourism development generates many new full dependencies. In some countries, tourism now contributes just under 90% of the GDP. Even a country such as Trinidad and Tobago, which had relied on its oil reserves for a long time, eventually had to turn to tourism after the decline in oil price (see Table 5.1).

Table 5.1 Travel and tourism's total contribution to GDP (2015, in %, selected countries)

Country	2015 % share of GDP
Maldives	96.5
Aruba	90.7
Seychelles	62.1
Antigua and Barbuda	57.1
Anguilla	56.3
Bahamas	46.9
St Lucia	41.5
Fiji	38.7
Jamaica	29.3
St Kitts and Nevis	28.1
Malta	27.7
Mauritius	25.6
Grenada	25.5
Kiribati	21.0
Cyprus	19.3
Greece	18.5
New Zealand	17.4
Dominican Republic	16.3
Cuba	10.1
Trinidad and Tobago	8.5
Puerto Rico	7.2

Source: WTTC (2017)

Tourism development led to a complete restructuring of island economies, with corresponding impacts on social and spatial structures. Changes in employment structures tell a stark tale. For tourists primarily originating in the First World, a service society developed that depends on employment in hotels and restaurants – waiters, cleaners, cooks, gardeners – and comprises many self-employed small businesses such as taxi drivers, boat owners or tour guides. Numerous traditional activities were given up as a result of more lucrative employment options in the tourism sector. Food production in the countries is unable to compete with cheap imports, and agricultural production, even for export, is rarely still supported by governments. Traditional handicrafts are declining because of decreasing demand, and only the construction sector is experiencing an unparalleled and unexpected boom.

Lifestyles are also changing on the islands. International cuisine is becoming more established on account of tourist restaurants, specialist

boutiques are opening their doors, and there is an increasing range of entertainment and cultural events including discos and music festivals. While the establishment of such new values has many positive effects, it may also lead to loss of traditional values, which in turn might contribute to the gradual fragmentation of society, expressed for instance in increasing crime rates, prostitution and drug problems. It is of course a matter of perspective whether development is interpreted as progress or degradation. Certainly the changes occurring in conjunction with tourism are multifaceted. In order to arrive at a differentiated assessment, it is worth considering different types of tourism separately as they have different impacts on the economic, social and spatial structure of the destination islands. Hotel tourism, for example, has different impacts to cruising or specialist forms of tourism such as sailing, fishing, diving or golfing.

Classic, elegant hotels in formerly central locations are increasingly giving way to ever larger dormitories on beautiful beaches, fenced off from irritating locals. Resort tourism, the happy world between the pool bar and the barbed wire fence, came to epitomise US-American tourists in the Caribbean. Entire beaches – and in recent years even entire off-islands – were filled with hotels and entertainment parks, and all too often local residents were precluded from accessing their own country's beaches. Islanders had to make do with lowly service jobs, the employee's entrances or secondary urban spaces as tour guides or street vendors. Hotels are mostly foreign-owned, and their managers are also mostly foreign. Nevertheless, many islanders that no longer see a future in traditional jobs still migrate to the tourist centres to seek their fortune there, at least seasonally.

Spatial structures also adapt to the needs of the new economic structure. Roads are built to the tourist centres and visitor attractions, but not to the urban fringes or villages where the service staff live. Refuse collection in the tourist areas is well organised, as is its transport to less visible areas, but refuse tips are badly managed and are often a danger to the environment. Waste water and sewage is often discharged into the sea untreated. Ecological impacts often reach worrying levels. Beaches not only suffer from hotel construction and the nonchalant discharge of sewage but also overuse by too many tourists. Too many people in too small an area put pressure on coastal fauna and flora.

Cruise tourism has surpassed hotel tourism in terms of visitor numbers to islands, a share that continues to rise. In the Caribbean, 7,450,000 cruise tourists arrived in 1990, rising to 23.6 million by 2014/2015. The most important destinations are the Bahamas with 2.9 million, St Maarten 1.8 million, the US Virgin Islands 1.8 million, the Cayman Islands 1.4 million, Puerto Rico 1.4 million and Jamaica 1.3 million passenger onshore visits (cruise year 2014/2015) (BREA 2015). Seven destinations had direct cruise tourism expenditures of US$ 100 million or more. Ten destinations had direct expenditures between US$ 50 and US$ 100 million. St Maarten led all destinations with nearly US$ 423 million, followed by the Bahamas with US$ 373 million, the US Virgin Islands with US$ 344 million, the Cayman Islands with US$ 208 million, Jamaica with US$ 199 million and Puerto Rico with US$ 198 million (BREA 2015: 3).

Cruising is not just a fashion. It offers enormous advantages to foreign visitors. The floating hotels offer international standards and guaranteed entertainment, and the comprehensive organisation and care during excursions provide the necessary all-round protection from unpleasant experiences.

More and more islands have recognised the potential of this type of tourism and are submitting to its needs. A modern pier is the most important prerequisite, equipped with the necessary technology to allow huge luxury cruise liners to dock. The size of the pier determines the size of the ship and with this the number of tourists, while the standard of the pier determines its attractiveness to ship-owning companies and the chance of being included in their tours. For the excursions, specialised offers need to be developed that make landing even more attractive to the cruising companies. This includes roads to souvenir shops as well as trips to beautiful beaches or inland attractions – all to be done

within a few short hours, as soon the visitors must return to their luxury liner to sail on to the next island. The latest development is the privatisation of whole islands and their exclusive use by cruising companies as secluded entertainment parks. Seven such islands now exist. The artificially constructed adventure and leisure camps on Castaway Cay, Coco Cay, Great Stirrup Cay, Half Moon Cay, Princess Cays, Ocean Cay Marine Reserve (all Bahamas), Labadee (Haiti), Harvest Caye (Belize) as well as Sir Bani Yas Island west of Abu Dhabi are virtually extraterritorial, existing in total seclusion and safe from any undesired contact with locals. This is perhaps the most modern form of island construction (Zehender 2017).

A cost-benefit analysis of cruising seems to be just as difficult as for hotel tourism. A study commissioned by the Florida-Caribbean Cruise Association revealed that the total direct expenditures per passenger across all destinations in the Caribbean increased by 7.6% from US$ 129.18 during the 2011/2012 cruise year to US$ 133.78 during the 2014/2015 cruise year. Average passenger expenditures per visit, including both transit and home port calls, rose by 8.25% to US$ 103.83 from US$ 95.92 (BREA 2015). Hotels do not profit at all from this type of tourism and restaurants only to a limited degree. Food for the cruise ships is entirely bought outside the region, and it is usually the Ministry of Tourism on the islands themselves that decides on who can make money from excursions – by specifying whether these trips are organised centrally or give room to individuals. Souvenir shops benefit most from cruising and the spontaneous spending of visitors. Most souvenirs, however, are imports from Asia, even though the label hand-made might suggest otherwise.

The costs resulting from cruising are diverse and hard to quantify. Modern harbours must be included just as much as the costs for infrastructure, road improvements and safety measures. Improper disposal of waste is an increasing complaint. Despite several agreements that require ports to install appropriate receptive facilities, this is difficult especially for small islands that often struggle to dispose of their own waste.

The construction of piers often comes at a heavy price for the marine environment. In many cases, coral reef is destroyed when the harbour basin is deepened or sand extracted. The cruise liners themselves also destroy coral reefs by casting their anchors outside the harbour in places where the pier is too small. Although the greatest environmental problems are concentrated along the coast, the many short-term visitors and their trips to inland attractions can do additional damage to inland natural areas. Ecological impacts cannot be measured in shares of the GDP, but in the long term, they are likely to lead to a loss of attractiveness, in turn affecting visitor numbers. A visitor tax is unlikely to change this situation or reduce the damage done to the environment.

Numerous special forms of tourism, such as golfing, diving, fishing or sailing, also impact the islands and the surrounding ocean. Golf tourism takes up vast tracts of land on account of the sheer size of a golf course, which is a particular problem on small islands or where spatial conflicts are already on the agenda. Requiring special grass that often needs to be watered, golfing also has huge impacts on the environment, in particular on coral islands where water reserves are limited. Tons of pesticides, fungicides and fertiliser are often necessary to maintain the required standard of grass. Specialised golfing holidays are increasingly popular among the growing number of hobby golfers from the European, North American, Japanese, Australian and New Zealand middle classes. Barbados, for example, has eight golf courses either operational or under construction, with all their attending infrastructure such as parking lots, expensive housing, condos, hotels, expanded and new roads, airports and reservoirs. All of these are mostly irrelevant to the welfare and development aspirations of the countries involved. Last not least, the spatial relevance of golf courses results from the fact they are often placed in the most beautiful landscapes. Often, virgin forests are cleared to make way for a golf course, natural areas are converted into grass monocultures and hardly any attention is paid to the resulting erosion problems. Water run-off, laden with pesticides and fertiliser, often destroys nearby coral reefs and pollutes ground-

water reserves.[8] When calculating the cost-benefit ratio of golf tourism, the expected economic benefits should therefore really be weighed against the additional import costs and above all environmental costs.

Developments in the field of nature tourism are also often worse than their reputation. Nature tourism, badly translated as 'ecotourism', summarises different types of tourism that do have effects on the environment, although this depends on their intensity and frequency. Nature tourism includes bird watching on Grenada just as much as whale watching in Samaná Bay (Dominican Republic), shark watching on the Maldives, mountain hiking in Dominica or mountain biking in St Lucia. All of these can have negative environmental impacts – cross-country bikers, for example, can exacerbate problems of erosion as a result of avoiding set tracks and forging their own, more interesting routes. One advantage of nature tourism is that its associated infrastructure is not particularly expensive. As long as travel takes place in small groups, the leakage effect is particularly high as local structures are purposely sought out and proximity to the local population is part of the self-image of this type of tourism.

Nevertheless, every form of tourism has its downsides for island development – whether it is the formation of enclaves behind barbed wire fences or the loss of traditional jobs for the island population. Negative environmental effects are also diverse, and new niche forms of tourism are no exception. The much-touted combination of marrying and spending one's honeymoon on a small coralline island puts great pressure on freshwater resources due to excessive water use – no less so than the masses of cruising tourists that temporarily invade the islands. Dependency on foreign economies is a problem, as are natural and man-made disasters. The annual tropical cyclones not only destroy houses and hotels but often the entire infrastructure, including roads, airports or pylons. The ensuing losses on account of lower tourist numbers are hard to calculate. Growing tourist numbers imply higher costs for new and larger infrastructure but also higher costs for energy and freshwater and dealing with refuse and waste water. Not only do these issues need to be addressed quickly, but long-term negative impacts on the environment and people need to be avoided. What, then, are the overall costs of tourism? This question remains unanswered.

'Like a Dose of Salt'

The actual benefits of tourism for island states have long been a matter of debate. As early as 1994 a leading columnist writes in the Jamaican Gleaner: '…[W]e have an industry which everyone admits is of vital importance to our economy. Yet it is strange that nobody can tell us the net earnings of the industry… It maybe, and I hope it is not so, that while large sums of foreign exchange come in, large sums go out again having passed through us like a dose of salt. (…) It may be very nice knowing that we have a million or so tourist coming in and out, but what does this privilege cost us?' (Cargill 1994: 6). Island gentrification, scarcity of resources, loss of identity among islanders, often due to distorted island images constructed for the tourist industry, and deviating perceptions by locals, all need to be part of a cost-benefit analysis. Although tourism development has emerged as the leading development model, its long-term success is by no means guaranteed.

The economic SITE model (Small Island Tourist Economies) developed by McElroy in 2006 attempts to explain this type of island economy. Primarily based on Caribbean examples, it has since been refined on the basis of a finer-grained econometric analysis, differentiating between low, intermediate and high tourism impact SITEs (McElroy 2006; McElroy and Hamma 2010). The authors question the general and long-term sustainability of a SITE development path. They show that 'high tourism impact SITEs' are generally more prosperous and modern and associated with an older demographic structure than intermediate and low tourism impact SITEs (McElroy and Hamma 2010: 45). They conclude, however, that even the most pen-

[8] See also the Global Anti-Golf Movement, founded and largely supported by Asian organisations, on 29 April 1993, the first World No Golf Day in Penang/Malaysia, http://www.antigolf.org/english.html

etrated island SITEs can flip, arguing that four essential elements of the so-called diamond of sustainability need to be achieved for long-term sustainability (Clark 2009). Long-term objectives for high tourism impact SITES include (1) long-run profitability for developers, (2) improved standard of living for residents, (3) quality repeat experience for the tourists and (iv) the preservation of assets for future residents and vacationers (McElroy and Hamma 2010). In order to reach these objectives, further environmental degradation will need to be avoided, a broader spread of visits will need to be achieved both temporally and spatially, and mass tourism will need to be supplemented by smaller-scale specialised alternatives.

For small islands tourism is both a curse and a blessing. '….Small island tourist economies command a powerful resource as imaginary and real sites of retreat and refuge from the stress of work […]. Like the export-orientated plantation economies before it, however, the tourist industry often contributes little to sustaining local economies in the form of local investments, as tourism income largely flows out of the economy. The expansion of tourism often involves absentee ownership, displacement, and gentrification of island communities, that is, a form of accumulation by dispossession' (Clark 2009: 608).

5.3 Offshore Financial Centres: Sun, Sand and Discretion

> Tax havens are nothing but extraterritorial territory in the computers of banks. (Helmut Schmidt)

In parallel to the increasing 'touristification' of small islands, another postcolonial economy developed which is especially salient for dependent island territories: offshore financial centres. Whether this is a curse or blessing once again depends on the isolation, smallness and dependence of the affected islands, as well as the technical globalisation afforded by the computer age. What results is a fixation of centre-periphery relations.

The increasing internationalisation of capital and restrictive financial policies of many industrial countries led to the development of a growing network of so-called offshore financial centres (OFC).[9] Although the rich and powerful have long since hidden their wealth in tax havens such as Switzerland, large-scale tax evasion by multinational companies and banks only began in the 1960s. Technological progress greatly facilitated the mobility of capital, as computer technology enabled even less significant companies and persons to use the services of OFCs. Many small countries recognised the economic potential inherent in offering offshore financial services. But what are the costs and benefits of establishing an offshore financial centre to an island state?

With only few exceptions, it is mostly small island states, both dependent and independent, that are looking towards the offshore financial industry as a way out of their economic dilemma. Clusters of well-known OFCs are located around the European periphery (e.g. the Channel Islands, Isle of Man, Malta, Cyprus), in and around the Caribbean (the Cayman Islands, the British Virgin Islands (BVI), the Bahamas, Bermuda), the Pacific (Vanuatu, the Cook Islands) and Indian Oceans (Mauritius, Seychelles). Many small island economies have become highly dependent upon hosting OFC and tax haven activities with extreme examples such as the British Channel Island of Jersey having over 90% of its government revenue originating from such activities. There the OFC directly employs up to 20% of the local labour force (Hampton and Christensen 2002). Today more than thirty countries from Nauru to Nevis are competing for customers (see Fig. 5.6). Island after island seemed to catch on to the offshore vision in the 1980s,

[9]The term offshore originates from the oil industry where it describes activities that take place in a country's marine territory. Hampton (1994) defines an offshore financial centre as a 'center that hosts financial activities that are separated from major regulating units (states) by geography and or by legislation. This may be a physical separation as an island territory, or within a city such as London or the New York International Banking Facilities'. (Hampton and Christensen 2002: 1670),

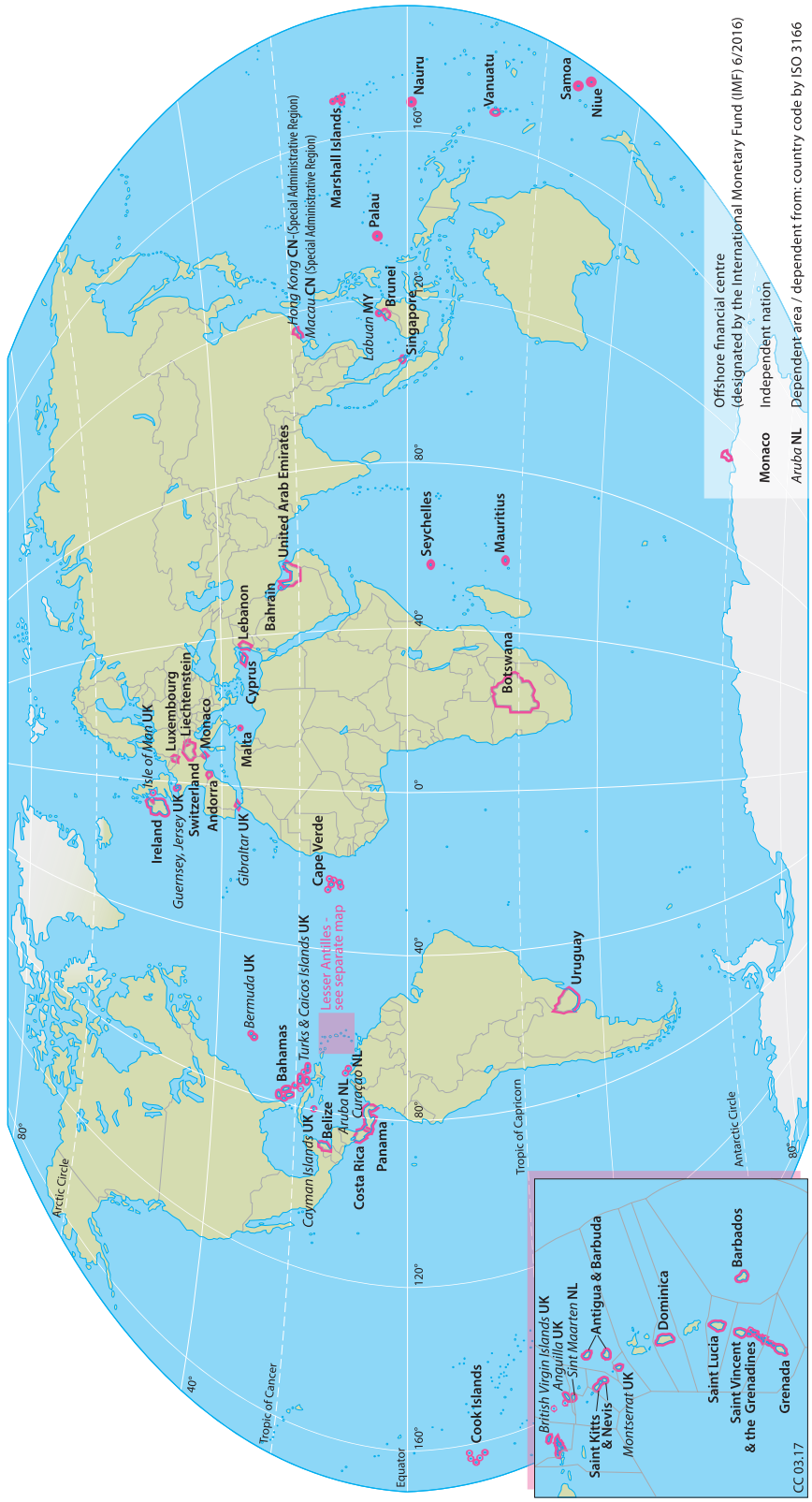


Fig. 5.6 Global offshore financial centres (Source: ALINOR 2010)

producing new markets by creating legal spaces and attempting to take a share of big business (Palan 2006).

These centres use particular technical-infrastructural and political-institutional framework conditions to lure hundreds and thousands of financial holdings and private persons from Europe, Asia and North and South America. There are various types, specialisations and degrees of development of OFCs.

Offshore banking centres, tax havens and 'paper centres' – innumerable terms – are used to capture the phenomenon and to define it by means of different criteria. The wider public mostly associates OFCs with shady deals that enable the rich to grow even richer. 'The essence of offshore investing is to make as much money as possible while paying as little tax as possible – all the while making sure that no one knows you have done it' (Friedland 1992: 29).

In an offshore banking centre, international banking is facilitated by means of favourable or flexible taxation and legislation, and it is possible to establish and maintain commercial holdings or international offices under highly advantageous fiscal and/or legal terms. A typical OFC is broader than this – a small, low-tax jurisdiction specialising in providing corporate and commercial services to non-resident offshore companies and for the investment of offshore funds. OFCs represent safe havens for international profits, savings and profitable investments, often in a tax-free environment and offering greater freedom than the home country for maximising profits made on international capital and monetary markets.

Tax havens differ from an OFC in that they are based on specific tax legislation. In most cases, the entire country is low or zero tax,[10] with the same conditions applying to residents and foreigners. For OFCs, tax law is also important, but liberal regulations and control mechanisms are at least as important, as are a wide range of financial services. OFCs are not only used for tax evasion but also for security reasons or to build up wealth. Despite these specific definitions, transitions between tax havens and OFCs are fluid: As zero tax countries, the Bahamas or Cayman Islands could easily be classed as tax havens, but as they also offer complex financial services and a legislative framework that goes beyond a zero tax regime, some authors have classed them as OFCs. The definition of an OFC is a modern, efficient and diversified financial centre which often represents a natural extension of a tax haven.

Another classification of OFCs is based on the type and volume of activities and their impact on the local economy. In this context, the distinction between functional and paper centres, as well as primary, secondary and tertiary enterprises, is important. In the Caribbean the traditional OFCs such as the Cayman Islands, the Bahamas and the Dutch Antilles are classed as functional centres. Their main characteristic is that a large number of renowned banks and finance companies of multinational firms are actually based there. Professional technical and institutional infrastructure is a significant agglomeration factor. All three of these centres have excellent transport links, communication technology and a broad range of well-known accounting and law firms as well as state financial institutions. On the Bahamas and Cayman Islands, public funding supports degree courses in law and banking. Offshore financial services are the second most important economic sector on these islands behind tourism.

Anguilla, Antigua, Barbados, the British Virgin Islands, Nevis and the Turks and Caicos Islands are so-called paper centres. They mainly host secondary enterprises such as real estate funds, holdings, trading companies and so on, and the physical presence of the offshore businesses is much lower. Paper centres can manage without the agglomeration advantages of functional centres, as activities are mostly administrative (e.g. bookings) and can be done for a large number of clients from just a few offices, although modern communication technology is essential. Impacts on local employment are therefore low, and there is much less connectivity with other economic sectors here than in functional centres. In most cases a single corporate form predominates through which tax reductions can be

[10]Tax havens generally describe those countries that do not tax incomes or businesses at all or below 50%.

achieved. All of the current paper centres are striving to expand their offshore financial services in order to join the ranks of the OFCs.

The presence of offshore banks and other finance companies attracts other companies, generally with positive impacts on the host country's economy. As a result, these types of business are often termed primary companies in that they are essential for a functional OFC. Secondary and tertiary companies are mostly the classic shell corporations that only exist as an address for tax purposes; they mostly administer certain transactions and bookings.

The Relative and Relational Meaning of Space

Caribbean OFCs first arose as a result of restrictions imposed on monetary policy by the US government in the 1960s. Initially, these restrictions led to livelier activity in London, but the growing inclusion of Latin America in international trade networks gradually led US banks to establish branches in the Caribbean. Apart from being physically close, the Caribbean had the advantage of almost being in the same time zone; this avoided delays in doing business with the USA and Latin America. Subsequent years saw a huge increase of OFCs in the Caribbean. Internal factors also contributed to this, such as the continued dependence of many Caribbean OFC states on the UK or their position as newly independent, parliamentary democracies within the British Commonwealth. Four prerequisites are essential for the emergence of an OFC:

1. The predominance of English as the language of international finance.
2. The presence of an established and differentiated legal framework for the financial system. In the majority of Caribbean OFCs, this is based on British Common Law which guarantees confidentiality between bankers and their clients. Many countries have added to this legislation by introducing stringent secrecy laws for banking – a significant location factor for offshore banking.
3. Political stability, which is a given for all Caribbean OFCs. This comes back to their form of government as either dependent territory or members of the Commonwealth. The British mother country currently imposes strict controls on the offshore activities of its dependent territories. For business people interested in secure transactions, this is a considerable advantage over other centres such as Panama.
4. Dependency on onshore states often leads to a lack of foreign exchange controls through a central bank, more flexible economic regulatory mechanisms and a greater variety of corporate forms. This mostly results in a broader range of offshore activities.

Beyond these factors, it is once again the specific structural features of small island states that play a key role. Economic crises in traditional sectors have forced island governments to reorient and possibly diversify their economies. The tax reductions necessary for establishing an OFC are relatively easy to implement on small islands. Only a small state with relatively low administration costs and a low-tax base can afford to be a zero-tax or low-tax country. On top of this, small and very small islands in tropical oceans are attractive destinations for business people, allowing them to combine business with pleasure. IT networks and excellent international flight connections are also essential. A combination of offshore finance and high-quality tourism has thus been the driving force behind the most successful island economies (see Bertram and Poirine 2007: 362).

In the political economics literature, OFCs are classed as belonging to the PROFIT model where people, resources, overseas management (diplomacy), finance and transport play a central role. This emphasises the role of an active private sector in the economic development of islands (Baldacchino 2010). PROFIT examples would include tax and insurance havens, offshore banking centres and duty-free manufacturing exporters, all of which are characterised by active domestic policy – a so-called resourcefulness of jurisdiction (Baldacchino 2006). They are also characterised by their strategic orientation towards global markets. Most OFCs are in fact

PROFIT/SITE hybrids that arise from a close interrelationship between offshore finance and tourism (Bertram and Poirine 2007: 362).

The first country in the Caribbean that recognised this inherent potential was the Bahamas. Nassau became an important centre of the global financial system as early as the 1960s. As a classic tax haven, the Bahamas initially attracted US pensioners fleeing the high tax rates of their home country, resulting in an explosion of tourism and a flourishing real estate market. The Bahamian government soon realised that the advantages of a tax haven could also benefit the financial sector. The aforementioned restrictive policies in the USA and the local presence of many banks also contributed.[11]

Strict banking confidentiality, however, soon came to be used for money laundering by drug dealers, the mafia and gambling syndicates, tarnishing the Bahamas' reputation. The resulting negative image, coupled with uncertainty over the country's political stability after independence in 1973, led many investors and bankers to turn to the Cayman Islands instead. By that time, after splitting off from Jamaica in 1962 and becoming a British Crown colony, the Cayman Islands had also created the necessary legal prerequisites for offshore financial activities. They quickly represented a serious competitor to the Bahamas, eventually becoming the most important tax haven worldwide. After briefly also dealing with a bad image on account of money laundering and links to the drug trade, the Cayman Islands implemented strict new rules and regulations against money laundering, leading the country to be taken off the list of 'non-cooperating jurisdictions' (see Hampton and Christensen 2002: 1670 footnote 9). Legislation for offshore banking passed by the Cayman government has since served as a model for the world's leading financial centres. Based on the common law position in the UK that guarantees confidentiality to all business and professional people, the new laws were able to re-establish the most important thing of all, namely, trust and faith in the confidentiality of business activities and the guarantee that these same laws would not protect persons seeking to use them for dubious purposes. By 2013 over 200,000 companies had become registered in the Cayman Islands. Most international banks have a branch there, and the islands are also regarded as the largest hedge fund location worldwide, hosting around 40% of all hedge funds.

After their brush with the international drug trade, and following the general trend towards greater surveillance in the offshore finance sector in the 1990s, quality and security of OFCs are today primarily guaranteed by a professional legal-institutional base. Numerous conflicts led to a general overhaul of relations between the British motherland and its colonies, as well as comprehensive changes in the offshore finance sector of the respective small island states.

In 2009 the British Government suspended the constitution of the Turks and Caicos Islands (TCI) and took over daily rule after allegations of systematic corruption involving past and current politicians who allegedly built up a multi-million-dollar fortune through a series of loans from banks and deals with property developers for land owned by the Crown. After general elections in November 2012, the territorial government was restored under a new Constitution; however, a special Commission of Inquiry started investigations against the former Prime Minister Michael Misick along with four members of his cabinet, the wife of a former minister and three attorneys. This resulted in a court case and several recommendations for revisions of the Constitution and TCI laws to prevent a recurrence of corruption and misfeasance in government. Trouble in paradise seems not be over yet – the former premier on trial for corruption was seeking to make a comeback in the general election on 15 December 2016.[12]

[11] The Royal Bank of Canada opened a branch on the Bahamas in 1909.

[12] The House of Assembly elections ended with a landslide victory of the opposition People's Democratic Movement (PDM) led by 45-year-old attorney Sharlene Cartwright Robinson becoming the islands' first female Premier. She had won seven of the ten constituencies and four of the five at large candidate positions. Michael Misick ran as independent candidate and won 1669 votes (5.57%) but no seat in the new assembly (Charles 2016).

Increasing competition forces OFCs to constantly expand their financial services and to develop market innovations for their clients. This makes conditions in the respective OFCs ever more complex but also provides a professional guarantee that business will be clean and confidential. Marketing, expert knowledge and legal security are becoming ever more important. Developments are highly dynamic and unpredictable, as companies can quickly be established on Jersey, the Bermudas or the British Virgin Islands but can just as easily be moved to another location. Due to the mobility of capital and the activities linked to it, OFCs are forced to constantly adapt. Internal structures are just as important for their future as international framework conditions and the development of their competitors. There is one inherent risk that all OFCs around the world are subject to, namely, the extreme sensitivity of financial streams to external influences, especially political and social unrest.

Effects on the Small Centres in the Periphery

Taking into account the transnational character of offshore financial services and the favourable conditions that Caribbean OFCs (need to) offer their international clients, the question begs where all of this leaves small island states. On the plus side is income generated by issuing banking licences, registration fees and stamp duties, as well as the broader business environment that is generated. Functional centres can obtain significant profits from offshore financial services, offering the potential of strong economic benefits for small island states with limited alternative development options. The added development of tourism makes these islands attractive to foreign tourists and also to work migrants from within and outside the region.

At the same time, offshore financial services also lead to the familiar conflicts of interest and use of space. On the minus side are therefore the costs for establishing the necessary technical and institutional infrastructure, including transport links, and the supply of goods and other services that are entirely geared towards the needs of the OFC. These direct and often material costs are supplemented by immaterial impacts that can take very different forms depending on the type of OFC. Jobs on offer in the OFC are primarily limited to well-trained finance brokers and solicitors, while all of the lower services are provided by immigrants with little education or training. The booming construction sector, growing pressure on limited environmental resources and permanent competitive pressure can lead to social tensions and the overuse of space. A paper centre might be more environmentally friendly because of the predominance of shell companies, but the economic benefit is considerably lower. This makes clear that the costs and benefits of an OFC to its host country cannot be generalised. Individual case studies are necessary, as are more specific cost-benefit calculations. The development of new OFCs should therefore be based on careful consideration of the specific framework conditions, while existing centres should focus on more long-term planning.

New OFCs, in particular in independent island states, are finding it increasingly difficult to establish themselves. Many clients are sceptical of the new arrivals and link them to low security, control and professionalism. Governments might see a growing market for offshore financial services as tax evasion continues in economically strong states, but the combination of drafting new laws, copying existing laws and reducing costs even further does seem to have its limits. Even creative lawyers are finding it difficult to open up new niches in an extremely diversified market, not least because clients are gradually losing track of what is on offer. Good marketing and local expert knowledge are therefore essential, but exactly this is often lacking in the newcomers. It is fair to assume that they can only conquer a market share in the offshore financial sector by offering extremely liberal access conditions.

In summary, economic development based on offshore financial services also has its limits, both nationally and internationally. The economic success of an OFC can quickly flip if national carrying capacities are ignored. At the same time, establishing ever more OFCs also has its limits as not all islands can be hubs for international capital at the same time. Given current developments, the future is bright for dependent

countries and centres under professional control, where activities in the offshore finance sector are coordinated in a sensible way.

Once again, the main lesson is that the dependent economic development as an OFC does have some advantages but that these can quickly disappear. Given the current global crises and hotspots, US economist and Nobel Prize laureate Joseph Stiglitz demanded the abolishment of tax havens and the imposition of a minimum taxation rate of 15–20% for all global companies. This is a revolutionary thought – suddenly, it would be down to companies to demonstrate they are paying tax on their profits. The tax authorities of leading industrial nations would benefit from this policy, while small island states specialising in an unsustainable business model would lose out. If, on the other hand, sustainable development is the overall objective, then the same diamond of sustainability would apply as in the case of tourism development (see McElroy 2002). This would need to guarantee (1) long-run profitability for developers, (2) improved standard of living for residents, (3) quality repeat experience for the tourists and (iv) the preservation of assets for future residents and vacationers (McElroy and Hamma 2010: 45/46). To move towards these goals would mean curbing further environmental damage, better distribution of business through space and time and developing smaller-scale specialty alternatives that can viably exist alongside traditional OFC and mass tourism.

5.4 Island Branding and Niche Economies

> If everybody is doing it one way, there's a good chance you can find your niche by going exactly in the opposite direction. (Sam Walton)

Sugar production, tourism development and financial services are three examples for mainstream and above all dependent island economies. Other, similar examples can be found, examples that once more present islands as economic objects and outposts of the external, colonial, imperial or global economy.

In some cases, raw material extraction has led to the short-term blossoming of some local economies – but at considerable environmental cost. Nauru, for example, was completely restructured due to the exploitation of its phosphate reserves, leading to ecological devastation and a moon-like landscape after the British departed.[13] Bougainville was poisoned by Australian mining companies on account of its copper reserves; its island population was marginalised. On the Turks and Caicos Islands, all forests were cleared in order to produce salt for the international canning business, only for this industry to collapse in the 1960s. Export crops other than sugar mostly meet niche needs of the global economic centres. The Southeast Asian Spice Islands, for example, became integrated into the world market on account of a niche product, sealing their fate as outposts of central economic interests. The same applies to banana cultivation on eastern Caribbean islands or the cultivation of copra in the southern Pacific.

Apart from their potential utility, location has always been a key factor for dependent island economies. Islands such as Mauritius underwent several phases of economic appropriation, initially as a sugar island and then as an extended work bench of the international textile industry. The Indonesian island of Bantam was also able to participate in the prospering triangular trade in the region through a prospering textile industry. Contributing factors included a suitable labour force, available space and above all geographical location (21 km off the coast of Singapore). From the early 1980s onwards, the former holiday island of Singaporeans was gradually transformed, turning the former Indonesian periphery into a flourishing industrial centre and attractive location for international direct investment, thanks to proximity and reachability (see Royle 2001: 182–183).

Some islands quickly understood how to make a name for themselves through specialised prod-

[13] Australia is using the islands Manus and Nauru as offshore detention centres for unwanted refugees – a highly contentious use of a small, isolated island (see Cohen 2016).

ucts. Madeira became known for its wine, the Scottish island of Harris for its tweed and Guernsey for its sweaters made of oiled wool (Royle 2001: 176f). Such island branding can be successful as long as there is ongoing demand and substitute products do not conquer the market (see Baldacchino and Fairbairn 2006). Jamaican Blue Mountain coffee, Blue Curacao liqueur or Cuban cigars help to diversify the economy and reduce the helplessness of islands, as long as they can cocreate trade relations and are not pushed out of the market. These specialisations are not monopolies in the strict sense as products can be substituted – if you like Cuban cigars, for example, you might enjoy those from the Dominican Republic too (Ratter 2007).

Some economic specialisation also led to ecological disasters, such as the production of sandalwood for the perfume industry on New Caledonia or Ylang Ylang on the Comoros. Foreign investors and inconsiderate trade partners contributed to the overexploitation of the respective forests. Sandalwood had almost entirely disappeared from New Caledonia by the end of the nineteenth century, causing the exploitation of this renewable but not inexhaustible resource to shift to other Pacific islands. Distillation of the light yellow flowers was carried out in ancient, inefficient wood-fired ovens, leading to the consumption of enormous amounts of wood and temporarily landing Anjouan in fourth place on the global list of deforestation rates. Since then, awareness has gradually grown that efforts can be made to use resources sustainably for the benefit of the local population. In the 1990s, New Caledonia began a programme of reforestation; an experimental tree nursery for sandalwood was created, and in 2006 a distillery was opened on the island of Maré where traditional methods are employed to make a high-quality product able to compete with industrially made fragrances. High quality and naturalness are the unique selling propositions that enable traditional products to compete with mass production and artificial substances. On Grand Comoros the locally manufactured, bittersweet scent of Ylang Ylang is also experiencing a small renaissance.

New windows of opportunity that bring opportunities for entirely new business ventures only rarely emerge. A well-known example is the introduction of internet domains in the mid-1990s, which suddenly sparked interest in Tuvalu, the smallest and most remote country on Earth. When Tuvalu was awarded the domain name suffix '.tv' by the International Organisation for Standardisation in 1996, global internet providers suddenly took note. A deal struck in 1999 with an US-American company was supposed to deliver royalties worth US$ 50 million over a period of 12 years – more than half of Tuvalu's annual GDP at the time. However, hopes for a carefree future with many more millions to follow soon floundered as domain names ending in .tv were being sold in auction, but Tuvalu was not receiving its fair share of the profits. The contentious deal is now considered unconscionable, as the annual royalties of US$ 1 million only represent one-tenth of the government's total revenue, which is not considered enough. The deal is up for renegotiation in 2016, its future undoubtedly dependent on the global development of cyberspace and the negotiating skills of the Tuvalu government. Perhaps Tuvalu will only have experienced a brief light moment of easily earned revenue.

Not renewing the deal would probably bring even greater financial hardship on the island. Apart from copra, or dried coconut kernel, Tuvalu has few exports. The government makes money from the sale of tuna fishing licences and by selling its postage stamps to philatelists but is confronted with a wide range of problems. Ten square miles of land produce little in the way of crops, making the country dependent on processed food from Western nations. The imported diet leads to major health problems among the 11,000 strong population, with heart disease and diabetes killing people in their thirties and forties (Maynard 2010). Added to this are the constantly rising public debt, the emigration of young workers – German shipping companies alone employ 800 crew members from Tuvalu – a stalling economy and a growing litter problem on the islands because the packaging of imported foods is difficult to dispose of. In recent years many coastal

homes have been swamped by rising sea levels and increased tropical storm activity which have eroded the coast and added to the salination of the soil which in turn threatens subsistence farming. The country is entirely dependent on overseas development aid, which in 2014 contributed 63% of Tuvalu's GNI (OECD). Remittances are another substantial source of income, although this has declined since the 2008–2009 global financial crisis. Growing income inequality is one of many concerns for the nation.

5.5 Islander Migration Networks

> Aceptamos pues el reto, pongamos nuestra fragmentaria seguridad cultural en juego y vivamos nuetra cultura como tarea de permanente transculturación. (Raúl Fornet-Betancourt 1989: 119)

Tuvalu, Kiribati, Tokelau and the Cook Islands were used as the classic conceptualising cases for the economic reality of so-called MIRAB economies in the Pacific. In these island nations, *Mi*gration, *R*emittances, *A*id and *B*ureaucracy are central to the socio-economic system. The MIRAB model of economic development was introduced in the 1980s by Bertram and Watters (1985), when a MIRAB economy was mainly characterised by the central role of migration and its influence on economic and socio-spatial development. Three other factors were important:

- An ongoing gap between national expenditure and GDP (gross domestic product)
- A combination of large trade deficit and balanced annual budget (limited debt accumulation)
- Long-run stability of per capita financial aid glows (Bertram and Watters 1985; Bertram 1999)

Migration is not a recent phenomenon that only arose from post-war industrialisation. It has always been characteristic for islands throughout history, although its motivations and forms have changed (Weber 2016; Edwards 2014; Siegel 1985). Nevertheless, one thing always remained constant, namely, the high degree of mobility and flexibility of island populations, pointing to the strong interconnectivity of islands and a type of socio-spatiality that is formed through personal and informal networks.

In the Caribbean, migration between islands already played a role in pre-Columbian times when islands were first settled and began to develop. The European conquest of the Caribbean led to the almost wholesale extermination of the indigenous population and a demographic reformation through the various colonial powers. Immigration from Europe was intensified by the import of slave labourers from Africa and later the import of Indian contract workers. In parallel, Syrian-Lebanese, Arab and Chinese traders settled on the islands, where they continue to dominate non-governmental services and networks (Escher and Karner 2016). In the late twentieth century, labour migration intensified to the boom centres of railway and canal construction, to mines and oil fields, and particularly to the bauxite mines in the region. In the 1960s, outmigration significantly increased with the growing need for workers in metropolitan states (Hensel 2004). This coincided with an economic crisis on the islands, the fact that local employment opportunities had not kept pace with population growth, and the arrival of modern, faster and cheaper air travel, enabling labour migration to outside the region (Connell 2007). This period laid the foundation for extended Caribbean family networks that still exist to this day.

Apart from the informal economic networks of small traders in the eastern Caribbean, or the networks between western Caribbean islands formed by fishers, it is mostly the migrant members of families that provide examples for informal networks of contacts between the states and islands of the Caribbean. Shared family connections criss-cross the region like a web of old shipping routes. Genealogies highlight the unity of the Caribbean across former colonial borders. Jamaicans whose Spanish surnames are indicative of Spanish or Cuban forbears are just as common as Cubans with English names. On the

Cayman Islands, many residents can trace their ancestry to Columbian mariners, and Providencia is still home to descendants of the early turtle hunters that migrated to the island in the nineteenth century from Cayman Brac. Family connections such as these are still maintained today (Ratter 2001).

The Bahamian Hepburn family is one of many that can trace its roots to David Pratt, a seaman from Demerara, Guyana. Arriving on Cat Island in the Bahamas in the late nineteenth century intent on seeking his fortune, he married Beniuty 'Titta' Poitier, grandmother of the actor Sidney Poitier who later came to fame in the USA. At that time, the Pratt clan consisted of 15 households with a total of 54 children, all living in Douds, a tiny settlement in New Bight, the capital (Hepburn 2014). The marriage between David Pratt and Titta Poitier produced daughter Amelia Pratt, who met her later husband Ernest Hepburn while on contract as a harvest worker in Florida. Their eight children – Ruth, Vera, Braddock, Verna, Robert, Davidson, Laura und Dorothy – were all born on Cat Island between 1919 und 1939. Only the second generation moved to the main island of New Providence and Nassau, following a concentration process that was triggered by early tourism and the growing economic attraction of the island, a process that was not restricted to the Bahamas. In 1958 Dorothy Hepburn married Clarence King and gave birth to five children, four of whom continue to live in Nassau. Only son Dwight left Nassau to settle in Atlanta, USA, where he married a girl of Italian descent. The next two generations, Dorothy's grandchildren and great-grandchildren, are dispersed across the Bahamas beyond New Providence, on the family islands Abaco, Eleuthera and San Salvador, as well as connecting to Jamaica, TCI, London and Atlanta, and even to Singapore – the home country of one of the distant siblings (see Fig. 5.7).

The connecting lines between the Caribbean islands, the USA, the UK and other European and Asian places exemplify our world as a system of interconnections. The Caribbean cannot really be understood without considering these informal components and the complexity of Caribbean interrelations. Family ties and contacts were underestimated in assessments of the Caribbean social structure for a long time (see Fog Olwig 1985). The lack of typical small family structures was considered evidence for overly strong individualism, influenced by the plantation society and the insignificance of family relations. This old-fashioned view was only revised after taking into account informal family relations and carrying out intense research on the (historical) significance of family relations. Family ties, migration and informal trade routes are significant institutions that influence social structures and characterise the shared regional culture of the Caribbean.

Migration has grown in significance on almost all islands in recent years. In the twentieth century, new global forms arose in the wake of global economic shifts. On the one hand, globalisation has extended the number of destinations and brought about longer migration chains. Islands have become stepping stones for onward migration to affluent metropolitan states (Connell 2007: 462). 'The more remote and rural parts of islands and island territories are even less likely to be perceived as favourable places of residence, and interest in migration from individuals, households and nations has never been greater' (Connell 2007: 464). On the other hand, internal concentration processes in the post-war period intensified migration to the main islands and economic boom centres, particularly in archipelagic states. Archipelagic populations have become increasingly concentrated on the more central urbanised islands, accentuating problems of service delivery in remote areas, in turn accounting for further movement away from isolated areas and the slow depopulation of smaller, remote islands (Connell 2007: 458–459). The result is an extraordinary high primary rate, the ratio of the largest city to the next largest in a country, which amounts to 6.3 in the Bahamas, to 6.7 in the Maldives and to 3.8 in Fiji to (before redivision of Suva and Nausino in 2007).[14]

[14]Bahamas (total pop 324,597, 2016), Nassau 274,400 inhabitants, Freeport 43,167 inhabitants; Maldives (total pop 344,023, 2014), Malé 133,412, Addu City 19,829;

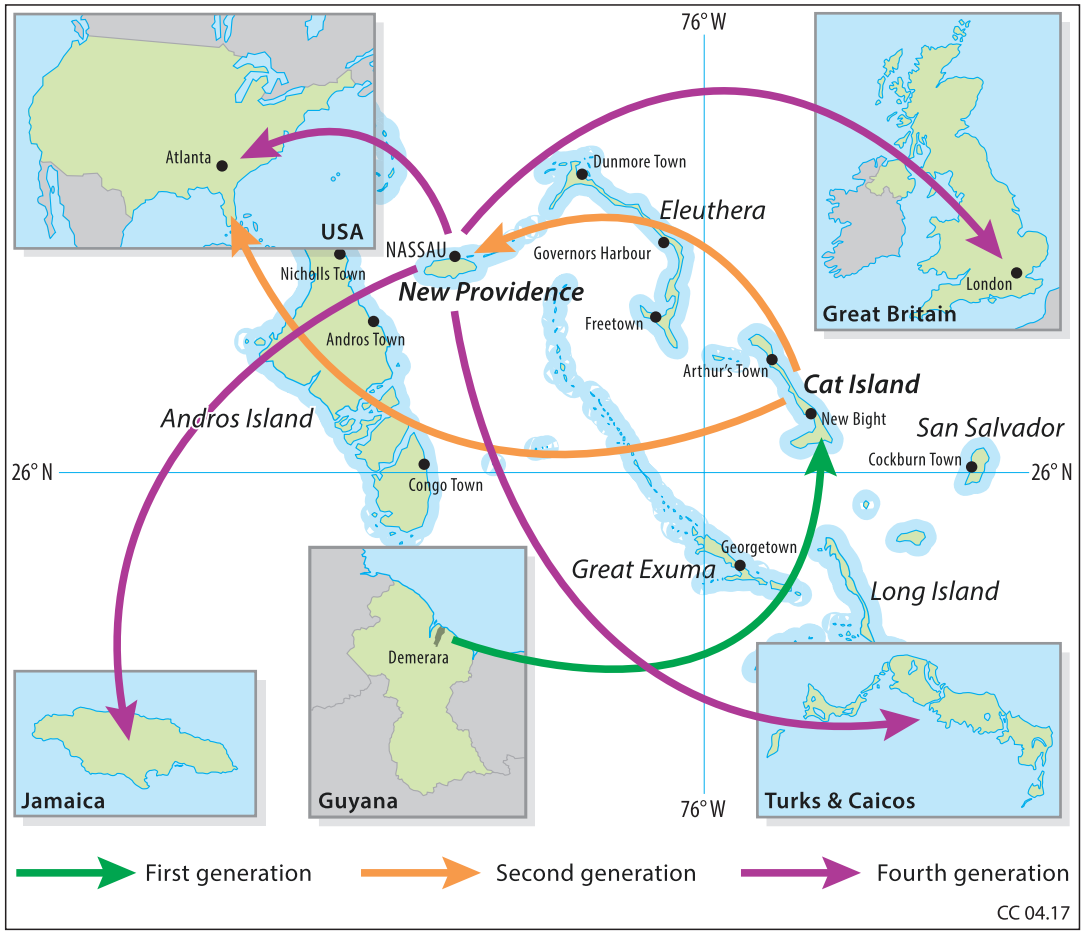


Fig. 5.7 Family ties and regional connections in the wider Caribbean (Sketch)

Migration has primarily an economic context, responding to real and perceived inequalities in socio-economic opportunities within and between spaces and states. Migration remains, in different forms, a straightforward strategy of moving from a poorer area to a richer one in search of social and economic mobility. Still, other motives also play a role. Many islanders migrate for their children's educational and future opportunities; medical referrals can also become migration motives (see Connell and Conway 2000; Connell and King 1999). Political factors have been significant influences in various contexts, notably in the migration from Fiji that followed the 1987 and 2000 coups, and in the out-migration of skilled workers from Bougainville and the Solomon Islands during more recent crises (Connell 2006). Environmental factors have similarly influenced migration, with environmental hazards and degradation representing obvious catalysts. There has been significant movement from Montserrat, where half the population left in the aftermath of the eruption of Mount Soufriere in the mid-1990s (Philpott 1999; Possekel 1999) and from the northern islands of the Marianas following volcanic eruptions. Places such as the Carteret Islands in Papua New Guinea, where localised sea level rise and erosion has posed particular problems (Connell

Fiji (total pop 895,696, 2007), Suva 167,975, Lautoka 52,220 (Census of Fiji, Bureau of Statistics, National Bureau of Statistics Republic of Maldives, Population and Housing Census 2014).

2016), have experienced migration, as have the Gilbert Islands or Kiribati and Tuvalu (Donner 2015; Bedford and Bedford 2010; Connell 2013; Barnett and Webber 2010, see also Chap. 6 in this book).

Migration is not only important for those who are leaving but also for the home islands of the migrants. Labour migration from poorer to richer islands, for instance, Haitians migrating to Puerto Rico, the Bahamas or the Cayman Islands, eases some of the pressure on the domestic labour market, which ultimately contributes to improving local living conditions just like sending money back home. Many islands receive significant amounts of remittances from diasporas of emigrants, in some cases amounting to 25% of the GNP. Sometimes, the diasporas even outnumbers the resident population, as is the case in the Cook Islands, Wallis and Futuna, Cape Verde and the Azores (Connell 2007: 354).

The amount of money sent home by immigrants per year varies strongly across SIDS. Forty-five percent of the SIDS countries receive less than US$ 50 million and another 21% less than US$ 100 million. In 2015, the most remittances went to the three large Caribbean states – the Dominican Republic, Jamaica and Haiti (see Table 5.2). In 2015, the Dominican Republic as the largest recipient of remittances received over US$ 5,196 million, the Solomon Islands only US$ 18.5 million (World Bank 2016). Globally, the volume of remittances can double the volume of official development assistance (ODA), with the added advantage that remittances are far more reliable capital flows than ODA or foreign direct investment. The economies of small island states such as Tonga and Samoa apparently receive more money in the form of remittances than any other revenue stream (Connell and Conway 2000).

Remittances are used for debt repayment, new forms of consumption, housing, some community goals and infrastructure, air fares, education (an investment in social capital) and various forms of investment, sometimes in the agricultural sector but more frequently in the service sector (Muliaina 2006). The increased use of remittances for investment purposes, in fishing, agriculture, stores and transport businesses, attests to the shift from consumption to investment, most evident in the Pacific and the eastern Caribbean (Faeamani 1995; Connell and Conway 2000; Connell and Brown 2005). While this transition benefits economic development, it emphasises intra-village and intra-island economic inequalities and may hamper social development (Connell 2007: 466; Poirine 2006).

New and special forms of migration have been based on states negotiating migration ties with metropolitan states. This applies to labour migration from Fiji to the Middle East, 'emphasising the manner in which new and highly paid overseas employment opportunities are being firmly grasped, even in an unappealing and violent security and social context'. They have quickly turned Fiji into a major recipient of remittances (Connell 2007: 456, 463). But although many labour migrants have delayed their return again and again, after many years of being abroad, there is evidence for return migration and retirement to small islands.

Another form of modern migration must be addressed in this context, namely, the retirement of older, well-to-do Europeans and North Americans to sunnier climes – the so-called retirement migration. What could be more attractive to worthy pensioners than a peaceful, exotic small island? This particularly affects islands in the Mediterranean, all the way from the Canaries to Madeira, Crete, Corfu and Cyprus. Here, houses are relatively cheap, the climate and environment are highly agreeable, crime rates are comparatively low and flight connections are frequent and affordable. On all of these islands, the population is rapidly growing due to the influx of second home owners and retirement migrants. Similar developments can be observed on other islands that are within easy reach, such as the German North Sea islands or the Danish islands in the Baltic. This new form of migration is not always without conflict. Increasing demand for housing and greater spending power drives up prices and living costs, much to the chagrin of the resident population. Clark et al. (2007) describe a modern form of gentrification which is visible particularly on easily accessible, attractive islands. 'The new

Table 5.2 Remittances, ODA and ODA per capita in SIDS (in US$ million)

	SIDS receiving the most and the least remittances (2015)	Net official development assistance received (2014)	Net ODA received per capita (current US$) (2014)
Dominican Republic	5.196	166	16
Jamaica	2.361	92	34
Haiti	2.196	1083	102
St Vincent	32	9	–
St Lucia	30	18	99
Grenada	30	39	–
Dominica	24	15	216
Antigua and Barbuda	21	2	23
Cuba	k.A.	261	23
São Tomé and Principe	20	38	207
Madagascar	427	583	25
Mauritius	249	48	39
Comoros	129	73	96
Seychelles	16	9	106
Maldives	4	24	62
Fiji	235	91	104
Samoa	154	92	483
Tonga	118	79	757
Timor-Leste	62	247	204
Marshall Islands	26	55	1054
Vanuatu	26	98	380
Micronesia, Fed. Sts.	23	116	1116
Solomon Islands	18.5	198	347
Kiribati	16	79	716
Papua New Guinea	5	577	77
Tuvalu	4	34	3476
Palau	2	23	1110
Nauru	k.A.	21	2161
Caribbean Small States		384	55
Pacific Island Small States		870	375

Sources: World Bank (2016) and UN-OHRLLS (2013)

"outsiders" may be resented, remain temporarily and pursue lives wholly dissonant to those of indigenous islanders' (Clark et al. 2007).

Connell describes migration as 'bottom-up globalisation' that continues to draw the most remote islands and islanders into new international networks (Connell 2007: 476). New technology has made connectivity both more fashionable and more feasible. Telephones, email and chat pages have turned young Bahamians or Polynesians into 'cyber-Polys' (Morton Lee 1999), and new electronic identities have brought new transnational ties (Howard and Rensel 2004).

Although migration has mitigated poverty, it has not resolved the problem. Yet the world of islands has closed ranks a little. 'Migrants and their children remain "migrants" though their identities have changed. Home nations and islands remain powerful unifying symbols for migrants and their children. Symbolically, and practically, through land tenure, islanders rarely abandon island homes' (Connell 2007: 475).

In 2006 Geoff Bertram still considered his model of the MIRAB society valid, just like the SITE and PROFIT models that attempt to explain different development types of island economies (Bertram 2006). In the SITE type, tourism is the determining feature, while offshore finance is central to the PROFIT type and migration and overseas development aid to the MIRAB type. McElroy and Parry (2010) found that Caribbean islands were on average significantly more affluent than their Pacific counterparts and that much of the difference seemed to be due to a greater level of tourism development in the former on account of geographical proximity to global markets, early post-war development and established commercial institutions of a functioning market economy.[15] Nevertheless, in all three types (MIRAB, PROFIT, SITE), the economy is path-dependent and susceptible to externally triggered regime shifts. A central element is the appropriation of external capital and external resources, without which the economic and cultural globalisation of small islands would not be possible. Still, models only give generalised information on the economic pathways of island states. Jerome L. McElroy and Kimberly J. Mede (2012) thus demand detailed research and further empirical confirmation of these findings, in particular the role of colonialism in fostering modern socio-economic performance (McElroy and Mede 2012).

There has been other criticism of the 'three model systems' as too general and insufficient to explain the diversity of island economies. According to Tisdell (2014), the economic development models do not do justice to the diversity of Pacific islands, especially because they neglect their historical and cultural embeddedness and the contingency of colonialism. The three models only explain the current state but fail to provide an answer to how it came about. For example, why do the economies of Singapore, Hong Kong, Nauru and Tuvalu differ? The three models also neglect the issue of insular vulnerability, which not only plays a role socio-spatially but also politically.

SIDS are more vulnerable economically than larger nations, due to factors such as (1) limited options for diversifying export-oriented production, (2) the particular vulnerability to natural hazards and linked to this (3) the risk that even subsistence production, which is generally a stabilising factor, may be destroyed. Baldacchino's (2006) view of island states as clever strategists that can manipulate larger nations and usually emerge from political economic interactions with an advantage only applies to selected examples of the SITE and PROFIT ideal types. The large majority of small islands depend on the goodwill of external actors through ODA payments or other post- and neocolonial structures. Access of Australian companies to oil and gas reserves off Eastern Timor, for example, is far too cheap. The general decrease of ODA is increasing the importance of remittances not only for MIRAB states. It would be smart to utilise these not only for consumption but also for sustainable investment.

5.6 Globalised Economies

> Human experience depends on everything that can influence states of the human brain, ranging from changes in our genome to changes in the global economy. (Sam Harris, US-American Philosopher)

Islands are not unique or isolated places separate from the rest of the world. They have always been part of larger cycles and relationships (Clark 2009: 609). It is obvious that successful economic development not only depends on choosing the right economic strategy. Positive and negative development pathways of islands are inextricably linked, as the islands themselves are linked to more comprehensive geographical processes of capital accumulation. Island societies are actors in the global game of capitalism and can be winners just as much as losers.

The production of sugar not only depends on the production costs on islands but is part of a broader power game composed of access quotas, competitive pressure from large continental producers, transport costs and linkages to global

[15] An island economy may well show features of all three models. It can also change type over time.

transportation networks. The tourism industry depends on the willingness of people to travel and the spending power in the source countries and is embedded in a competitive market surrounding international direct investment, international operators and links to the global network of airlines. OFCs depend on global streams of finance. By creating new legal spaces, island states discovered that their rights to write law may be used as a commercial asset, but now they compete for the favours of large companies and private individuals fleeing the tax laws of their home countries.

These examples demonstrate that it is possible to do business through islands, on islands and with islands. The economies of small islands are manifold, with economic development always co-determined by the potential offered by island space, the existing resources, the island's location and its developing or established spatial structures. Although economic structures are path-dependent, this does not mean they are fixed or rigid. 'The outcomes of specific historical paths are not necessarily able to be imitated or reproduced by others, and commonly representing the accumulation over time of a cumulative series of collective strategic choices by the home community as a whole – renders problematic any uni-dimensional conception of what "economic development" means in an island context' (Bertram and Poirine 2007: 332).

What matters is socio-spatiality, which has reconstituted itself again and again through the various economic development cycles. Socio-spatiality comprises the insular locations of export-oriented production sites just as much as remote tourism locations, small but potent centres in global finance and networks of connectivity that link home islands to the diaspora. Once again, it is obvious that centres and peripheries are relative concepts. In a web of global development, nested hierarchies can be more important than location or isolation – the latter also carrying advantages in an increasingly interconnected world. Problems of limitation and economies of scale can be overcome by using the advantages of favourable locations or the potent desire for escapism. The niche economies listed above show the beginnings of independent, self-determined development. It could prove competitive if it can demonstrate uniqueness, higher quality or more sustainable use of available resources. It is up to island populations and governments to decide to be self-determined in business.

For several decades now, globalisation has been assumed to result in decreasing significance of space, summarised in the term 'time-space compression' (Harvey 1990). The interdisciplinary globalisation discourse speaks of a 'shrinking world' (Dicken 1998: 151) and has even proclaimed the 'end of geography' (Waters 1995: 57). Progressive transport systems and improved ICT are considered the main agents of this change. Giddens refers to the same phenomena when referring to the 'disembedding of social systems', in other words the 'lifting out of social relations from local contexts of interaction and their restructuring across indefinite spans of time-space' (Giddens 1990: 21). These examples suggest that space no longer plays an important role in a globalised era and that the world is increasingly becoming a 'single place' (Waters 1995: 57).

Analysis of island economies, however, demonstrates that this is not really the case. Globalisation is a highly complex interaction of forces producing integration and disintegration, cooperation and conflict, order and disorder (Harvey 1989; Giddens 1990). What happens in a distant place can certainly impact on life in entirely different places. Information on events in distant lands reaches our screens almost instantaneously, but virtual connectivity does not imply that globalisation is affecting all regions in equal measure. The centres of the world have become so interlinked by means of fast and cheap transport and ICT that the physical distance between them has become negligible, but in between these centres are places and regions that have remained

detached from these systems. Often, this includes the small islands of this world that do not have sufficient trade volumes or financial means to keep up with modern technological standards. The so-called shrinking world is thus much more of a *distorted world* in which access to transport and communication and costs are much more meaningful than distance measured in kilometres (Weig 2008). Small economies are mostly 'price takers', lacking sufficient weight in global markets to operate as 'price makers' like large countries.

There is no unique development path. In small economies, social capital and 'institutions have to be understood as incorporating the ability to achieve and sustain community-wide strategic consensus around a particular development specialisation, along with sufficient flexibility to switch to alternatives as and when the field of external opportunities changes' (Bertram and Poirine 2007; 325). 'In treating the economic structure of small islands as a matter of strategic behavioural adaptation within the constraints of smallness, isolation and history, rather than of passive competitive response to exogenously-set world market prices, we are implicitly rejecting the idea that there is any simple direct relationship between country size and market power in the global arena' (Bertram and Poirine 2007: 332).

It pays to see the advantages of being a small island state rather than blindly follow the Western industrial development model. The political weight of small island states, for example, is often overlooked. 'Islanders attract far more diplomatic attention per capita and command more United Nations votes per capita, than the remainder of the world community. There are 191 seats in the General Assembly, of which 31 are held by island states up to the population size of Jamaica (2.7 million). These 31 island states hold one UN seat for each 707,000 population. The remaining 160 UN Member States hold one seat for each 38.2 million of population. In terms of diplomatic weight, each inhabitant of an island-state UN member is equivalent to 54 people in the rest of the world' (Bertram and Poirine 2007: 349). Could the solution for island states simply be to cooperate more and to work together to assert themselves against the rule imposed from outside?

Cooperation, especially regional attempts at cooperation, is nothing new. A whole range of regional alliances exists in the Caribbean, the Indian Ocean and the Pacific. Generally, their aim is to enhance regional political cooperation, to improve island welfare by means of higher incomes and greater efficiency and to strengthen the negotiating power of islands vis-a-vis third parties. The Caribbean Community and Common Market (CARICOM) was founded in 1973, bringing together 15 Member States and five Associated Members (plus seven observers) with the aim of enhancing cooperation at the political, economic and cultural level.[16] A customs union was agreed with a common external tariff and a double taxation agreement. Cooperation in the field of development planning and industrialisation was also among the early aims (Blake 2001). The Pacific Islands Forum, founded in 1971, comprises 16 independent and self-governing states in the Pacific[17]; its purpose is to develop collective responses to regional issues (South Pacific Forum Secretariat 2001; Frey 2005). In 1982 the Indian Ocean Commission (COI) was created as an intergovernmental organisation. The COI is composed of five African Indian Ocean nations: Comoros, Madagascar, Mauritius, Réunion and Seychelles. Its principal mission is to strengthen the ties of friendship between the countries and includes development through projects related to sustainability for the region. The original ideas were to encourage trade and tourism; more recently, cooperation has focused on marine conservation and fisheries manage-

[16]CARIFESTA, such as sport events, health, education (University of the West Indies).

[17]Member States of the Pacific Islands Forum: Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

ment. At the same time, internal, historical and ethnic enmities, the desire for postcolonial political self-determination and similar products competing on common markets repeatedly cause problems and impede truly functioning and competitive regional cooperation.[18]

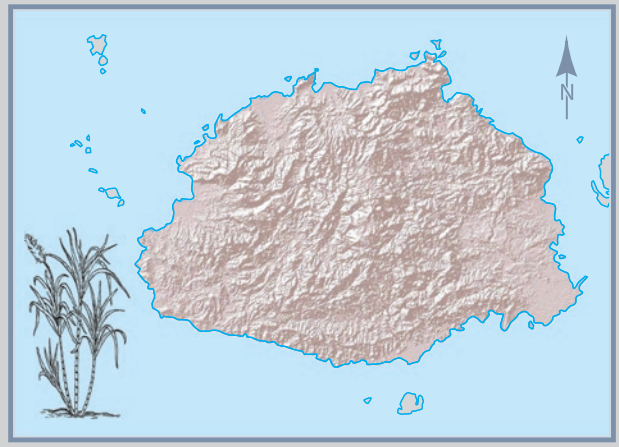
Still, various authors see opportunities for regional cooperation of small island states. Epeli Hau'ofa (1993, 2008) has extensively written on colonial foreign rule in the Pacific and the possibility of constructing a shared island identity. Despite the external view of the Pacific islands as small, isolated and fragmented, and despite the heterogeneity of Oceania, he regards the rediscovery of shared traditions such as traditional migration and the active creation of a sense of 'we' as instrumental. This would allow Pacific islanders to generate an idea of unity and belonging, enabling cooperation in the region to overcome smallness and isolation (see Hobsbawm and Ranger 1983; Herkenrath 2011: 54).

In 1996 Eric Shibuya (1996-97) declared that island states could become agenda setters if they act together. Thomas Muhr (2017) refers to greater south-south cooperation in the construction of 'complementary economic zones'; his analysis of existing regional cooperation in Latin America and the Caribbean calls for a socio-spatial approach that focuses on commonalities and convergences rather than national and ideological incompatibilities and conflicting projects.

Islands are not passive victims but agents of knowledge production and territorial transformation, processes that must be seen in a global context. Problems of delimitation, smallness and link to these negative economies of scale are unlikely to be resolved through competition. But the existing locational advantages and economic particularities can be utilised more effectively. Flexible specialisation seems important (Bennell and Oxenham 1983; Schmitz 1989), which is achieved more easily the smaller the population and the greater the degree of cultural and social cohesion within that population. There is no denying that islands are caught up in a global economic web, but they are also home to people who care about this home. They may do better pursuing their own models of independent development rather than simply chase Western consumer habits. Understood as socio-spatial entities, 'islands should be actively engaged in seeking out opportunity and deploying their scarce resources to maximize rents from the exploitation of any market niches they can find and develop. The common tendency of observers to treat island economies as though they are marginal or unemployed workers and beneficiaries in the world economy is not only demeaning to islanders but profoundly misleading as the basis for economic theorising about their development potential' (Bertram and Poirine 2007: 349, 368).

[18] Peter Morgan's novel *A High Tide in the Caribbean* is a wonderful persiflage of decades of failed integration attempts. Caribbean Communications: St. Michael, Barbados 1990.

Island Brain Teaser 5



The island we are looking for has by far the largest land mass of the 300 or so islands that make up the archipelago. Europeans have known about the islands since the seventeenth century, but its inhabitants, variously feared as cannibals or glorified as 'noble savages', did not lose their political independence until 1874 to the British crown. After a short period, the new colonial power established the same sugar cane economy that had become such a success story on other islands under Crown rule, helping to sweeten the tea that people back home in British towns and cities had grown so very fond of.

The warm humid climate was perfectly suited for growing sugar cane, so large parts of the wooded island were cleared to create huge sugar cane plantations. There was just one small problem: The indigenous population, stripped of its political freedom, refused to work on the white settler's plantations. As a result, between 1879 and 1916, the British brought around 61,000 Indian contract workers to the island to do the hard labour in the fields. Most of these economic migrants had come to stay, and so colourful Hindu temples soon characterised many coastal settlements. From the mid-twentieth century onwards, the descendants of the Indian workers represented the majority of the population, leading to increasing ethnic tensions with the indigenous population who saw the privileged position they had enjoyed under the British increasing threatened.

When the archipelago gained its independence in 1970, a constitution was drawn up that structurally disadvantaged the Indian population, triggering an ongoing phase of political unrest. Between 1987 and 2006 alone, four coups took place, and international media repeatedly reported on the scenario of a 'failed state'. Exclusion from the British Commonwealth and low world market prices for sugar put huge pressure on the local economy, leading to a mass exodus of the politically suppressed but economically dominant Indian population.

Today tourism has replaced sugar as the most important economic factor. Attentive visitors, however, can still observe predominantly Indian workers labouring in the sugar cane fields and, during harvest time, follow the lorries and trains along the seemingly endless tracks that lead along the coastal regions to the sugar mills. Still, visitors will be unlikely to notice the ethnic and political tensions on the island, as its inhabitants are mostly known around the world for their easy-going lifestyle and hospitality. What is the name of the island that is the political and economic centre of the archipelagic state?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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Island Vulnerability and Resilience

6

In a sea of difficulties there is always an island of possibilities.

German proverb

Abstract

Small islands are considered especially vulnerable to natural and anthropogenic hazards. They are stylised flagships of climate change whose multifarious impacts are thought to show straight and immediate effects. This chapter examines the impacts of climate change and environmental pressures and the direct consequences that result for small island communities, including demographic and social change. Adaptation in this context is not merely a question of technological solutions but also a social challenge, as it is framed by various socio-political and economic settings, coping capacities and national-international relations. Resilience and the challenges of sustainable development are discussed and exemplary approaches presented for the sustainable management of future developments.

Keywords

Vulnerability • Resilience • Natural and anthropogenic hazards • Climate change • Hazardscape • Maladaptation • Sustainable development • Ecological footprint • Green islands

Islands have been identified as hotspots of global climate change. Apart from the lonely polar bear, the narrative of sinking islands is the most popular representation of risks associated with global warming. However, it is not only climate change that leads to the image of islands 'at risk'. Small islands are the 'best examples of resource-restricted environments' (Nunn and Carson 2015: 111); they may also be at risk as a result of environmental pressures or share 'vulnerability as an island characteristic' (Lewis 2009: 3). Accordingly, the discourses surrounding climate change adaptation and sustainable development represent great challenges to island communities in the twenty-first century. However, such perspectives are also flawed and often simplistic if

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not outright dangerous for island communities. The resilience of island communities may be underestimated, implying they are actually well equipped for dealing with risks.

6.1 Hazards and Environmental Change

Small islands are affected by external pressures more immediately than continental areas. Many environmental pressures, as well as demographic and social changes, have direct consequences for small island communities. Thus, islands are often described as particularly vulnerable, in this case referring to the 'characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard' (Blaikie 1994: 11).

Island Hazardscapes

The pressures faced by small islands and other regions are similar. However, geographical and other research has long-viewed islands as particularly vulnerable. This is down to various island-specific geographical factors which seem to put them at greater risk than continental places (Barnett and Waters 2016).

On 12 January 2010, a serious earthquake measuring 7.0 on the Richter scale destroyed the southern part of Haiti including the capital Port-au-Prince. For those familiar with the geology and plate tectonics of the northern Caribbean, this did not come as a surprise (Ratter 2013). Statistically speaking, and looking back over history, an earthquake had long been overdue. After being shaken by serious earthquakes in the seventeenth and eighteenth centuries, and again in 1860 and 1946, the question was not if another one would hit but when. Research published in 2008 warned that tectonic tension had been building along the Enriquillo-Plantain Garden fault since 1751, when the last large earthquake in the region struck the southern part of the Dominican Republic. It forecast a magnitude of 7.2 for an earthquake that would eventually release this tension (Mann et al. 2008). From geology's perspective, Haiti can be described as a high-risk space since earthquakes form part of the natural system's trajectory.

Natural disasters take place at a local, regional or supra-regional scale. While their location and extent are influenced by natural conditions, their impact on society depends on its vulnerability and adaptive capacity. An earthquake, for example, is connected to active plate tectonics, its occurrence the result of regional instability and tectonic activity. A volcanic eruption is linked to a specific spatial feature (a physical volcano), but its ecological and social impacts affect its slopes and sometimes large surrounding areas. The precise spatial impact of such events, however, is unpredictable. A tropical cyclone develops over warm water masses and follows a likely corridor, but its actual trajectory depends on many influences such as topography, pressure differences, or wind directions. Although its pathway per se is contingent, it is hardly possible to predict just which of the many potentially affected areas it will hit.

Similarly, the impact of natural events on island society is an issue of scale but equally depends on the ability of that society to hedge that impact. Preparedness for managing the disaster is an important aspect here. Nevertheless, size matters in a 'hazardscape', which can be defined as ecological hazards and risks that build through a constant, implicit and intricate relationship between human beings and the environment in a particular spatio-temporal context (Cutter et al. 2000; Khan and Crozier 2009).

The January 2010 earthquake hit Haiti as a surprise. Because the last large earthquake occurred 40 years ago, the population had come to regard their island as a place safe from earthquakes. As a result, building materials or building codes did not take into account the potential occurrence of earthquakes. It was the rigid reinforced concrete structures that were first to collapse in the January 2010 event. About 220,000 people are estimated to have died in the earthquake, another 300,000 were injured, and up to 1.5 million were left homeless (Disasters Emergency Committee 2015). The example of Haiti shows that in the long run, dangers tend to

be ignored if the threat is unspecific. It also shows that much more pressing problems of survival prevented the implementation of suitable hazard management strategies. The impact of the devastating earthquake left the local government and communities powerless and still suffering until today.

So-called issues of scale on islands mainly refer to smallness and/or limitations of space. According to Lewis (2009: 3), '[a]s small places, all events in islands, exogenous and indigenous, interact in ways not experienced elsewhere – asynchronous interaction being as significant as synchronous'. From a physical point of view, islands 'may not be more vulnerable to natural hazards than anywhere else' (Lewis 2009: 5), since hazards such as volcanoes, cyclones or earthquakes are no more common on islands than in continental areas. However, it is 'the often overwhelming proportional impacts upon them […] being the more accurate representation of the part played by natural and other hazards in any assessment of island vulnerability' (Lewis 2009: 5). Disasters can have an impact on whole island societies rather than just small parts, as would be the case in continental states (Ratter 2008; Ratter and Rettberg 2009). For example, when Hurricane Katrina hit the USA in 2005 and devastated large parts of the city of New Orleans, the damage caused was less than 2% of US GDP. When Hurricane Ivan, a tropical storm of comparable strength, hit Grenada in 2004, damage was caused to over 80% of buildings, with cascading effects and consequences particularly to the rural and vulnerable population including shock, trauma, homelessness, losses and collapse in all economic sectors, destruction and deterioration of infrastructure, not to mention damage to ecosystem services (i.e. coastal protection, flooding regulation, fishing, tourism). In monetary terms, the damage caused by Hurricane Ivan was quantified as up to US$ 1.2 billion (Government of Grenada et al. 2006: 3) which amounted to 250% of Grenada's GDP. The entire population was affected. The national system of public order disintegrated, and external help in the form of security forces from neighbouring states was required (Holdschlag and Ratter 2016). Another extreme example is the volcanic eruption on Montserrat in 1995, which destroyed the island's capital and only airport, and led to the evacuation of the majority of its inhabitants. Such smaller countries face the special challenge of being unable to 'hedge' the risk through geographical redistribution. Also, issues such as environmental pollution are often too costly to be treated by small island administrations (UNEP 2014: 5). Moreover, isolation is a problem when external assistance is necessary but not always quickly available.

Pelling and Uitto (2001: 53) summarise the 'intrinsic' vulnerability of SIDS with respect to environmental issues in a series of factors. They include the direct feedbacks of human and natural interferences, the small exposed island interiors and the large maritime zones of SIDS, their mostly limited hazard forecasting ability, the concentration of the population in the coastal area and their dependence on natural resources. Together with external factors, which also apply to continental regions – such as colonial history, poverty and demographic pressures – it is easy to understand the specific vulnerability of islands to environmental hazards (Pelling and Uitto 2001). Added factors are the limited natural resources on small islands and problems of resource depletion. Small islands that depend on a specialised environmental niche are particularly vulnerable to environmental change (Nunn and Carson 2015), so that the loss of natural resources or changing environmental conditions may have severe consequences for the respective societies. Lack of self-reliance coupled with increasing demands for resources can lead to overshooting an island's carrying capacity, which can ultimately lead to the collapse of its natural as well as social system (Walker and Bellingham 2011: 293). Responding to resource depletion and environmental degradation with imports can lead to increased population growth and further lack of self-sufficiency. Historical examples of collapsing island societies include St Kilda and Rapa Nui/Easter Island. The former had to be evacuated in 1930 after two millennia of inhabitation, after social and demographic change lead to outmigration, loss of food self-sufficiency and

increased isolation (Maclean 2006). The reasons for the social collapse of the latter remain disputed. Overpopulation in combination with climatic changes may have produced a situation of resource scarcity and violent conflict until 'they cut down the last tree on their island' (Diamond 2005: 23). Ultimately, it was probably the high degree of isolation and – after exploitation of most local resources – the lack of opportunities for transport that lead to the collapse of the island community. Hence, the reasons for such a collapse are often a combination of unfavourable indigenous and exogenous developments, both socially and ecologically (McCall 1994, 2011).

Environmental and Climate Change

The coastal vulnerability index (CVI) that assesses vulnerability by indicators of exposure and coping capacity shows that all SIDS face either a moderate or high risk (UNEP 2005: 43). Tsunamis affect not only low-lying tropical islands, but also arctic regions (Lacher 2015), and often large parts of a community. Apart from the vulnerability to natural hazards such as hurricanes, tropical cyclones, tsunamis, earthquakes or volcanic disruptions, small islands also suffer more from the introduction of alien species (UNEP 2014: 7). This affects the local flora and fauna and can have severe long-term economic impacts (McElroy 2002: 55).

The recent global proliferation of the Indo-Pacific red lionfish (*Pterois volitans/miles*) throughout the subtropical western Atlantic, the Caribbean and the Mediterranean now counts as 1 of the 15 nascent conservation issues worldwide that could affect the conservation of biological diversity (Anton et al. 2014). Thought to be introduced as an aquarium pet from Florida and first reported in 1985, the species was initially observed in Bahamian waters in the mid-1990s and has been subject to documentation since 2004. By 2006 its population was estimated to have doubled (Holdschlag and Ratter 2016; Holdschlag et al. 2016). Today the lionfish is found in almost all habitats and water depths of the Bahamas and the Western Caribbean, in some cases in high densities. It is a predatory fish that has few natural enemies, feeds on a wide variety of reef fauna and reproduces very rapidly, displacing indigenous species of fish that are important for both local and export markets (e.g. *Lutjanus* spp., *Epinephelus striatus*). The lionfish is potentially threatening for tourism and expected to cause negative effects on biodiversity and reef resources, even to the extent of ecological regime shifts (Anton et al. 2014).

Another consequence of the introduction of alien species can be the destabilisation of coastal vegetation leading to increased processes of erosion, such as the impact of Casuarina trees introduced to the Caribbean. On the Bahamas, observations show that the introduction of Casuarina leads to the suppression and loss of local vegetation which stabilise the dunes. This process results in the increasing retreat of beaches. The only way to restabilise the beaches is the complete removal of Casuarina and replanting of native vegetation (Sealey 2011).

Presently though, global climate change is considered the 'most pressing' (United Nations 2014a: 40) problem and 'greatest potential threat' (Byrne and Inniss 2002: 10) to small islands. Changing precipitation patterns can increase water scarcity on small islands that already suffer from very limited water resources (United Nations 2014a: 41). According to projections, most island regions will suffer from increased aridity due to higher evaporation, even in cases where precipitation is increasing (Karnauskas et al. 2016). Additionally, changes to seasonal rainfall patterns and atmospheric temperatures influence vegetation and agricultural conditions (Walker and Bellingham 2011: 297). In this way, climate change also compromises human health through decreased food security and the spread of diseases. According to the Climate Vulnerability Monitor (DARA/Climate Vulnerable Forum 2010: 62), this could result in up to 840,000 deaths by year as a 'climate effect' with the highest rates in developing countries and SIDS.

The impact of climate change associated mostly with islands, however, is sea level rise. Thermal expansion of water masses as well as melting ice sheets and glaciers has already caused an increase in sea levels of around 20 cm during

the last century. A further rise of up to 1 m until the year 2100 is projected, which would have severe consequences for low-lying coastal regions and small islands (IPCC 2013). The impact of sea level rise, however, differs depending on the type of island. While volcanic islands and islands with cliff lines are affected mainly by coastal erosion, coral atolls and barrier islands are more affected by the increased impacts of wave activity. In the Solomon Islands, '[a]t least eleven islands across the northern Solomon Islands have either totally disappeared over recent decades or are currently experiencing severe erosion' (Albert et al. 2016: 4). As a consequence, settlements have been lost, and relocations have been necessary. Apart from land loss, sea level rise will also cause flooding of freshwater wetlands and valuable agricultural zones, as well as increased salt water intrusion (Walker and Bellingham 2011: 298). Slow-onset events such as sea level rise can lead to the collapse of coastal communities if their way of life is no longer sustainable, e.g. if food production is no longer possible, as has occurred in the past in low-lying Pacific islands (Nunn and Carson 2015). Accordingly, especially in the Pacific region, many low-lying atolls already experience stress from rising sea levels, affecting local coastal environments and livelihoods (Australian Bureau of Meteorology and CSIRO 2011). Also, potentially more frequent storm events and surges would have greater impacts if sea levels rose. An increase of peak tides during storm surges and higher frequency and intensity of hurricanes would adversely affect small island regions – not only in the South Pacific but also in the Caribbean and Indian Ocean (Connell 2013) – as well as small dependent islands, e.g. in the North Atlantic (Petzold 2016; Young et al. 2014) and Arctic (Lacher 2015).

The latest findings suggest that the effects of climate change will be 'more dramatic than previously reported' (Magnan et al. 2016: 732). Rates of sea level rise are increasing (Fasullo et al. 2016), and especially 'marine and coastal ecosystems will face high risks of impact well before 2100, even under the most stringent IPCC Representative Concentration Pathway (RCP2.6)' (Magnan et al. 2016: 732). However, sea level rise is not equally distributed, and the impacts of projections are not as uniform as they may seem. In fact, 'regional sea level changes may differ substantially from a global average' (Church et al. 2013: 1191) due to regionally varying changes in surface winds, freshwater influx, water temperature, ocean currents, seafloor movements and changes in gravity due to water mass redistribution (land ice and other terrestrial water storage). Their relative contribution to net regional sea level variability or change will fundamentally depend on the timescale considered. According to current model projections, apart from polar regions, sea level rise is continuing in all parts of the oceans. The regions in the South Pacific and South Atlantic, as well as around North America, are projected to have higher than average sea level rise, in contrast to areas near the Arctic and Antarctica, where sea level changes are at half the amount of the global mean (Carson et al. 2016) (see Fig. 6.1). Impacts also differ due to varying geomorphology (Barnett and Waters 2016: 738); atoll shores composed of rock rather than sand, for example, are less flexible in adapting to changes in sea level (Pilkey and Young 2009: 57).

On top of these regionally different trends and projections in sea level change, uncertainty is a big problem, especially with respect to sound knowledge of local coastal processes and dynamics in specific localities. Relatively few islands possess long-term tide gauges which deliver reliable information on changes in relative sea levels (see Fig. 6.2), so it is difficult to say whether coastal changes are due to sea level rise or other potentially anthropogenic factors.

The islands of the Bahamas are an example of flat low-lying coral islands which will be particularly threatened by future climate change. General trends are showing increasing sea levels for the past century in the northern Caribbean (NOAA 2013); however, there is no reliable local data for the Bahamas. Existing tide gauges are either not operating or not delivering long-term data (Petzold et al. 2017). Therefore, it is not clear what impact sea level rise so far had in the Bahamas. Apart from a lack of monitoring sys-

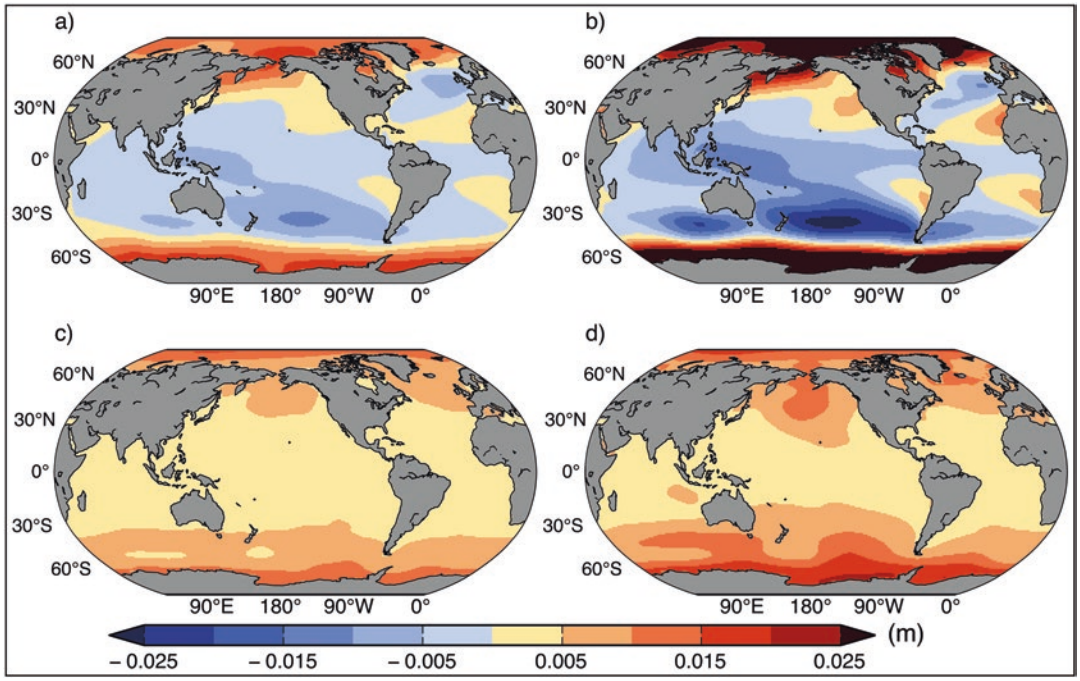


Fig. 6.1 Projected mean sea level changes (Church et al. 2013: 1193)

tems, there is no long-term coordinated coastal protection strategy, which may lead to further problems in the future. Current coastal protection is characterised by a vast amount of small and smallest efforts scattered across the islands and realised by single committees, investors and individuals. Public coastal protection is the responsibility of various governmental departments, leading to a piecemeal approach of single projects and small patches which often actually increase processes of erosion. Moreover, much scientific environmental knowledge about the Bahamas is externally produced and difficult to communicate, restricting its accessibility (Holdschlag and Ratter 2016). Hence, although the Bahamas is well aware of sea level rise as a potential threat, adaptation to climate change so far only insufficiently focuses on coastal erosion and protection.

Anthropogenic Hazards

Islands are not only at risk from environmental changes. Anthropogenic developments also put stress on island systems, often because they are related to features of intrinsic vulnerability such as isolation and smallness. The degradation of coastal resources by human intervention is a critical aspect. Large-scale construction of coastal infrastructure and exploitation of marine resources may cause similar problems to those caused by sea level rise. And all efforts to adapt to sea level rise in the long term may be rendered ineffective by short-term interests that lead to the development of coastal areas at the expense of coastal protection. On many islands, natural capital has been lost as a result of landscape transformation, deforestation, monoculture cultivation and exploitation of marine resources (UNEP 2014: 6). Especially on islands with a colonial

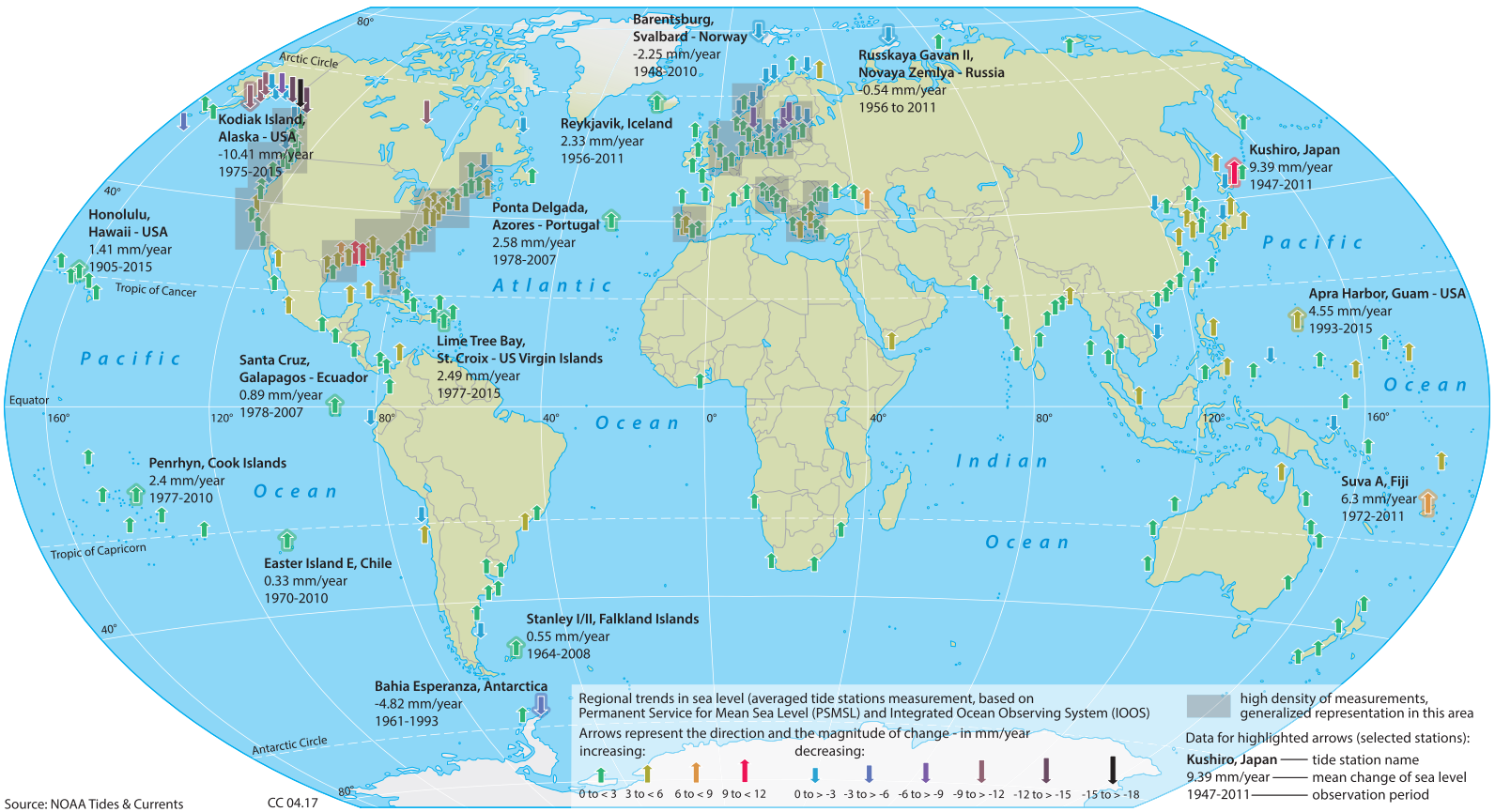


Fig. 6.2 Regional trends in sea level (Source: After NOAA 2013)

history politics often neglected the impacts of unsustainable land use (King 1993: 33). An extreme example of exploitation and degradation of natural capital is Nauru, which 'was almost wholly a phosphate mine with a tiny coastal strip encircling the island' (Bartmann 2007: 317). Starting under German colonial rule, continued by Australia and the UK, and after independence in 1968 by the government of Nauru, mining generated such high revenues that islanders enjoyed highest per capita incomes. However, as a consequence of the exploitation of phosphate reserves, natural capital was almost completely lost by the end of the century, as were revenue opportunities and maintenance of public services on the island.

Nowadays, many islands rely on tourism as a mainstay of their economy, often with severe consequences for the island environment and society. Tourism often comes at the expense of constructing hotels and related infrastructure directly on or near the coast, removing coastal vegetation and degrading reefs. Deforestation causes soil erosion and loss of biodiversity while contributing to global CO_2 emissions at the same time (Walker and Bellingham 2011: 300). Roads and airports are extended far beyond what would be necessary for the local population. Similarly, increased water and food demand often goes beyond what can be supplied locally and leads to dropping freshwater levels. Imports of food and other goods are linked to the production of waste, without any suitable opportunity for its disposal (Connell 2013: 105–108). The largest share of the profits mostly goes to investors while the costs of environmental degradation have to be carried by local communities.

Although local populations are aware of these issues, economic interests dominate and long-term issues such as climate change are often neglected. On the Bahamas, tourism is the overall priority that guides political decision-making, which is accepted by the population because it provides employment opportunities. Large-scale investments are still being made, severely changing and degrading the coast (Petzold et al. 2017). On the Maldives, awareness of risks is high, especially since the 2004 tsunami in the Indian Ocean, but nevertheless, decision-makers delay adaptation measures in favour of further infrastructure developments, centralisation and attracting investments (Kench 2012; Ministry of Housing and Environment 2011). The Maldives archipelago consists of 25 atolls and oceanic reef platforms; its 1192 low-lying reef islands (of which only 199 are inhabited) are among the most dynamic landforms on earth. Island instability and the pressures of high population densities have resulted in the proliferation of engineered structures to combat erosion and stabilise island shorelines. Due to the inappropriateness of the design and placement of hard structures in many instances, island erosion has been exacerbated, leading to further degradation of ecological processes (Ratter et al. 2016; Betzold and Mohamed 2016). Thus, Kench (2012: 165) demands '[…] the replacement of the prevailing paradigm of islands as 'static landforms' with the recognition and incorporation in the planning of each island's natural dynamism'.

The diversity of 'hazardscapes' on islands implies a similar diversity of coping capacities, depending on various geographical and socio-economic factors. This diversity makes it difficult for policy-makers and analysts to produce and successfully implement generalised adaptation measures and development strategies. Cross-island comparison can help to identify hazardscapes and distinct and similar features among small islands (see Textbox 6.1).

Textbox 6.1: Integrated Island Database IIDAB

The Integrated Island Database (IIDAB) was created at the University of Hamburg Centre of Excellence on climate research. It serves as an open access research support tool designed to assist and facilitate comparative island studies. Its structure allows small islands to be selected according to a range of comparative indicators. The database draws on published data of international organisations (including World Bank, CIA, NOAA, UN) as well as individual island case studies, focusing on selected parameters of natural and social science island data (see below). A key feature of the IIDAB is its ability to search and filter according to specific criteria and parameters, allowing for direct comparison across islands and island groups. The results can be displayed as georeferenced data on an interactive map provided by the CLISAP-Integrated Climate Data Centre (ICDC).

Selected parameters included in the IIDAB:

- Location
- Number and composition of island(s)
- Type of island(s)
- Surface area
- Terrain
- Highest elevation
- Isolation index (Adapted from Dahl (2004))
- Climate risk index (Adapted from Kreft and Eckstein (2014))
- Mean sea level trends
- Population and population density
- Population growth rate
- Gross domestic product (GDP)
- Dominant economic sectors
- Human development index (HDI)
- Political status/type of government

For more information visit www.island-database.uni-hamburg.de.

6.2 Climate Change Adaptation and Maladaptation

Adaptation to sea level rise has become a priority and urgent necessity for small islands. Adaptation is not merely a question of technological solutions but also a social challenge as retreat or relocation is often not considered a desirable option. Thus, adaptation implies various socio-political and economic framings, coping capacities and national-international relations. Scientific projections, however, often only refer to global developments. Given that each coastal geomorphological situation is site-specific, impacts and solutions will need to be diverse. In this context, misinterpretation of data and intentional alarmism surrounding sinking islands can lead to maladaptation as a result of confusing climate change impacts with other anthropogenic interferences or natural variabilities.

Climatic changes have always shaped island existences – in fact, it was historic sea level fall that made migration and settlement on some islands possible, e.g. in the Pacific (Nunn and Carson 2015). Island societies might not be as vulnerable and helpless as the media and other publications suggest. Such a perspective could be even counterproductive. Thus, Pam and Henry (2012: 33) warn of the ''overwhelming prognostications of doom' [that] capture the public imagination and further reinforce the consensual science of climate change that defines small islands as risky places'. It must be remembered that risk is a scientific and political construction attributed to small islands, often from outside (e.g. the IPCC) (Pam and Henry 2012).

Focus on SIDS and Adaptation

Islands are not only a focus of the climate change debate due to the vulnerability discourse in Western academia and media but also because leaders from SIDS have increasingly raised their voice in the international community. As Shibuya (1996/97: 554) notes, the narrative of '[t]he disappearance of the low-lying islands was a powerful motivating factor for organization as well as an effective image to use in the debate over the problem'. SIDS are not responsible for most of the greenhouse gas emissions causing global warming, but they are among the biggest victims of climate change. SIDS, 'by nature 'ocean countries'' (Magnan et al. 2016: 732), play a major role in setting up ambitious and necessary mitigation targets, as they have recently done in the context of the conference of parties (COP21) in Paris in 2015, by forming the 'coalition of ambition'. This coalition of more than 100 countries, led by SIDS, suggested pursuing a reduction of greenhouse gas emissions to keep the level of atmospheric warming below 1.5 °C above pre-industrial levels.

However, '[w]aiting for the developed world to change its behaviour can be disastrous for small islands' (Ratter 2008: 45). SIDS are involved in several international and regional associations such as the Alliance of Small Island States (AOSIS), the Secretariat of the Pacific Regional Environment Programme (SPREP) or the Caribbean Community Climate Change Centre (CCCCC) for collectively strengthening their voice for interests referring to climate change adaptation and development issues. Such associations open up 'windows of opportunity' not only for seeking financial support but also for strategic partnerships, cooperation and networks, sharing resources and responsibility (Ratter 2008). Various ways of adaptation are discussed which are or may become necessary for small islands and which rely on making use of external help, internal efforts and inter-island cooperation.

One consequence of climate change widely discussed is migration as a means adaptation. This is linked to the term 'climate refugees', which, however, lacks legal recognition (Yamamoto and Esteban 2014). Islanders have always migrated, not only because of climate change but because of intrinsic island conditions (Birk and Rasmussen 2014). Migration of part of the population, in that case, is not a way of adaptation but part of island life. Remittances, for

example, already play a significant role on small islands and contribute to their development and potentially to their resilience (Pelling and Uitto 2001: 57; Le Dé et al. 2015) (see Chap. 5). With sea level rise as a slow-onset process, it is also generally difficult to understand whether migration patterns change due to climate change or other factors. Similarly, there is a discrepancy between scientific assessments of climate change and local perceptions of risk that would encourage individual migration or relocation decisions (Lata and Nunn 2012). In fact, out-migration due to climate change is not necessarily the number one issue for people, in contrast to the general narrative of sinking islands (Mortreux and Barnett 2009; Birk and Rasmussen 2014; Stojanov et al. 2016). Emerging evidence suggests that people are reluctant to move from islands which sustain their material cultures, lifestyles and identities (Mortreux and Barnett 2009). As island people have a special sense of place and place attachment, migration due to specific environmental pressures, such as sea level rise, may often be an option of last resort. However, the climate change-induced element in migration decisions might increase with ongoing impacts of climate change (Lata and Nunn 2012; see Stojanov et al. 2016).

Nevertheless, resettlement programmes or relocation of island communities to the mainland or other islands can be a solution. People from the Carteret Islands in Papua New Guinea relocated in response to coastal erosion (Connell 2016; Parry 2006) and recently, in the Alaskan village of Kivalina in Northwest Arctic Borough villagers voted to relocate, possibly to a mainland location, due to ongoing severe erosion and sea level rise potentially exacerbating the issue (Sheppard 2014; Bronen and Chapin III 2014). Migration to other islands is not always easy for islanders, 'because subsistence livelihood possibilities are unfamiliar and/or because they have no right to occupy it' (Nunn and Carson 2015: 126). There are examples of relocations in the past, such as the resettlement of communities from Kiribati to the Solomon Islands. A first resettlement to Phoenix Island failed, due to problems in adapting to local environmental conditions and according to problems in food security (Weber 2016). The second relocation to Gizo, Solomon Islands, succeeded. However, issues around land tenure and participation in decision-making in competition with local inhabitants remain problematic (Donner 2015). Thus, potentially problematic consequences of migration as an adaptation strategy can arise from the lack of knowledge of livelihood strategies in the host country/island but as well from issues related to land tenure leading to conflict with locals. The latter issue also arises in the case of relocation within an island to higher ground – if possible at all – e.g. as a response to increased erosion (Barnett and Waters 2016: 740).

But what happens to an island state if it really were to lose its territory? When island nations drown, who owns their sea?[1] Do islanders simply become stateless? Could such 'deterritorialised' island nations set up 'governments-in-exile' for the case that their islands may become inhabitable again in the future? Or can island states establish enclaves in other countries' territories to legally retain existence (McAdam 2012)? While the displacement of island peoples is nothing that happens overnight, still solutions have to be found for how to deal with ongoing resettlement trends. In fact, the president of the Maldives announced the purchase of Australian land for just such a scenario. Other islands already have international agreements, such as the Pacific Access Category quotas for inhabitants from Fiji, Kiribati or Tuvalu migrating to New Zealand (Bedford and Bedford 2010).

Apart from migration, relocation or retreat from coastal areas or entire islands, coastal defence measures are a common way of adapting

[1] Latif Nasser discusses different international law scholar's approaches to the problem of drowning legal spaces, including ones that might even help threatened nations with their resettlement efforts.

to processes of erosion or increased flood events. Especially seawalls seem an obvious response to sea level rise as they protect settlements, infrastructure and agricultural areas. However, seawalls or dykes are extremely costly and require expertise and human capital, making them an option for richer islands (e.g. Singapore) rather than most SIDS. Development aid is a way to realise such large-large scale structures on SIDS (Betzold 2015: 486), such as the seawalls constructed in Malé, the capital of the Maldives, funded by Japanese aid. In some cases, community-driven initiatives can successfully implement large-scale coastal protection solutions, as, for example, on South Uist in Scotland, where the local community opted for such an approach to avoid near-term relocation (Young et al. 2014).

Maladaptation and Alternatives

Seawalls can have adverse effects as well. While stopping higher peak tides and storm surges from overtopping and causing flooding, they do not solve the problem of erosion which many SIDS suffer from. In fact, seawalls can increase processes of erosion by reflecting wave energy; as a result they may not be suitable solutions in the long term (Kundzewicz 2002; Donner and Webber 2014). In addition, seawalls might offer a higher sense of security, which can encourage inappropriate behaviour such as increased coastal development and construction, neglecting the negative changes that might occur to coastal natural and social conditions in the longer term (Pilkey and Young 2009: 166; Donner 2012). Other means of protection against erosion can also have adverse effects. Groynes or beach nourishment may reduce erosion in one part of the coast but cause erosion or accumulation of sediment in others. Adaptation measures that have negative consequences such as these are termed maladaptation, referring to 'actions or inaction that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future' (Noble et al. 2014: 857). In the Comoros, for example, seawalls are being built as measures of climate change adaptation with the support of international donors. The severe erosion the islands is suffering from, however, is currently made worse by practices of sand mining rather than sea level rise and is not solved at all by the construction of hard infrastructure such as seawalls (Ratter et al. 2016; Betzold and Mohamed 2016). According to Barnett and O'Neill (2010), maladaptation also describes situations where adaptation goes hand in hand with increased greenhouse gas emissions and high costs, especially for the most vulnerable groups of society.

There are alternatives to hard coastal protection solutions in locally adapted measures based on the approach of 'working with nature' (Slobbe et al. 2013; Waterman 2008; Temmerman et al. 2013; Stive et al. 2013; Tessler et al. 2015; De Vriend et al. 2015). Techniques such as coconut fibre blankets (Schlurmann et al. 2014), plantations of sea grass (Paul et al. 2012; Paul and Gillis 2015), artificial reefs made from bio-rock materials (David et al. 2016) and bamboo breakwater (Schmitt et al. 2013; David et al. 2016) are so-called low-regret measures, which stabilise the coastal vegetation for erosion control and protect against extreme events. At the same time, they are relatively low-cost solutions which should not interfere with existing coastal uses.

Alternative approaches, however, should not only work with nature but also with local communities in order to be sustainable and increase resilience. Therefore, local decision-making structures, international relations, perceptions of coast and climate as well as past social experiences all need to be considered (Robinson and Carson 2015; Devine-Wright et al. 2015; Petzold 2016; Adger et al. 2005; Kelman 2014; Brace and Geoghegan 2011). A problem is that climate change impact and vulnerability analyses often focus on core areas of island states rather than archipelagos and peripheral islands. However, it is those islands where alternative coping strategies instead of top-down adaptation programmes need to be applied most and where the discrep-

ancy between traditional environmental management and modern assessments of vulnerability is biggest (Nunn et al. 2014). Apart from traditional approaches and routines which may, indeed, be fruitful for integration into coastal protection schemes, the role of individual and social learning are crucial when confronted with a new environmental pressures (Holdschlag and Ratter 2013). Here, knowledge of existing formal and informal institutions and networks is critical in order to build on existing capacities and to identify potential obstacles in politics as well as in lay society to the implementation of adaptation measures (Weichselgartner and Kelman 2015; Barnett and Campbell 2010; Arnall et al. 2014; Hay et al. 2013; Demeritt 2001). Any coastal use reflects individual and social perceptions of the coast, coastal resources and the risks associated with the coastal environment. Consideration of these perceptions is crucial for obtaining public support for climate change policies (Ratter and Possekel 2000; Moser 2010; Nisbet 2009).

In summary, adaptation to climate change on small islands has to consider the local socio-economic and geographical conditions to have sustainable effects. The choice of adaptation measures also needs to acknowledge different coping capacities of island communities among SIDS. Here, not only socio-economic indicators must be considered but also cultural features and historical ways of dealing with environmental changes. Adaptation to climate change can only succeed if local populations accept and are involved in the different steps of adaptation planning all the way from the hazard mapping to implementation (Petzold and Ratter 2015).

A Critical View on Islands as Victims

Although islands are particularly vulnerable to environmental pressures and climate change, there is also strong criticism of that perspective. This mainly refers to the current alarmism surrounding climate change and the resulting negligence of locally induced environmental problems. '[S]mall islands are not only victims but also agents of environmental crisis events' (Ratter 2008: 38).

Although 'drowning islands' are currently receiving considerable media attention, there are few actual examples of islands that are disappearing due to sea level rise (Baldacchino and Kelman 2014). Not all islands are sinking, some might even be growing. A study of 27 atoll islands in the Central Pacific using aerial photography and satellite images showed that many islands have actually increased in land mass in the past decades (Webb and Kench 2010; see also Rankey 2011). Many processes of erosion have causes other than sea level rise – for example, changing wind patterns, ocean currents and vertical land movement (e.g. glacial isostatic adjustment (GIA)) but also anthropogenic interference (Church et al. 2013: 1143). Extreme weather events and peak tides may be associated with short-term changes, e.g. due to El Niño conditions, rather than long-term climate change (Donner 2012). As Albert et al. (2016: 1) summarise, '[t]he limited research that has been conducted to date on the responses of reef islands in the western Pacific indicates that islands are highly dynamic, with coastal erosion and inundation threatening infrastructure resulting generally from extreme events, human armouring of shorelines (e.g. seawalls) or inappropriate planning and development rather than sea level rise alone'. This, however, does not imply that sea level rise should be neglected as a significant threat. Quite the opposite, the rapid increase of sea levels recorded in recent decades is indeed alarming. But it should not lead to neglect of local coastal morphological dynamics and anthropogenic interferences. Therefore, 'scientists and climate communicators can use such occurrences [flooding] to educate the public about the various natural and human processes that affect sea level, the shoreline, and the shape of islands' (Donner 2012: 170).

Besides maladaptation, as described above, other negative anthropogenic activities that affect resilience observed on islands need to be considered, such as the destruction of coral reefs and coastal vegetation, e.g. through dynamite fishing techniques (Fox et al. 2003). Coral reefs are extremely important as natural protection in the

form of wave breakers against general ocean dynamics and tsunamis, and they also reduce erosion. Similarly, the removal of wetlands, mangrove deforestation and sand mining reduce natural protection against erosion (Donner 2012). Such activities may be informal, carried out for personal benefits, or result from large-scale developments, e.g. for the tourism business. They may be tolerated by local administrations and international donors but often mainly benefit external investors, leaving the island population to carry the cost. Pollution, poor waste management and illegal dumping particularly affect freshwater availability and human health (Connell 2013: 146). Through the inability to cope with increased amounts of waste, artificial landfill islands (e.g. Thilafushi, Maldives) are being created, relocating the issue but not resolving the environmental problem.

So are islands really more vulnerable? As laid out above, certain island-specific characteristics do seem important given the pressures of current and future global environmental changes. However, neglecting local-regional-international interlinkages and island-specific features of resilience draws a misleading picture of islands, as does alarmism based on incorrect interpretation of environmental data or pursuing hidden development priorities.

6.3 Island Sustainability and Resilience

The wide range of vulnerability indices applied to islands has created a perception of islands 'as inherently or naturally vulnerable, structurally vulnerable, and systemically vulnerable in terms of social, economic, and environmental systems' (Moore 2010: 122). Islands are often viewed as 'places […] in need of saving; as places that must be improved and brought up to dominant continental standards' (McCall 1994: 1). At the same time, the 'construction of islandness as immediately equating to vulnerability […] is a myth' (Kelman and Khan 2013: 1132). A key concept for small island development both regarding their resilience towards environmental hazards and their intrinsic vulnerabilities is sustainable development. (How) can island life approach sustainability and resilience? Is self-sufficiency possible, and what are the barriers? Critics of island vulnerability mainly refer to continentalist and top-down approaches to sustainable development and the negligence of intrinsic island resilience.

Ecological Footprints and Fingerprints

The finiteness of space and resources is constantly apparent on small islands. They do face ecological problems, in a manner easily comparable to the earth as a whole but on a much smaller scale, more imminent and visible. A tool such as the ecological footprint is useful to show how island society is making use of and depends on its own or imported resources – termed natural capital – and is thus able to show limitations and possible opportunities for sustainable development. The ecological footprint as an indicator of sustainability highlights limitations imposed by space and problems of land use and carrying capacity, which seem more immediate on small islands than in continental areas. Accordingly, many small islands are particularly interested in sustainable development as it is crucial for their survival.

Overshoot of an island's carrying capacity can result from the overexploitation or degradation of already limited natural capital, e.g. due to external influences or by overpopulation. In the worst case, such an overshoot leads to the collapse of island society, followed by depopulation and emigration. When an island population uses more natural capital than is available locally, it is an 'ecological debtor'. Through trade and imports, the lack of local resources can be partly compensated. Findings from the small German island of Helgoland (Ratter and Petzold 2012) show the problems of dependence on imports on an island with hardly any local production but high resource demand for tourism. Importing goods is costly, unreliable and, regarding food, linked to problems of freshness and general availability. Also, transportation needs energy which contributes to greenhouse gas emissions. Similarly, due

to the lack of fossil fuels on small islands, these are often imported, making their use far from energy efficient. In some cases, connections to a mainland power grid can be a solution but not for more isolated or remote islands.

Many small and densely populated islands can hardly be self-sufficient. But is it fair to compare islands to the mainland where natural capital is also imported from other places but which is simply less bounded and isolated? Islands are not closed systems and often not isolated at all, but well-connected with mainlands and other islands. The ecological footprint has to be seen and applied in this context rather than representing a dogmatic indicator for overshoot and an assumed goal of self-reliance. The point is to address those local conditions that can be influenced rather than point a general finger at island fragility and vulnerability. The point is to look for local opportunities to optimise local production and consumption patterns and protection and restoration of available renewable resources. This might entail simple ideas of renewable energy generation, more island-specific approaches of cooperative food production and sharing, as well as ecotourism concepts – 'island fingerprints' as examples of the diversity of ways for sustainable life.

Various projects attempt to brand themselves as 'green islands' (see Grydehøj and Kelman 2016). Their key feature is the implementation of renewable energy solutions. The Danish island of Samsø claims to be the 'World's First 100% Renewable Energy-Powered Island' (Spear 2014). It uses wind power for electricity generation and solar power and biomass for heating, enabling the island community to be independent of fossil fuels. Similarly, on El Hierro, the smallest of the Canary Islands, a unique combination of wind power, a hydroelectric plant and an energy storage solution is set to cover the island's energy demand. In Tokelau, the island community resolved the energy issue by completely switching from diesel power to photovoltaic power generation.

It is more difficult to be self-sufficient with respect to food. Food imports permanently substituting local food production systems not only contribute to vulnerability because they might reduce food security, but also contribute to greenhouse gas emissions. An added problem, especially with regard to exclusive tourist resorts, is the sustainability of transport to/from the island, when tourists come from the other end of the world to experience self-sufficiency and chosen isolation. Examples of eco-island resorts or privately owned eco-islands can be found all around the world, e.g. Denis Island (Maldives), Mosquito Island (British Virgin Islands) or Vavu'a (Tonga).

Sustainable Development

Sustainable development on islands is more than self-sufficiency or energy independence. The Barbados Programme of Action (BPoA)[2] was first to explicitly define major sustainability issues for islands and suggested objectives for sustainable development (United Nations 1994: 3–5). Crucial pillars of sustainable development are, among others, the importance of self-reliance, the protection and development of human and cultural resources and the promotion of partnerships between non-governmental organisations and governments. In 2005, the Mauritius Declaration reaffirmed the BPoA as the 'blueprint for small island developing states and the international community to address national and regional sustainable development in Small Island Developing States' (United Nations 2005: 2). Almost 10 years later, the Small Island Developing States (SIDS) Accelerated Modalities of Action (SAMOA) Pathway was articulated to reaffirm the efforts towards and dedication to sustainable development on SIDS by the international community (United Nations 2014b).

An UNEP Outlook (UNEP 2014: 17) lists four elements as key to the sustainable development on islands: the blue-green economy, technology leapfrogging, priority given to island community and culture and reconnecting with nature. The blue-green economy is based on an ecologically

[2]See also *Report of the Global Conference on the Sustainable Development of Small Island Development States* in 1994, Bridgetown, Barbados.

sound system of local industry, especially exploiting the potential of sustainable tourism and local production. This, the Outlook argues, should go hand in hand with the creation of employment opportunities for islanders and the expansion of international information networks and renewable energy systems. Technology is seen to play an important role in overcoming disadvantages of isolation, especially regarding economic relations, and in developing scale-appropriate systems for energy generation and local resource management. Prioritising island community and culture means combining traditional and modern approaches to resource management, local decision-making and education, offering perspectives for locals and increasing community resilience. Life on many small islands, especially in the centres of archipelagic island states, has become very globalised and far from sustainable, often resulting in the loss of former, more self-sufficient lifestyles. In the context of climate change, it is argued that these lifestyles need to be rediscovered in order to prevent the possible collapse of island societies in the long term (see Nunn and Carson 2015). Finally, reconnection with nature implies the implementation of community-based conservation areas and the reintegration of traditional land use techniques for increased self-sufficiency for food and water. On Samoa, for example, agroforestry projects are implemented through the local community as measures of climate change adaptation and mitigation. Degraded forest lands are revitalised and monocultures set up during the colonial period are diversified and replaced by native and more climate-resilient cultures. Restoring native vegetation is said to contribute to social-ecological resilience by increasing the function of the vegetation as windbreakers and erosion control and by increasing local food security (UNDP 2010).

Critiques of Island Sustainability

Islands are often used as a means to find global solutions (Royle 2014: 77) – as 'outposts of globalisation', they provide case studies for continental researchers and environmentalists. Critics argue that too often, they are used in a noncritical and superior or even risky manner (Farbotko 2010; Grydehøj and Kelman 2016). Barnett and Waters (2016: 732) state that 'continental development assumptions may fall short of explaining the complex vulnerabilities and development pathways for island states, and offer a misguided basis for enhancing their sustainable development'. Baldacchino and Kelman (2014: 2) criticise 'the zeal of sustainable development' which neglects present issues by focusing solely on future development strategies and climate change. In this way, they argue, many sustainable development agendas have 'eclipsed other measures that may have sought to address other, more pressing, challenges in a contemporary world of exacerbated material inequality' (Baldacchino and Kelman 2014: 12–13). Even if fundamental development issues, e.g. education, poverty reduction, health and livelihood, are officially included in sustainable development strategies, the focus of many current programmes is often solely on issues related to climate change. Also, 'aid competition […] can result in ineffective solutions and poor governance in small but high 'demand' countries' (Donner and Webber 2014: 341). Short-term programmes abound, with funding for long-term maintenance, infrastructure and basic needs of islanders remaining comparatively marginal. The ongoing focus on 'drowning islands' may also lead to a decrease in private sector investments into island economies.

Sustainable island initiatives can be harmful when they are based on simple branding rather than solving the underlying and long-term sustainability issues (e.g. energy, waste, food). In fact, '[p]ursuing iconic sustainability, irrespective of real results, has negative consequences that may spiral out of control, causing more problems than it solves' (Grydehøj and Kelman 2016: 6). Topics such as the blue-green economy, 'green islands' and the climate change adaptation discourse can have enormous implications for local power relations and social (in-)equality. Such strategies produce competition among and within islands, with winners and losers and rich and poor people with different levels of agency and empowerment (Baldacchino and Kelman

2014: 9). Impacts of environmental pressures do not necessarily affect populations equally, as '[i] slands, even small ones, are not homogeneous' (Moore 2010: 128). Social inequalities reflect exposure to hazards as well as access to means of support on both international and the local, intra-island, level (Glaeser and Glaser 2010: 143). Accordingly, international support systems which generalise both small island peoples and largest archipelagic nations such as Indonesia (Glaeser and Glaser 2010) as victims potentially neglect such local social inequalities. Using Tuvalu as an example of an 'eco-colonial gaze', Farbotko (2010: 58) claims that '[i]sland people, long marginalised, are denied their agency in the climate change crisis. They are fictionalised into victim populations fleeing inundation, desperate for dry land, even drowned'. Consequently, 'the discourse on island vulnerability that arises from within development and environmental policy communities is far removed from islands themselves' (Barnett and Waters 2016: 734). In the wake of natural disasters, small island communities relying on local decision-making and a subsistence economy are often confronted with the influence of outside aid, linked to a loss of autonomy in decision-making, the changing influence of politicians, environmentalists, and workers and a change in population structure. This influence can have negative, or at least significant, impacts on the local cultural identity and self-sufficiency and go hand in hand with a loss of local knowledge and skills (Lacher 2015). As stated by Pam and Henry, 'climate change transforms a known place into an unknowable space' (Pam and Henry 2012: 41).

Lewis (2009: 4) also identified a 'negative impact of disaster relief upon self-reliance, a counter to vulnerability', especially in a context of islands with colonial backgrounds. Here, 'long-established practices of mutual self-help between those affected and those not, in many cases have become eroded by neglect and by dependency on external assistance' (Lewis 2009: 10). Moreover, Pelling and Uitto (2001: 56) found that 'traditional social supports are neither kept up in the face of capitalist incursions nor adequately replaced by welfarist support systems'. The result is a reduction of agency, of local empowerment to act on one's own terms towards 'risks' associated with climate change: 'Climate change has introduced a sense of powerlessness' (Pam and Henry 2012: 41–42). In this way, the vulnerability narrative works as a self-fulfilling prophecy – 'the issue of climate change maps seamlessly onto pre-existing development discourses to further amplify the characterisation of islands as vulnerable' (Barnett and Waters 2016: 739).

Island Resilience and Connections

An alternative to the general vulnerability narrative is offered by stressing the intrinsic resilience island places offer (Turner et al. 1996; Barnett and Campbell 2010; Nunn and Carson 2015). The resilience perspective implies an understanding of limitations and opportunities and the dynamics on small islands. Such a perspective does not merely copy adaptation or development strategies from continents or other islands. In fact, vulnerability itself is a Western concept based on the perspective of islands as peripheral. From the perspective of Pacific islanders, for example, historically 'vulnerability was not a particularly marked characteristic of island societies and communities and, accordingly, islands are not inherently vulnerable places. On the contrary, they were resilient' (Campbell 2009: 94).

Resilience in this context describes specific coping mechanisms on islands. Island populations learned to deal with their limited resource base and natural capital and remoteness long before contact with Western/European societies (Kerr 2005: 504). As previous chapters have shown, smallness can also mean flexibility, high social cohesion, and sense of place, which can help to quickly set up new structures after disasters (Lacher 2015). Historical experiences and institutional settings influence how small island communities are prepared to deal with environmental pressures. Island people are very aware of changes to their local environment, especially due to their special relationship with the coast (Milfont et al. 2014; Ratter and Possekel 2000) –

the place where the terrestrial and marine ecosystems overlap. Over centuries and sometimes millennia, islanders 'developed ways of life generally well suited to the vagaries of insular existence' (Nunn and Carson 2015: 111) – ways of life that created 'a distinct community identity located historically on sea and land' (Rainbird 2007: 173). An understanding of the dynamic nature of coastal environments is crucial to being able to respond to changes and hazards, e.g. in the context of sea level rise. Islands can, therefore, help to promote living '*with* rather than *on* our shores' (Gillis 2012: 196, italic in original) and contribute to sustainable coastal protection.

In small island communities, the relevance of formal and informal social networks and relationships is very high. As Petzold (2016, 2017) found on the Isles of Scilly, different dimensions of social capital can be critical for climate change adaptation in the sense of awareness raising and collective action. A strong presence of the local administration or influential private enterprises is essential for the implementation of large-scale adaptation solutions. However, they can also be an obstacle to informal self-organised action. Especially on small islands, informal social networks and cooperatively organised community life can compensate for a lack of resources and facilitate spontaneous collective action. At the same time, more distant social ties allow for access to resources, knowledge and skills from outside the island community.

Thus, rather than understanding islands as isolated places, it is insightful to analyse their connections and networks. While on continents the coast represents a border and 'land's end', on islands, the coast is rather seen as space of transition and connection (Steinberg 2001: 56). In the Pacific, island connections through trade, migration/mobility, kinship and in general through identification, with insular and marine heritage, have created a distinct inter-island way of life in a 'sea of islands' (Hau'ofa 1994). In fact, 'migration plays a definite stabilising role for island communities' (Birk and Rasmussen 2014: 10), by regulating the demographic and socio-economic balance, avoiding overexploitation of resources and keeping up inter-island relationships (Connell 2013). Such island connections should be recognised without focusing on unrealistic self-sufficiency. The very survival of islands has often depended on their openness to foreigners and points of connection rather than isolation. In this way, '[s]ome traditional societies have developed networks of support and reciprocity that are more effective than the natural disaster programs of even the wealthiest countries' (Turner et al. 1996: 170).

Therefore, Barnett and Waters (2016: 732) point out the 'unique advantages and coping capacities that island nations have been developing for centuries and which have sustained them in the face of an enormous range of local and global challenges'. As Muir et al. (2014) observed in the Northern European periphery, the '[l]ack of institutional resources have traditionally prevented damaging interventions' and instead promoted human adaptation, rather than technical adaptation solutions. However, sustainable development and adaptation to environmental change should not only focus on traditional coping mechanisms. In fact, 'past experience (traditional knowledge) may be a poor guide to the future' (Hay et al. 2013: 304) when confronted with a new dimension of challenges implying a high degree of uncertainty, such as climate change. Therefore, it is worth analysing how these issues can be confronted by combined and integrated technologies, concepts and understanding (Cambers 2007; Janif et al. 2016; Kelman and Khan 2013; McNamara 2013). C-Change (Canada-Caribbean Coastal Climate Adaptation Strategies) is an example of an inter-island research network, attempting to connect research between Caribbean and Canadian coastal communities and to increase community resilience towards climate change (see also Lane et al. 2013). The International Small Islands Studies Association (ISISA) regularly provides an arena for researchers and practitioners from islands and continents around the world to share and advance insights gained from case studies and theoretical research. Networks, such as the Many Strong Voices (MSV) programme, try to bring together island communities from SIDS and the Arctic to strengthen their

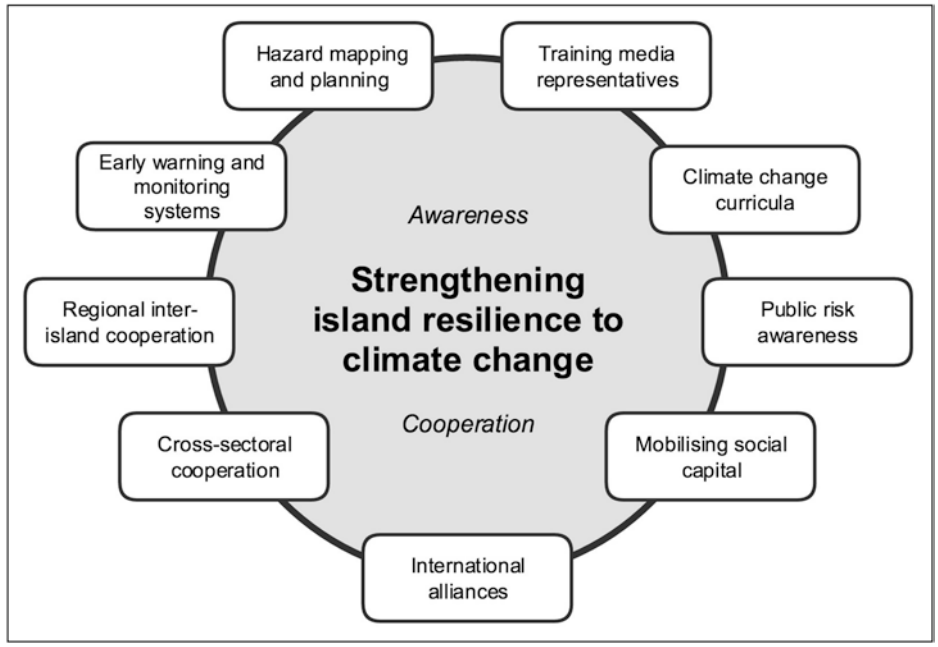


Fig. 6.3 Strengthening island resilience to climate change

voices and to share experiences, knowledge and resources for improving research on and local solutions for climate change adaptation on vulnerable islands. Moreover, such bilateral and multilateral cooperation, as well as formal organisations such as AOSIS, is of 'crucial importance […] maximizing the island states' potential influence' (Shibuya 1996/97: 555).

This chapter has shown that the present discourse on island vulnerability is inextricably linked to climate change and the threats posed by rising sea levels. It has also shown that this discourse is far too simplistic from a geographical perspective and that the socio-spatial relationality plays its particular role in future development. Key elements in defining local vulnerability are the specific local and regional spatial conditions, anthropogenic interferences in topography and natural capital, as well as the financial capacities of the respective societies to shoulder potentially radical solutions such as sea defences or relocation measures. In the end, islands will always be risky places, but, as the German proverb states, in a sea of problems, there are always islands of solutions. Readiness to adapt to potentially rising sea levels and to cope with the associated impacts on coastal places not only depends on technical and financial capabilities and decision-making but also on the attitude of the people affected and their willingness to be proactive. Reducing island vulnerability and increasing the resilience of island societies is a societal endeavour. Island communities have the potential to cope with natural and anthropogenic hazards, with the innovation capacity of island societies representing a critical element. Resilience can be strengthened by affordable adaptation strategies that bring together local communities and international efforts (see Fig. 6.3). Ultimately though, these strategies need to be translated into local awareness and actual behaviour on the ground.

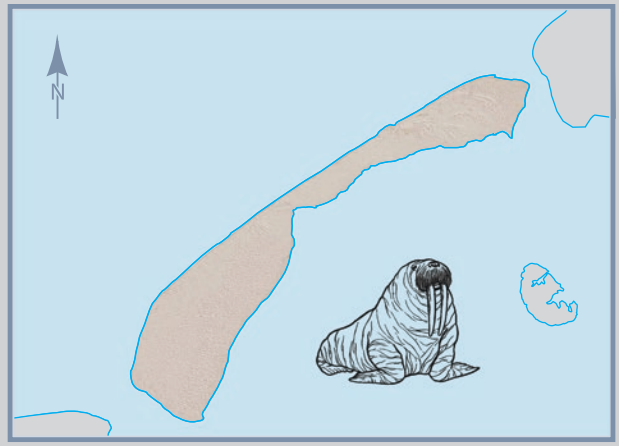
Several approaches and steps of general and technical risk awareness and different levels of cooperation can contribute to further strengthen island resilience to climate change impacts. To increase preparedness to deal with extremes events, well established and equipped local disaster units are essential, including an early warning system with the respective legal frameworks and capable monitoring system with adequate financial resources. For short- and long-term planning, national hazard GIS maps and planning instru-

ments, as well as housing codes, are crucial and should be implemented and enforced to adapt to the specific vulnerabilities on small islands. Moreover, risk awareness among the population is pivotal. Thus, risk perception and the awareness that measures can reduce vulnerability in the long run and at the same time be economically favourable have to be acknowledged and communicated among the population. To improve awareness of locally specific vulnerabilities and capacities, media representatives should receive training about vulnerability and hazards and the perspective that people are agents and not only victims. Public institutions can increase their resilience by a close cross-sectoral cooperation, e.g. between environmental protection, public health and foreign affairs, with trained staff and adequate resources for preparedness activities. Additionally, institutions should develop training programmes and new curricula for climate change adaptation, disaster management and awareness campaigns, e.g. in schools and hospitals. Community resilience can be strengthened by mobilising social capital by local institutions, within and across island communities, for sharing of resources, information and facilitating response and aid mechanisms. Finally, powerful regional cooperation between islands and island states enhances the capacity for immediate response and possibly fosters environmental cooperation on the basis of technical and financial support and with the implementation of practical responsibility.

On the international level, the efforts of island nations to place the issue of global climate change on the international political agenda go back to the Earth Summit in 1992 and reached its peak at the Paris meeting in 2015. Apart from the influence of AOSIS on the adoption and inclusion of the 1.5 °C temperature goal, the agreement sets financial baselines for reinvigorated global climate funding institutions which are fundamental to the support of adaptation and mitigation plans (Hoad 2016). The power of the many to speak with one voice has a multiplying effect. Even in a system that values power above all else, the smallest members of such a system can still achieve notice given the right circumstances: ‘Even mice can roar, and sometimes they can be heard, even by the lions’ (Shibuya 1996/97: 555).

Acknowledgement This chapter was co-authored by Dr. Jan Petzold, Bremen.

Island Brain Teaser 6



Global climate change is doubtlessly one of the most debated issues of our time. So far, the public discourse surrounding the impacts of climate change on small islands has almost exclusively focused on warm coral islands and atolls in the tropics, such as Tuvalu or the Maldives. This particular island mystery highlights the fact that cold islands can be just as badly affected by climate change as their warmer cousins.

The island we are looking for is only 7 km in length and part of a 100-km-long system of barrier islands. It is situated on a famous Northern Strait which for a long time separated two rivalling superpowers; the International Date Line still runs through it. The island was given its current name by the Baltic-German explorer Otto von Kotzebue; he named it after his vice admiral in 1816 and claimed it for the Russian tsar. At that time, the island had already been inhabited for about 200 years by the Iñupiat who had a settlement there and almost exclusively subsisted on whaling, fishing and sealing.

Already then, the flat island was potentially highly vulnerable to storm surges and extreme weather events. But the sea ice, present nearly all year round, acted as a powerful protective shield against the surging waves. Additionally, the houses of the indigenous population were erected on permafrost soil which is not susceptible to erosion. Today, this natural defence has all but disappeared. In northern climes, global warming is making itself felt at double the global average. As a consequence, more and more sea ice is melting, affording less and less protection to the island from storm surges. Moreover, the permafrost is thawing, rendering the coastline highly susceptible to erosion which is in turn exacerbated by rising sea levels. Despite artificial coastal defences the island is therefore losing 3.3 m of land a year, and many houses and roads have already been washed away.

There is mounting evidence that the island will become uninhabitable in only a few decades' time. For this reason, the majority of the 600 inhabitants voted to move their village to the nearby mainland in a 2016 referendum. At this stage, however, it is entirely unclear how this will be financed. The responsible authorities have made available a meagre US$ 8 million out of the US$ 200 million needed, so it is unlikely that the resettlement will take place any time soon. The heated debate surrounding the future of the small island society shows that the devastating effects of climate change have firmly arrived in the northern hemisphere. But what is the island we looking for?

For the solution, please visit http://www.island-database.uni-hamburg.de/about.php

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Conclusion

7

Les îles constituent les points nodaux des réseaux globalisés de l'antimonde.

Nathalie Bernardie-Tahir (2011): 293

Abstract

Islands are considered highly vulnerable to natural hazards and external stressors due to direct exposure, limited space and insufficient resources for building social and ecological resilience. Throughout the development of the global economy, they have been instrumentalised in a territorial and strategic ping-pong game yet also come to represent important nodes in global economic and social networks. These outposts of globalisation have not just been oppressed but also made good use of their singularities and assets. A Geography of Islands is tasked with analysing the relativity and relationality of space and place. A *gestaltwechsel* is called for, differentiating between external island ascriptions and almost fossilised internal stereotypes such as that of victimhood. Islands are agents capable of creatively using their assets.

Keywords

Space-place relation • Island spatiality • Globalisation • Geopolitics • Maritime conflict • Vulnerability • Resilience • Blue growth • Geo-symbols

The unfailing attractiveness of small islands as research objects is down to a whole range of aspects and features. The boundedness of islands is often emphasised, or the supposed manageability of islands, with isolation, remoteness, distance and the exotic nature of small islands all providing added interest. In the previous chapters, I have attempted to debunk some of these myths. It should not be forgotten that small islands are attractive because a certain magic has been ascribed to them ever since mankind first became aware of them: Throughout history, island images were repeatedly reinvented and reconstituted, reflecting the varying ages and developments at

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hand. So it is that small islands are still considered places of happiness, spirituality, legends and paradise and still considered sites for experiments of thought or artistic inspiration. These ascriptions are based on cultural historical images, stereotypes, emblems and narratives that often have little in common with the life worlds of small islands. It is these collective island imaginaries that turn islands into an ideal melting pot of fiction, dreams and preimposed island realities.

At the same time, small islands are places of dominance. They are pawns in a game of strategic interests, forgotten and overlooked (or consciously ignored) parts of the globe. They are places of economic exploitation and exchange, of withdrawal and seclusion (prison islands), of migration and connection. They may appear relatively isolated, and indeed they can seem extremely remote, but on closer inspection they often turn out to be well connected, representing veritable nodes of global development. They are outposts of globalisation in both senses of the word. Islands, after all, represent many things at once – they are *unitas multiplex*.

Against this context, a Geography of Islands should indeed aim to uncover external island ascriptions and their impacts on the life worlds of islanders. Such analysis requires engagement with the spatial categories of location, potential, structure and external and internal perception, as spatial location and remoteness are not absolute but relative, depending on accessibility as well as the available (transport) connections. The genesis of islands goes back to specific geological, volcanic, sedimentological and biogenic processes and forces – forces that co-determine small islands to a fair degree. Plate tectonic backgrounds lead to regional geohazards such as earthquakes and volcanism (Ratter 2013) but under certain circumstances also to agrarian potential and the possibility to use the nutrient-rich soils and areas of some islands to grow a variety of crops. Biogenic coralline genesis enables the formation of white sandy beaches and turquoise waters, representing a precondition for the typical stereotypes and idealised holiday paradises exploited by global tourism. On small shallow coral banks or atolls, these phenomena often go hand in hand with a typical shortage of space, lack of surface water run-off (no rivers from the hinterland) and extremely shallow shelf areas, linked to precarious freshwater resources (limited freshwater sources are stored in freshwater lenses; there is a danger of overexploitation and pollution and a lack of rainfall). There is also a particular susceptibility to beach and coastal erosion, flooding due to wave action and/or sea level rise as part of global climate change. Offshore sediment islands act as buffers to ocean currents, yet they are also retreats for those living on the nearby coasts. Their protective function lends them a special role in coastal defence, yet they are also experiencing profound social change through gentrification – islanders are being pushed out of their own island.

The continuing territorialisation of the sea, initiated in the twentieth century by the International Law of the Sea, extends the spatial potential of islands twofold. Firstly, UNCLOS III allows islands to lay claim to expansive sea areas, resulting in veritable sea grabbing similar to land grabbing. Secondly, small rocks or tiny islands are once again receiving attention, this time as part of the geopolitical industrialisation of the sea and the exploitation of marine resources. This makes island grabbing a new phenomenon. But the new Law of the Sea not only changed matters from a geopolitical perspective. It also altered the legal and economic situation of countries, as well as the bilateral and multilateral coexistence of nations. These changes and their impacts not only affect governments but also the life worlds of island peoples. Agreements and new boundaries can cut traditional and well-established links, and traditional practices, such as fishing on banks far away from the mother (is)land or using secret fishing grounds, can suddenly become a political, institutional or territorial problem. Overvaluation of marine resources can cause renewed competition for their use, frequently without creating the necessary means for cooperation and sustainable management. Nevertheless, at a regional level, waters that connect could lead to new or re-emerging forms of cooperation and coordination, aiming to protect all kinds of scarce resources or

protecting the environment in the face of growing human pressures.

Due to their special geographical circumstances, island states are often regarded as having developed a special relationship with the ocean. This is attributed to two facts: firstly, that island residents can easily access ocean resources, leading them to draw more benefits from the sea, but, secondly, also the metaphysical qualities that uniquely develop on islands. Closer analysis, however, reveals that both of these are case dependent and that it is impossible to speak of a generically closer or more direct relationship of islanders to the marine environment. Not least due to their respective cultural historical context, Pacific islands are fundamentally different from islands in the Indian Ocean or Caribbean, for example. Elisabeth Nyman (2013) has investigated the phenomenon of geographically determined island exceptionality more closely and was able to show that island states and mainland states indeed behave differently towards ocean space. Analysing disputed maritime areas in the Western Hemisphere and Europe from 1900 to 2001 (Nyman 2013), she shows that island states are both more likely to try and settle a disputed maritime area, whether by force or by negotiated resolution. This finding is then used by Nymann to raise questions about geographical differences that characterise island states in the world political system.

Economic structuring and restructuring has determined the development of small islands for centuries. A long tradition of exploitation went hand in hand with full-scale social and ecological processes of restructuring, affecting not only colonial sugar islands but also the Spice Islands and those supplying copper or bauxite. Far from being complete, these processes are gaining new traction in the latest era of globalisation, taking on new forms both economically and ecologically. Islands that used to be agrarian – this already spelling comprehensive change – are now looking towards the coast in a bid to capitalise on tourism, a development the local population had (and still has) to submit to. Tourist centres are springing up within easy reach of international airports surrounded by secondary settlements for prospective employees, and infrastructure, water supply and waste collection are predominantly oriented towards the demands of international tourists.

Ecological change is also progressing apace. The enormous pressure on attractive locations close to the coast often leads to the deconstruction of the last remaining natural and valuable ecological areas. Frequently, important coastal wetlands are filled in or the last remaining mangrove forests are cleared – illegally, tolerated or facilitated by corruption – in order to create the material space for foreign direct investment. Tourism, second homes and condominiums represent a new type of conquest, increasing the vulnerability of islands to natural hazards, as made clear by Nathalie Bernardie-Tahir. ‘At a wider scale, [tourism]…has become invested with new logics of globalisation which play an active and visible part in the renewed production of insular territoriality’ (Bernardie-Tahir 2011: 292, original in French).[1]

At the same time, islands have always been places of economic development. As such, they are plugged into a global network that closely links islands and mainlands – for example, through migrants from islands looking for better jobs or lives elsewhere. Island diasporas never fully lose touch with their island homes and families, a practice made easier in times of modern IT and transport networks. The remittances sent back home contribute to the transnationalisation of islands just like returning pensioners: ‘…(W)hose circular mobility produces transnational spaces that inscribe islands into globalisation more than ever and, vice versa, globalisation into islands’ (Bernardie-Tahir 2011: 292, original in French).[2]

[1] ‘... à grand échelle, celle-ci sont investies des nouvelles logiques de la globalisation qui prennent une part active et visible au renouvellement de la production territoriale insulaire’.

[2] ‘[D]ont les mobilités circulatoires produisent des espaces transnationaux qui inscrivent plus que jamais les îles dans la mondialisation et, inversement, la mondialisation dans les îles’.

7.1 The Forces of Globalisation Are Reversing

After centuries of building ever closer links between national economic systems, globalisation has now entered a new phase. Small islands used to be able to act as suppliers of raw material or playgrounds for the global financial system. Conceptually, they became part of a shared world of experience in which it is difficult to retain a distinction between 'us' and 'them'.

Globalisation and free trade have indeed brought greater wealth, but they also increased social and economic inequalities not only in the Western world. Multinational companies were able to become all-powerful in a globally driven economy, while political responses are still mostly restricted to the regional and local level. The world has become more susceptible to economic and social crises – in our interconnected times, US house owner's debts can bring the whole world to the brink of a crisis. Put simply, globalisation is responsible for a number of problems that would not exist without it. Much trust is currently being squandered, but alternative concepts for an 'afterwards' are still rather rare. Already, the growth of global trade is slowing down, the number of state interventions is growing, and there are increasing tendencies towards protectionism. An uneasy sense of injustice is mounting, as globalisation mainly benefits the wealthy elites and multinationals, enabling the latter to become even more powerful as a result. 'Citizens for Tax Justice" (2016), for example, has shown that the iPhone manufacturer Apple booked 215 billion dollars offshore using various tricks of the tax trade. Tax havens have been termed a 'cancer of globalised trade', oligarchs and Mafiosi are using them for dubious business, and supposedly serious companies are using them to deprive people of what they are owed: a fair share of public service obligations to maintain the sociality of nation states. 30 Fortune 500 companies account for 66% or US$ 1.65 trillion of offshore profits – a response, for example, to a US tax rate of 40% on every dollar, including those earned abroad.

Globalisation has led to or increased opposition at various spatial, social and cultural levels: from numerous national political alliances to the flaring up of regionalisation movements at the subnational level. Not every opponent of TTIP or CETA is a fundamental opponent of free trade or globalisation. Demonstrators are united by their scepticism towards the blind belief in the self-regulatory power of the market and that the free market benefits everyone. Because of the general loss of trust, the political right has been able to home in on globalisation as an enemy. Current forms of populism are feeding on the crisis of globalisation while proposing backward-looking and destructive solutions for managing the crisis – solutions that use the technologies of the digital age to promote isolation rather than transcending borders. In today's globally linked society, place independence is in many ways impossible (Cresswell 2004; Relph 2000). More so, the importance of place and locality must be balanced with an awareness of and connections to other places and global needs (Massey 1997). This is where islands and their societies are a step ahead – they have acted like this for centuries and are used to being part of a globally interconnected and interacting network.

After a phase of unbridled growth that lasted until 2006 and the subsequent years of the financial and Euro crisis where profits were privatised and losses socialised, we are now in a phase where globalisation needs to be redefined politically, socially and economically. This phase is difficult particularly for small islands and especially tax havens where tax evasion is regarded as one of the most important concepts for the years to come. US economist and Nobel Prize laureate Joseph Stieglitz is calling for the abolition of tax havens and for the EU and the USA to impose a minimum global tax of 15 to 20% on all globally active companies. As revolutionary simple as it may sound, this idea will remain utopian as it is increasingly difficult in our digital age to know where value is actually added to a product – and, with this, where tax is due. In the unlikely case that an agreement was to be reached on this, it could have fatal consequences for small island states and their offshore financial services.

Globalisation is a driver that influences small island 'outposts' with incredible force. In today's world, it pays to adapt to any imminent changes, to develop new interconnections and to look for adequate concepts of territory and new meanings at the local level. It is important to develop space and place in its interscale connectivity.

7.2 Geography: Space and Place Matter

Islands very clearly show that space is not the same as space and place is not the same as place. This is an essential aspect for geography as there are three conceptions of geographical space: absolute space (understood as fixed and bounded territories, such as administrative units, private property, states), relative space (understood as relative locations, depending on the spatiotemporal framework of the observer and the social phenomenon that is being studied) and relational space (the production of spatiotemporality through processes) (Harvey 2006: 275). These coexisting spatialities are in 'dialectical tension with each other' (Harvey 2006: 276), and analytical reduction to just one of them produces misleading results. All elements, structures and systems in the social and material worlds are continuously constituted, reconstituted and undermined through dialectical processes, flows and relations (Harvey 1996: 46ff.; Massey 1995: 326).

Space is produced and constantly changed through social practices (Lefebvre 1991:12). Space as a 'product of interrelations' (Massey 2005: 8) implies that social processes and relationships *create and define* space rather than *occurring* in space (Massey 1994: 263). This was shown very instructively by Epeli Hau'ofa for oceanic life worlds, where islanders have traditionally thought of themselves as belonging to a 'sea of islands'. Their self-perception suggests that rather than living on remote, isolated and small islands, their construction of space – their world – comprises both terra firma (the islands themselves) and the surrounding ocean they were able to explore with their boats and shipping technology (Hau'ofa 2008). Different sociocultural practices produce 'different forms of space-time' (Harvey 1996: 215), while, conversely, the spatial influences 'the form of social relations' (Massey 1995: 337). These 'socio-spatial dialectics' (Soja 1980, 1989) imply that different political projects produce 'a simultaneous multiplicity of spaces' (Massey 1994: 3), spaces which 'interpenetrate one another and/or superimpose themselves upon one another' (Lefebvre 1991: 86). Such 'coexisting heterogeneity' or interleaving structures imply 'that there is more than one story going on in the world and that these stories have, at least, a relative autonomy' (Massey 1999: 35). And as the spatial system is open, dynamic and non-linear, constantly in a process of construction and reconstruction, 'the spatial' is open and dynamic, 'constructed out of the multiplicity of social relations across all spatial scales, from the global reach of finance and telecommunications, through the geography of the tentacles of national political power, to the social relations within the town, the settlement, the household and the workplace' (Massey 1994: 4). The simultaneity of spatial multiplicities is mirrored, for example, in the cultural historical relations of the Bahamians with their own cultural space of the Caribbean and their concurrent economic and sociocultural relations with the neighbouring USA. This split self-image recurs in different forms depending on the perspective taken and the topic at hand, for instance, when Bahamians regard themselves as integral to Caribbean culture but not as part of an economically *underdeveloped* Caribbean or when they see themselves as part of a modernised, progressive, fast-food North America but do not identify with a racist, discriminating white Anglo-Saxon society. Similar concurrences of multiple spatialities can be observed in the French overseas departments in the Indian Ocean, in Cuba as part of Latin America and/or closely connected with the northern neighbour or in Taiwan as an independent state or part of the all-powerful motherland of Mainland China.

It follows that globalisation continually (re-) creates structures of socio-spatial inequalities. Uneven development at all spatial scales (Smith 2010: 132) constitutes a form of 'core-periphery

polarization', meaning that inequalities express themselves socially as well as spatially 'through the polarization of development among different territories, regions, places, and scales' (Brenner 2010:13). Contemporary geographies of uneven development are pluri-scalar, produced not only by international but also intra- and transnational core-(semi)periphery relations (Muhr 2017: 7).

The island state of the Maldives, a dream destination for international tourists, has become a nightmare for those that have become displaced and driven to the margins of society. The capital Malé has become a refuge for those seeking to escape hopelessness, gang crime and the drug trade. In the late 1970s, the Maldives were little more than an archipelago for fishermen that offered fish and coconuts but no freshwater. The concept of high-class resort-based tourism developed at that time by the President forbade all contact between tourists and indigenous islanders who increasingly concentrated in Malé. Out of the 1,192 islands, only 199 are inhabited, with 111 representing resorts where Maldivians are not allowed outside of working hours. Foreign investors and local politicians created inequalities – 5% of the population hold 95% of the country's wealth. The only options available to Maldivians are in Malé; the other islands only have a few shops, a school and a sports field at most. Much of what is going on in the country relies on favours; Islam has replaced Buddhism, and many young men are making to leave the country. Estimates suggest that per capita, no other country has sent as many foreign fighters to Syria than the Maldives.

In this context, opening up the 'traditional state-as-a-monolith centric view' (Moisio and Paasi 2013: 256) becomes important. The state-centred perspective should be complemented by focus on place and social interaction. Place is central to how the world seems to work and this may be seen in various much observed and contradictory ways, all of which are related to globalisation (Adams et al. 2001: xix). David Harvey's (1993) place-bound identities have become more rather than less important in a world of diminishing spatial boundaries to exchange, movement and communication. And today's critical humanist perspective emphasises the tensions and contradictions of place, focusing on the 'multiplicity of place' rather than the 'essence of place'. 'A critical humanist interpretation of place is equally concerned with how human creativity is hemmed in by large-scale social, political and economic structures' (Adams et al. 2001: 19). In spite of the dramatic societal and environmental changes that our world faces today, place continues to be significant both as a vigorous conceptual structure as well as an irrevocable part of everyday human life (Horan 2000).

Obviously, we must step back from any taken-for-granted attitudes and assumptions, whether in the realm of everyday experience or in the realm of conceptual perspectives and explanations including science, or, as suggested by Edward Relph in *Place and Placelessness* (1976), stepping back to call into question the taken-for-granted nature of place and its significance as an inescapable and pregiven dimension of human life and experience.[3]

Following Relph, it is possible to investigate islands under the premise of reviewing space and its relationship to place. He argues that space is not a void or an isometric plane or a kind of container that holds places. Instead, he contends that to study the relationship of space to a more experientially based understanding of place, space too must be explored in terms of how people experientially relate to it. Rather than treating the two concepts separately, geographers must scrutinise how they are related both existentially and conceptually. Relph thus sees space and place as dialectic in human environmental experience, in that our understanding of space is related to the places we inhabit which in turn derive meaning from their spatial context. The crux of the matter is

[3]Human geographer Yi-Fu Tuan, well-known for his work on place-making, place attachment and *topophilia*, considers islands one of several ideal worlds (Tuan 1974: 247) where place can be probed as an integral part of human experience. His approaches influenced further humanist geographies (e.g. Anne Buttimer 1976, Edward Relph (1976, 1981)) and continue to have significant conceptual and practical impact today, both inside and outside geography.

identity *with* place, which he defines through the concept of *insideness* – the degree of attachment, involvement and concern that a person or group has for a particular place. This continues to hold true in our modern IT period, as regardless of historical time or the geographical, technological and social situation, *people will always need place* because identifying with place is integral to what and who we are as human beings (Relph 1976; Casey 1993; Malpas 1999; Seamon and Sowers 2008). Picking up on Relph's insideness, island studies have termed this concept islandness, which is '… interpreted as a physical and social phenomenon … as well as a tool through which social reality is negotiated and constructed by people to give shape to ideas and desires. In this sense, islands can become cognitive objects, which are loaded with specific meanings in different contexts and occasions' (Mezzana et al. 2012: 70, see also, e.g. Baldacchino 2004b, 2007).

7.3 A Geography of Islands

A Geography of Islands needs to analyse and understand the specific socio-spatiality of islands and consider their spatial and place-based specificities as an analytical framework. Islands are not only specific as a geographical object. The geographical, economic, political and social phenomena that are taking place are often amplified by island features, islandness and insularism (Taglioni 2006, 2011a, b).

Against this background, islands are special because spatiality not only has a social component – one that regards islands as a living or action space. They are also fields of projection where foreign political and economic interests can become inscribed and where all forms of ascriptions can manifest themselves. This field of projection also understands islands as part of global processes and outposts of global networks in the literal and figurative sense. This differentiation between the external and internal view and between self-awareness and ascription is meaningful if not crucial. Both perspectives influence each other, producing an ever-changing and constantly reconfiguring dynamism that affects the entire development of islands.

On the one hand, the island topoi highlighted in this book demand a critical look at how these various ascriptions affect the development of islands as life worlds. The island is a concentrate of the exotic dream, whether in the context of a colonial past or in the presence of tourism. Both periods are distinguished by a strong capacity to create images, and although the outcomes are different, the mechanisms for producing spatial and cultural alterity are indeed the same.

On the other hand, the crux of this lived intensity is identity with place, in this case a particular island. Studies of place seek information on how a given society or social group perceives, interprets, represents and practises islands. Islands, or specific ideas of the characteristics of islands, are often used to frame wider myths, symbols, emotions, feelings, projects and ideologies (Baldacchino 2007; Hay 2006). 'Islandness is an intervening variable that does not determine, but contours and conditions physical and social events in distinct, and distinctly relevant, ways' (Baldacchino 2004a: 278).

Another specific island quality comes into play at this stage: that of relationality. Islands are no absolute but relational places – objects of external interests and part of a global network – and linked to other places as a node in the global network. These relationalities and connectivities must be considered, uncovered and questioned against their constant and dynamic change. 'Connected insularity' or 'insular connections' depict essential island attributes that are not stable but constantly reshape themselves true to Humboldt's concept of multiple bonds. The challenge for a Geography of Islands is to think of all of this together, as relationalities must be considered just as much as discontinuities (Ette 2011).

Showcases or Laboratories?

Small islands cannot be understood any more readily than larger countries. Their complex system trajectories are just as uncertain, unpredictable and full of surprises as large continental systems or other objects of research. Islands cannot be conceived of as laboratories; they are nei-

ther sterile nor artificially created nor cut off from all external influences.[4] The double connectivity between inside and outside and between isolated and connected renders them special objects of geographical research with specific characteristics and processes. There are probably events on small islands that can happen sooner or later in larger mainland countries – events that impact on the socio-spatialities of islands more closely and immediately than on mainland countries (Holdschlag and Ratter 2013). To some degree, islands therefore do serve as 'canaries in a coal mine' in that they are teaching us to be more careful in what we are doing to the world around us. These outposts of development can be considered 'places of condensation' (Debarbieux 1995) where the general can be found in the specific and the specific in the general. Nathalie Bernardie-Tahier describes it thus:

> Islands represent places of condensation which provide the opportunity to read and analyse different expressions of globalisation. Above all, they offer a condensate of networks, networks such as aviation, maritime and telecommunication technologies, aspects of tourism, migrants, financial transactions of clean and dirty money, electronic parts, clothes, pharmaceutical products, information, ideas, drugs etc. All these networks are superimposed and add to each other, and connect the world to islands which, on maps, appear as focal points of an infinity of lines' (Bernardie-Tahir 2011: 296, original in French).[5]

It is these spatial specificities (espèces dèspaces, Perec 2000), the products of interaction between the global and local and between place and network, that islands allow us to consider, and it is they that make us think about the discontinuities and fragmentations produced by globalisation at the same time (Bernardie-Tahir 2011: 296).

Whether islands can serve as showcases also depends on the heuristic that is selected and the corresponding question that is being asked. In the context of climate change, for example, the straightforward impact of climate change on islands is comparable to more gradual processes in larger territorial states that have space for withdrawal and resources to mitigate impacts but where adaptive capacities and place resilience may still need to be developed in the medium term. At the same time, islands will have little in common with large territorial states on account of their disadvantageous – or special – economies of scale. Their ability to compete on the world stage will not reveal itself in positive economic competitiveness but likely only through the use of the specific assets of a niche economy with qualitative advantages (Baldacchino 2010; Baldacchino and Fairbairn 2006).

A Call for a *Gestaltwechsel*

It is appropriate for a Geography of Islands to put the scientific engagement with islands on another track. The purpose here is to avoid repeating old stereotypes that only serve to codify epistemic tracks and existing assumptions. It is important to question stereotypes, to ask new questions and to deal with answers creatively – in order to, perhaps, develop even more appropriate answers. Essentially, this is a call for a *gestaltwechsel* in how islands are regarded, in other words, a change of perspective in the epistemology of islands. This might open new windows of opportunity that concentrate on specific local assets rather than reduce things to a comparison of continental powers and dependent small islands. What does island development mean in the global network of relations and dependencies? What is the effect of ascribing smallness, and equalling this to vulnerability, on the self-perception of islands? And where are decisions concerning particular development trajectories really taken? What is left for whom? And what particular interests are served by the corruptible self-interests of decision-makers?

[4] For a discussion of islands as actual laboratories, see Chap. 3, Footnote 14.

[5] '[L]es îles représentent autant de lieux de condensation qui nous permettent de lire et analyser la mondialisation dans ses différentes expressions. Elles offrent dans un premier temps un condensé de réseaux, réseaux techniques aériens, maritimes ou télécommunicationnels, réseaux de touristes, de migrants, de remises, d'argent propre ou sale, de pièces électroniques, de vêtements, de produits pharmaceutiques, d'informations, d'idées, de drogues, etc. Tous ces réseaux s'ajoutent, se superposent pour relier le monde à l´île qui, sur la carte, apparaît comme un point de convergence d'une infinité de lignes'.

Stereotyping islands as victims might undermine ideas and bind creative forces. Stereotypes keep islands path dependent, in the worst case pushing them into lock-in situations. But islands are also *sites of agency* and depositories of 'new things'. 'The treasures that islands deliver include powerful messages, bearing the fullness of vital, novel noises' (Baldacchino 2007: 17). These range from creative economic ideas such as internet domain sites, telephone dialling codes, hosting movie productions or religious pilgrimages, all the way to attracting rent-based revenues or serving as branding places that position island products into niche export markets (Baldacchino and Fairbairn 2006; Ratter 2007). 'Islands have exploited their strategic "inbetweenity" in time (Bermuda) and/or space (Iceland, Ascension, Kinmen)…' (Baldacchino 2007: 12).

Such a *gestaltwechsel* calls on us to look for opportunities, to uncover existing resiliences and to speak out on achievements rather than always look for powerlessness, dependencies and negative economies of scale. If globalisation only did a disservice to small islands, then all mainland states would be doing well – which they are not. Dependency is not determined by the smallness of an island alone but also by national and international political interests and their local effects (Ratter et al. 2016). Island research based on another world view could focus on their strengths, bring to the fore the advantages of localness and discuss close social networks and relations. It could also refer to singularities and assets which can range from typical local characteristics that promote niche economies to regional forms of cooperation that are designed to make islands heard, such as the Eastern Caribbean states, as suggested by Eric Shibuya in 1996 for agenda building in the context of climate change. The coalition of SIDS has proven to be quite remarkable at the COP climate negotiations during the last 20 years (see United Nations 2014: Samoa Pathway). Due to their 'spatio-placiality', islands will never win the game of global competition. They will always need to look for alternatives.

This also means listening more to islanders and other languages. Such perspectives can contribute entirely different ideas, patterns of thought and practices, a world away from the Eurocentric or Anglo-American scientific tradition. Looking towards the eastern island images of China, Japan, Taiwan and Korea could be a first step in this direction. Taking account of other languages – be they indigenous island languages or the plurality of different languages of science – would enliven the current picture which is necessarily only partial. Joshua Nash, for example, explored Europeanised island toponomies as affected by local languages and place-based experiences on islands in the South Pacific (Nash 2013). Would it not be a start for the strongly anglophone world of science to take note of other publications, text forms and narratives? Would it not help to recognise that work in other languages is also valid and that it is worthwhile to read, discover and acknowledge other languages? Apart from the voices of islanders, treasures hidden in the Russian, Arabic, Iranian, Indian, Scandinavian or Chinese worlds of science and the magic embodied in their stories must be uncovered. With increased sensitivity and diversification, island research could forge a path that leads towards multivocality, adding to the main developments that are already being traced in the dominant English-speaking literature. A journey of discovery could begin of other worlds, world views as well as world and island images. 'Se ponen en pie los pueblos, y se saludan; se preguntan 'cómo somos?', y unos a otros se van diciendo como son' (José Martí 1975: 20).

7.4 The Only Continuity Is Change

As outposts of globalisation, islands are constantly in motion. The reality of islands keeps changing, and new questions and opportunities constantly arise. Global climate change will affect islands in different ways, be it through increased storm activity, inundations, sea level rise or ocean acidification and increased temperatures, which can kill the protective surrounding coral reefs through coral bleaching. Certainly, the generally small land area of islands imposes significant constraints in the context of dealing with

external stressors and natural hazards. Nevertheless, the particular vulnerability is compensated by specific forms of resilience on islands. Islanders are not always powerless. Examples demonstrate that islands have the experience to overcome environmental hazards which have always been part of island life and livelihoods and have successfully avoided adverse consequences (UNEP 2014; Blackburn 2014; Gaillard et al. 2008; Kehlman et al. 2016). Historical analyses that aim to look for resilience rather than culmination points of risk can help to focus on the flexibility and reconstruction of island societies, as well as bring greater attention to island activities such as the green island network which is a forerunner of sustainable development. Experiences of island solidarity and networked thinking and action are not only of interest for islands.

Also of interest are recent developments in the use of the sea, which under the heading of 'blue growth' spell both new opportunities and challenges. Blue growth is commonly discussed as a future economic perspective for coastal and increasingly also island states (UNCTAD 2014). The concept is based on the 'green economy' model and at best aims to achieve the best possible balance between efficiency of sea use and environmental and climate targets, based on the sustainable management of marine resources at the regional, national and multinational level. Geographical and socio-economic specificities of SIDS are particularly taken into account, and specific recommendations made for diversifying the various national economies. 'Healthy oceans and seas are essential to a more sustainable future for all, however, especially for SIDS' (UNCTAD 2014: 2). The concept is taking into account climate change challenges (mitigation and adaptation) and aims to improve resilience of island populations because overexploitation and poor marine resource management are understood to have resulted in lost opportunities, food insecurity and diminished economic opportunities.

The concept of an ocean economy embodies production, economic and trade activities that integrate the conservation, sustainable use and management of biodiversity including maritime ecosystems and genetic resources. The ocean economy is subject to a multilayer regulatory framework under the United Nations Convention on the Law of the Sea (UNCLOS) and other national, regional and multilateral as well as sectoral governance regimes. The ocean economy can contribute to addressing some of the concerns associated with economic and environmental vulnerability, including those associated with remoteness, by fostering international and regional cooperation under an 'ocean space approach'.

The ocean economy offers significant development opportunities and also raises challenges for small islands in sectors such as sustainable fisheries and aquaculture, renewable marine energy, marine bioprospecting, maritime transport and marine and coastal tourism and marine biotechnology. Key suggestions focus on the need to mainstream the ocean economy into the future United Nations Sustainable Development Goals. Consideration should be given to a comprehensive goal focusing on the use of marine ecosystems and resources within ecological limits. An ocean space approach can be particularly useful for SIDS in sectors that are dependent on the sustainable management and use of common resources and where there are multiple national/regional competent authorities. SIDS have the opportunity and the challenge to consider institutional frameworks for access and benefit sharing for marine bioprospecting in order to harness any potential benefits that result from research and development activities.

> It is too early to point toward concrete results of these policy frameworks, but a shift in mind-set toward a 'common oceans space' at a regional level starting to emerge. […] Such an approach could support common regulations and institutions aimed at governing enterprise and infrastructure development and investment. This approach would allow for the necessary consolidation of resources that might otherwise be out of reach for SIDS acting individually (UNCTAD 2014: 6).

Once again, however, islands need to take such developments into their own hands. Rather than becoming pawns once more in global games or placing themselves at the mercy of foreign

companies, they should look after their own interests and make use of the specific character of each island. Islands are nodal points in the global network, and their assets can be utilised in a self-determined and responsible way for development and sustainability – to the benefit of island societies. At least, they could if everyone took part in this endeavour and politicians act for the benefit of their communities.

Islands are no generic showcases or laboratories as they work to their own principles and mechanisms. Still, island research can make a significant contribution to the understanding of socio-spatiality and space-place relations. Islands are places for the sedimentation of representations and various social and cultural constructs. They therefore represent particularly fertile ground for geographers to experiment and validate any effort to deconstruct discourses of past and present on the other and the elsewhere. Islands are geo-symbols for the proximate, the local, the everyday and the reaffirmation of place and force on the stage of globalisation (Bernardie-Tahir 2011: 465).

The attraction of islands as an ideal field of research is not restricted to their non-contained spaces but their relationality – their relation to the ocean and other islands and their relation as peripheries to the global centres. Their connectivity and relationality are just as important as smallness, boundedness and isolation. Islands can make us pause for thought, leading us towards new questions. As such, they are ideally placed to be objects of reflection on contemporary developments and situations – ideally suited to some alternative thinking about alternatives.

Island Brain Teaser 7

In our last island mystery, we are looking for a tropical coral island that is 545 km^2 and 450 km northeast of the deepest known part of the world's oceans. The 11,000 m deep sea trench and the elongated archipelago that parallels it (of which the mystery island is a part) were named after Maria Anna of Austria, first wife of the Spanish king Philip IV.

The island was first inhabited 4000 years ago and easily qualifies as a typical outpost of the globalised world. In the sixteenth century, it was an important staging post for the Spanish Manila galleons on their journey from Spanish East India to Mexico. Here, they could stock up on freshwater and supplies one last time before crossing the sheer endless expanse of the Pacific Ocean.

In 1898 the island was conquered by US troops, representing a highly attractive bridgehead between America and Asia for the aspiring USA. However, half a century later, the preeminence of the US military in the Pacific was severely tested. The day after the attack on Pearl Harbor, Japanese soldiers occupied the island, using it as a logistical hub from which they launched further conquests in the Pacific War. Only in 1944 did the USA recapture the island, fighting a bloody and ruthless battle that marked a decisive turning point in the Pacific War. Now the US Air Force had an air base that was within direct reach of Japan. In the conflict between the two foreign powers, it was of course the local island population that suffered most.

After the Second World War, the local population quickly came to accept the US military presence on the island. To this day the US-American air base is the most significant employer on the island and also a major land user, taking up around 40% of the island's overall area. Despite this, the island never did became a fully fledged part of the USA; like Puerto Rico or American Samoa, it has remained unincorporated and organised territory of the USA.

Apart from its military importance, the island has considerable significance for telecommunications as it is crossed by several intercontinental sea cables. It is also the second-most important tourist destination in the Pacific; in particular, large numbers of Japanese and South Koreans visit it every year.

This outpost of globalisation is also infamous for a series of plane crashes, but even more so for its spectacular loss of biodiversity. The *brown tree snake*, an invasive species introduced by US troops, has managed to exterminate nearly the entire endemic bird population. Due to the lack of winged predators, the spider population has exploded; the island has now 40 times as many spiders as the neighbouring islands. As a result, it has also become known as 'snake island' or 'spider island'. But what is the proper name of our mystery island?

For the solution please visit http://www.island-database.uni-hamburg.de/about.php

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