



Beach law in the anthropocene

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ABSTRACT

There is an urgent need to respond to the challenges of the Anthropocene, including climate change and sea-level rise. However, responses can be challenged by legal and institutional frameworks. In the context of sea-level rise, ownership structures for beaches and coastal areas can either facilitate or hinder effective responses. In this paper, we analyse ownership laws for beaches and coastal areas across many of the world's legal traditions. We find that laws relating to the coast are dominated by a focus on the protection of private property rights and economic interests over that of environmental and Indigenous values, although public rights, such as access, present a more mixed picture, with arguably stronger protections in civil law jurisdictions. Legislators can redesign entrenched traditions through focusing on the systemic implications of their decisions. To enable the transformations required to address the challenges of the Anthropocene, reconstruction of what 'ownership' means (private and public) will need to be underpinned by a future-oriented set of legal principles based on notions of environmental justice.

1. Introduction

The coastal zone is under increasing threat from more intense and frequent episodic hazards, such as erosion and storm surge; as well as, continuing slow onset hazards such as sea level rise (Oppenheimer et al., 2019). While legal traditions vary throughout the world, all have struggled to respond effectively to these threats (O'Donnell, 2019). Even fulfilling traditional functions such as assigning property ownership uniformly and definitively in this dynamic space has been difficult (Frohlich et al., 2022), and the dominance of private property rights in many Western countries has rendered attempts to implement strategies of planned retreat futile (O'Donnell, 2022). As society moves further from climate action towards climate justice (Newell et al., 2021), issues of private rights to own coastal foreshores and public rights to enjoy

beach access will only become more contentious and acute (Thom, 2020; Orchard et al., 2025). The resolution of these issues will not be uniform, and the appropriate legal response will differ vastly across the globe depending on local legal circumstances, as rooted in the country's underlying legal tradition. However, there may also be enough commonalities across jurisdictions that lessons can be broadly transferable when adapted to local conditions.

The objective of this opinion piece is to open a conversation as to how beach ownership issues may be considered and resolved across different legal traditions, for the purposes of cross-jurisdiction learning. To do this, it will examine how rights to own and access beaches are defined across a sample of case studies representing the broad legal traditions that exist across the globe. It commences by providing an overview of these major global legal traditions, which are common law,

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civil, mixed/hybrid, customary, centralised, and Sharia law. It then examines a small selection of case studies representing these legal traditions to better understand the global *status quo* of beach ownership laws and public access rights. This global scan (coupled with selected place-based case studies from each of these legal traditions) sketches out a comparative baseline from which we can explore shared legal commonalities, individual jurisdictional differences, and the nuances of context. This is not intended to be a comprehensive review or comparative analysis of global practice, but rather a starting point for future analysis. To ask the vexed ‘ownership’ question of these much-loved, environmentally sensitive, and (in the context of climate change) precarious spaces *at a global level* is to better understand why current assumptions of property ‘ownership’ may be flawed in response to coastal hazards (Elrick-Barr and Smith, 2021, 2022).

In short, by outlining and describing a global scan of ‘beach law’, this paper reveals what a siloed and narrower national-level legal enquiry cannot; a discernment of global patterns that show both consistency and inconsistency, and the significance of not only (indigenous or inherited) legal traditions, but equally the implications of context and socio-legal considerations.

2. Approach: legal traditions and case studies

While it is difficult to generalise the many and varied legal systems and traditions across the globe (Merryman and Pérez-Perdomo, 2018), most fall into the categories of common law, civil law, religious law (e.g. Sharia), customary law, centralised law, or mixed/hybrid, incorporating multiple traditions. In this paper, we analyse a selection of jurisdictions representing each of these legal traditions, thereby providing geographic spread and socio-legal diversity. These jurisdictions were selected (1) to ensure at least one case study per legal tradition, and (2) because they had been the forum for disputes regarding beach ownership, which provides interesting insights for this analysis. The full list of case studies is found in Table 2.

While this is not intended to be a comprehensive and in-depth comparative study, this may be a starting point for deeper analysis of how legal traditions can balance private property rights with socio-ecological concerns in a changing coastal zone.

3. How does beach law differ across legal traditions?

Our analysis reveals that, despite vastly different legal traditions, beach ownership disputes have some commonalities across all legal traditions; they broadly involve questions of ownership, the determination of boundary lines, public rights of access, and matters pertinent to an owner's agenda-setting powers, including the management of risk, and rights of intervention, such as building seawalls (see Table 1). However, there are some key distinctions in how these disputes are addressed and resolved, and more detailed case studies then explore how these legal traditions deal with these dilemmas through place-based examples, the analysis of (often commonly recurring) legal issues, and broader socio-legal and ecological implications (see Table 2).

The common law is the dominant legal system in countries including the United Kingdom, the United States, Australia, India, Canada and New Zealand. Landwards, there is a relatively ‘bright line’ which demarcates abutting private property from beaches and foreshores, marked by the ‘ordinary’ or ‘mean’ high-water mark, and defined by the common law's interpretation of the medium (and shifting) line between springtime tides and the vagaries of new and full moons (Maloney and Ausness, 1974). However, in some common law jurisdictions, this rule has been modified by statute, with the boundary between private land and the beach defined by reference to an alternative feature (Bell-James and Lovelock, 2019). Regardless of how the boundary is defined, there is a preference in common law countries for tidal waterway boundaries to be ‘ambulatory’, shifting in line with the long-established doctrines of accretion or erosion. Thus, private land ‘lost’ to erosion ceases to be real

Table 1
Comparison of beach law traditions.

	Type of ownership	Consistency in boundary definitions	Responsibility for risk	Right to intervention (e.g. shoreline defence)
Common law	Continuum of state/public to owner-less	Not consistently applied with flexible and variable definitions of the coastline	Public responsibility	Right to intervention is context-specific (usually depends on local planning law)
Civil	Government generally holds ownership in trust for public use and enjoyment	Varies across jurisdictions	Public responsibility	Right to intervention varies across jurisdictions, but it is usually only allowed if the proposal is in the public interest
Religious law (Sharia)	Both private and public ownership but regulated by modern law of various Muslim countries	Flexible and varies in different Muslim countries	Public responsibility	Traditionally managed by individual and community/tribes but in modern nations are regulated by the states
Hybrid	May be public, tribally or privately owned, but privately owned land is subject to access rights such as customary rights	Often ongoing modifications to boundaries and rights, with overlaps between boundaries for different purposes such as customary rights	Private, tribal or public may bear access implications	Context specific
State	State ownership	Consistently applied with fixed boundaries	Public responsibility	Government departments have the right to intervention

This table highlights the differing approaches that global legal traditions take to the management of coastal beaches and foreshores, by comparing the core property indicia of ownership, boundaries, risk allocation, and rights to intervene in contexts of climate-related challenges.

property (Corkill, 2013; Flournoy, 2017). Ownership of dry (or periodically wet) lands seaward of the ‘ordinary high-water mark’ is variously ‘owned’ by the state outright, owned by the state impressed with a public trust (famously the US public trust doctrine), or, like Roman law's *res communes*, it is owner-less (for example, see the Marine and Coastal Area (Takutai Moana) Act 2011 (New Zealand)).

Another major legal tradition is the civil law, a predominant legal framework across many European nations and in countries in South and Central America, Africa and Asia (Merryman and Pérez-Perdomo, 2018). This tradition is characterised by comprehensive, codified sets of legislation, which serve as the primary source of law (Dainow, 1966). Within countries grounded in this legal tradition, different concepts of beach ownership emerge: ownership of beaches in these jurisdictions stem from Roman law concepts of beaches as *res communes*, i.e., common to all and owned by no one (Maloney and Ausness, 1974), but also *res publicae*, in that they are managed by the State (Biondi, 1925). Consequently, in many civil law jurisdictions, beaches are often considered

Table 2
Comparison of beach law case studies.

	Context/issue	Parties	Decision process	Outcome	Implications
Common Law case studies					
Queensland, Australia	Private access over sand/water due to judicial interpretation of 'mean high-water mark'	<i>Svensden v Queensland</i> [2002] 1 Qd R 216 (Coastal landholders, State Government)	Litigation (Queensland Supreme Court)	Court interpreted 'mean high-water mark' in a manner that allowed resurveys over sand/water. Legislation was then introduced to address this.	Legislation has closed the loophole, but there is now a legacy of some loss of public access to beaches.
California, USA	Public access over dry sands (public trust doctrine)	<i>Nolan v California Coastal Commission; Surfrider Foundation v Martins Beach</i> (Coastal landholder, government agency)	Litigation (California Court of Appeal; US Supreme Court)	Public rights of access are narrow in their ambit, and rely on other indirect means of protection to overcome private rights to exclude	Private rights are stronger than public rights, with weak public rights subject to case-by-case assertion
Oregon, USA	Rights of public access over dry sands	<i>State ex rel. Thornton v Hay</i> (Owners of beach tourism facility, State Government)	Litigation, (Oregon Supreme Court)	Right to public access over dry sands was recognised by the court as a matter of <i>custom</i>	State-wide rights were confirmed as a blanket right, rather than individual case-by-case rights
Civil Law case studies					
Brazil	Public access guaranteed by legislation, subject to exceptions aligned with the public interest.	Federal Government, unless beach management is delegated to local government in accordance with Federal Law 13,240/2015	Regulated by legislation, including Federal Law 7661/1988, Federal Decree 5300/2004, Federal Decree-Law 9760/1946 and Federal Law 9636/1998	The public character of beaches are recognised by legislation and protected by the courts	While public rights are stronger than private rights, the government has struggled to enforce legal provisions and avoid unlawful beach development
Naples, Italy	Permit granted to private entity restricted public access to the beach	Local government, Regional court, business owner, environmental NGO, members of the public	Litigation, (Regional Administrative Court)	Public access to the beach should prevail over a private permit	Public rights are stronger than private rights
Religious Legal System case studies					
Indonesia	Rights of traditional communities, under <i>Adat</i> law, to build housing	Indigenous communities, State	Indonesian legislation and regulations (for example, Law Number 5 of 1960 on Basic Agrarian Regulations)	Costal traditional communities has equal rights (with the State) to build and live on the coastal land	The land rights to tractional inhabitants of coastal areas must still be recognised and granted by the State
Hybrid Law case studies					
Aotearoa New Zealand	Native property ownership, while maintaining public access. Whether Māori customary title continued to exist; and whether the enactment of the Foreshore and Seabed Act extinguished any existing Māori customary title.	Attorney-General v Ngati Apa [2003] 3 NZLR 643	Litigation (The Māori Land Court; Māori Appellate Court and the High Court; the Court of Appeal).	The Māori Land Court; Māori Appellate Court and the High Court; the Court of Appeal unanimously held that the Māori Land Court had jurisdiction to determine whether areas of foreshore and seabed were Māori customary property.	Government enacted the Foreshore and Seabed Act 2004 to protect private access against Māori claims. The Act effected great loss of Māori customary land over the foreshore and seabed. As a result, the Marine and Coastal Area (Takutai Moana) Act 2011 was enacted.
Solomon Islands	Disputes over land seaward of the high-water mark	Crown/State Government and (in respect of areas adjacent to customary land and, arguably, adjacent to some registered land) customary communities	Litigation: Disputes as to whether areas below high-water mark are customary land (Magistrates Court/High Court/Court of Appeal) NB Customary land disputes are dealt with in different forums: Chiefs/Local Court/Customary Land Appeal Court.	Conflicting case law. Solomon Islands Law Reform Commission has recommended legislative change to bring State law into line with customary law.	Until there is legislative reform, the position regarding land below high-water mark adjacent to customary land and adjacent to registered land in some areas remains uncertain.
Scotland	Ownership of the foreshore	<i>Agnew v Lord Advocate</i>	Litigation (Inner House of the Court of Session)	Foreshore not <i>inter regalia</i> as to ownership, but originally owned by the Crown like all land. Public rights, however, were inalienable.	Confirmation of the importance of public rights over the foreshore.
State law case study					
China	Rights of private beach land reclamation (special jurisdiction)	Coastal developer, District Government	Litigation (Xiamen Haicang District People's Court)	Private rights dispute over beach belongs to special jurisdiction	Beach dispute is governed by special law

This table exemplifies how selected case studies in each legal tradition resolve vexing rights of public access to beaches and coastal foreshores, illustrating the significance of context and specific socio-legal factors. The case studies selected are indicative of the broad approaches each legal tradition adopts, as well as showing (where applicable) nuanced divergences and differing emphases *within* legal traditions. Each case study reflects the jurisdictional significance of the case law or legislation in question, and also reflects the authors' expertise and knowledge of their 'home' legal system.

public property or subject to specific public use rights, restricting private ownership and ensuring public access. For example, the French *Code général de la propriété des personnes publiques* (General code of public property) includes the seashore among the properties belonging to the State's natural maritime domain (Art. L2111-4). As early as 1681, an

ordinance by Colbert defined it as 'all that the sea covers and uncovers, and as far as the great flood of March can extend on the shore', and declared that these areas could not be the object of private appropriation. Similarly, the Italian Civil Code *Codice civile* places the beach and seashore among the spaces that belong to the State and are part of the

public domain (Art. 822) (Esposito, 2018). Due to the predominant State ownership in these civil law jurisdictions, government generally plays an active role in regulating property rights along coastal areas. This involves enacting laws and regulations to establish measures for environmental conservation, formulating rules to ensure public access to beaches, and imposing development restrictions to balance private and public interests. However, while civil law systems typically recognise beaches as part of the public domain, substantial variations in legislation may exist across different jurisdictions, each shaped by its unique historical, cultural and environmental context.

Legal systems embedded in religion are another major legal tradition and again may display different approaches to beach ownership. Given the diversity of religions, these legal systems are extremely difficult to generalise, but include Islamic, Hindu, Judaic and Canon law (Lukianov, 2010). This diversity also makes it equally hard to generalise legal norms regarding beach ownership across them, but for the broad proposition that the foreshore area is subject to both public, and some cases, private ownership. Using Islamic law as an example of a religious legal tradition, original sources of Islamic law referred to the regulation of waters, such as wells, springs, and rivers, upon the expansion of Islam into Asia and Africa in the 7th century. From those sources, rules of the legal status of coastal land and waters were developed in Islamic jurisprudence. The legal term to explain the foreshore in Islamic *Fiqh* (jurisprudence) is *harim al-bahr*, which refers to 'protected zone of the sea' (Bouzenita, 2021). *Harim*, under Islamic law, is rights, facilities, including buildings and installations, around a piece of real property that is necessary for the enjoyment of the land by its owners (*Civil Code of Iran* (1928), s 136). The authority for recognition of *harim* (protected zone) is a *hadith* (saying) of the Prophet of Islam that states that whoever digs a bore has a protected zone of 20 m around it. While the rules of ownership of coastal land and waters may differ according to various schools of Islamic law, as a general principle, under traditional Islamic law, and the law of certain Muslim countries, the owner of land adjacent to water may have quasi ownership of the protected zone (*Civil Code of Iran* (1928), s 139). This is a significant distinction to the common and civil law traditions, which are more skewed towards public/State ownership of beaches.

There are many other jurisdictions that do not fall into the categories of common law, civil law, or religious law. The legal systems in these jurisdictions either exhibit characteristics of several traditions, or rely heavily on customary law, or have their own unique legal system. These place-specific eccentricities flow down into laws regarding beach ownership. For example, Aotearoa New Zealand is a country that has both colonial/settler common law traditions as well as Māori customary legal traditions (Jones, 2021), which collectively impact on questions of beach ownership. The Solomon Islands is likewise an example of a hybrid system with customary law traditions. This causes some complexities as rules regarding beach ownership differ amongst common law and customary law. For example, in the Solomon Islands in the South Pacific, land below the high-water mark extending to three nautical miles from low water mark is Crown land according to common law and the *Provincial Government Act 1997*, s 3(3). In contrast, under customary law, land below the high-water mark belongs to the custodians of the adjacent customary land. This leaves a live question as to who has responsibility for coastal management (Solomon Islands Law Reform Commission, 2012). Boundaries are also defined differently between common and customary law – for example under customary law, terrestrial and marine tenures are connected and extend out to the reef (Solomon Islands Law Reform Commission, 2012).

Scotland is another example of a hybrid legal system, and one which may involve private ownership of beaches (subject to some limitations). In Scotland, the foreshore is the area between the high and low water mark of the ordinary spring tides. There was great debate in Scotland in the 19th century as to the ownership of the foreshore (MacAskill, 2018), centred around whether the shore was owned by the Crown or by adjacent proprietors. The modern law is that the foreshore is originally owned by the Crown (except land governed by Udal law), but it can be

alienated to private persons. Regardless of ownership, there are common law public rights over the foreshore which are held by the Crown as '*regalia majora*'. These are inalienable public rights and allow access to the sea for navigation and fishing for white fish and shellfish from the foreshore. There is also a right of recreation, but the extent of this right is unclear (Scottish Law Commission, 2001, 2003). Furthermore, the public also have rights to use the foreshore (the 'right to roam') under the *Land Reform (Scotland) Act 2003*. These rights co-exist with the common law rights, are held directly by the public, and give the right to cross and be on land for specified purposes (ss 1(2) and 1(3)). Importantly, 'land' as defined in s32 of the 2003 Act includes the foreshore. The co-existence of the statutory and common law public rights has led to the Scottish Law Commission proposing that the common law rights are abolished and replaced with statutory public rights (Scottish Law Commission, 2001, 2003). However, this reform has not yet been taken forward by the Government, meaning that while the beach can be held in private ownership, this ownership is subject to public access rights that exist at both common law and under statute.

Finally, and in contrast to the legal traditions surveyed above is China's legal system of centralised government, where the ownership of beaches and foreshores is vested unequivocally in the centralised state. According to the Chinese Constitution, the coastal zone (including beaches and foreshores) is a category of natural resources of which ownership belongs to the State (for example, see Constitution of the People's Republic of China (2018 Amendment)). In this context, state ownership means owned by the whole people under the constitutional provisions of centralised government. Although the centralised government is the owner of beaches and foreshores, there is no legislation on coastal zone law or beach law in place at this central level. Instead, provisions on coastal zone management and resource utilization are scattered across various relevant laws and regulations at lower levels of government (Qiu et al., 2009). These regulations play the role of implementing centralised government legislation but crucially cannot change the state ownership of beaches and foreshores.

4. The intended and unintended implications of beach ownership laws

While the legal traditions surveyed have some major differences, their treatment of beach ownership reveals some key similarities. Optimally, the various legal traditions show systems of norms regarding ownership of beaches and coastal areas that should lead to consistent outcomes. However, in practice, arbitrary or fixed legal rules can have unintended, a-contextual consequences, such as private land boundaries extending seawards into the ocean, public rights of access tenuously prevailing only by resort to 'back-door' legislative means, or private interests encroaching into public space. The comparative analysis in Table 2 (based on case studies published in Supplementary Materials) illustrates how such divergences extend across the full spectrum of property indicia; from public versus private ownership, public access entitlements, differing rules about boundaries, and to differing approaches to risk and rights of intervention.

While the common law tradition suggests a fairly clear rule tied to tidal demarcations, a strong culture of private property rights has led to litigation and legislative intervention to protect less secure public rights of access. In Queensland, Australia, the term 'high-water mark' was interpreted by a court to grant private rights extending into the sea, and legislation was needed to close this loophole – but not before a number of private owners obtained favourable re-surveys of their land. In California, community groups had to resort to litigation to gain access to a public beach which had been restricted by private ownership of a road.

In contrast, the civil law tradition perhaps reveals a stronger ability to protect public access to the beach, with rules regarding ownership enshrined in codes. For example, in Brazil, courts have continually reinforced the public nature of beaches. A recent case in Naples, Italy, ruled in favour of a duty to constantly guarantee access to the seashore,

cutting across a private business right.

The situation in hybrid legal systems can unsurprisingly be more complicated. In Aotearoa New Zealand, the common law establishes public access to the public, but this has had been challenged by Māori customary legal rights being claimed over beaches and marine areas. A similar situation has arisen in the Solomon Islands, where customary tenure has been claimed over beaches all the way out to the outer reefs, in conflict with the State's claim of ownership of these areas. As the rights of indigenous populations are better recognised in other jurisdictions, it is possible that similar conflicts will arise elsewhere.

Finally in some jurisdictions, courts have intervened to resolve ambiguity. In Scotland, courts have reached a compromise of sorts, allowing for private ownership of beaches only where specified in a land grant, and in China, courts have also confirmed that public rights prevail over private contractual rights to coastal areas.

What this brief scan of our selected case studies indicates is that no legal tradition yet has adequate legal measures in place to resolve disputes regarding beach ownership, with similar patterns of litigation, disputes, and special purpose legislation to resolve legal questions as they arise. These controversies over ownership and public access will only intensify and increase as we grapple with the implications of the Anthropocene, leading to more disputes and questions regarding ownership.

5. Discussion and conclusions

All dominant global legal systems face challenges in assigning property rights and public protections in dynamic environments, exemplified by our global scan of the complexities of beach law. While these challenges have arisen in different contexts, there are also similarities in content and in resolution, suggesting that countries across the globe, and across legal traditions, have a lot to learn from one another. Where these lessons can be generalised, they may be capable of informing approaches tailored to local conditions in other places experiencing similar conditions.

One interesting finding of our global scan was that despite different ideologies and value systems that underpin various legal systems globally, 'Western' concepts of shoreline ownership and control largely prevail. In settler state jurisdictions, the pervasive nature of colonialism has further meant that Indigenous ways of knowing and doing have been replaced by concepts of exclusive ownership and tradeable assets at the expense of an eco-centric worldview. This universalising paradigm tends to yield beach ownership regimes that struggle to meet the place-based challenges of climate change such as sea level rise, storm surge and coastal erosion.

Our global scan also reveals differences not only between (but also within) legal traditions to vexing legal questions such as public access rights to coastal beaches and foreshores. This complexity underscores the significance of context to property rights regimes, and their diverse socio-legal, historic, cultural and geographic settings. This place-based diversity also highlights the significance of context to better understand the impacts of legal and governance structures in responding to variable adaptation and coastal management challenges and to inform more customised outcomes.

Coastal managers are often caught in a battle between decisions that primarily favour private property rights over broader social-ecological considerations. Given the increasing recognition of climate justice considerations and Indigenous governance at the international level, we conclude that existing legal perspectives (as evidenced by the commonality of issues across these traditions) needs to be re-centred to give greater voice to alternative worldviews. This is of particular importance given the policy-implementation gap facing many coastal practitioners. Such a re-centring would enliven the role of beach law to aid ecosystem-based management and integrated coastal governance in the Anthropocene. This would enable jurisprudential gaps identified by comparative studies such as ours to be addressed and provide a more nuanced

and contextual response to coastal management and other complex global social-ecological challenges.

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Declaration of competing interest

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Appendix A. Supplementary data

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Data availability

No data was used for the research described in the article.

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