

CLIMATE CHANGE, COASTAL HAZARDS AND THE PUBLIC TRUST DOCTRINE

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Coastal areas of Australia are periodically subjected to hazards and impacts of ravaging storms and inundation. Where development has occurred, or is planned to occur, there arises a need to ensure that beaches are maintained for the public good. Protective works by private landowners and public authorities may have an adverse as well as perverse effect of reducing beach width and habitat, especially into the future under projected conditions of rising sea levels and more intense storms. It is necessary to view many sandy sections of the coast as transient being subject to shoreline change and hence change in the position of property boundaries. There is scope for environmental law in Australia to make use of experience in the USA in the application of the Public Trust Doctrine to coastal areas. This doctrine recognises that governments at all levels owe a duty of care to protect environmental assets for the common benefit of the public. The beach must be seen as one such asset. It is important that planning and coastal protection laws of the states are clarified in ways that provide an obligation on public authorities to maintain and protect beaches, and in the process reduce the risk that private and commercial assets of local councils face now and into the future as well as safeguard against possible compensation claims from adversely affected landowners.

Introduction

In November, 2002, approximately 3000 beach-loving residents of Warringah and adjoining councils joined hands to form a kilometre long human wall on Collaroy-Narrabeen beach, Sydney. This spring “line-up” was protesting against a proposed

sea wall. Warringah Council had investigated the option of placing a properly engineered wall to replace the mixture of dumped rocks and unprotected sand dune that fronted houses and apartments built over many decades on the old foredune. In places, erosion had already reached critical points requiring emergency works following storms in 1967 and 1974 (1). What this protest was about was a strong community fear that if a continuous wall was built then there would be a loss of beach. The wall was not built and property owners still face the threat of damage and loss of land.

This example highlights the conflicting interests of property owners or managers on the one hand and those who seek public access and use of beaches where those beaches are backed by houses, caravan parks and infrastructure. Many beaches around the Australian coast are in this condition. Similar situations occur on many other developed coasts. Any process that causes loss of beach sand automatically places these built assets at risk and that risk will potentially be exacerbated by the impacts of climate change (2).

The conflict could be expressed in terms of competing rights under common law: the right to protect privately owned property versus protecting the public good. In Australia this competition is being played out against a background of land sub-division of natural foredune buffers, development pressure, rising values of real estate, demographic shifts to so-called “sea change” locations, past efforts to “engineer” coastal areas (eg dump car bodies or rocks during emergencies), and natural forces of coastal recession (3). These forces are induced by a range of factors including changes in the local sediment budget, episodes of extreme events, changes in direction of wave approach, and sea level rise.

In this paper I will examine the possible use of the Public Trust Doctrine (PTD) in Australia as a means to ensure the protection of beach amenity, access and habitat. The doctrine is widely

seen in coastal states of the USA as a mechanism to protect the public good (4). In Australia it has been sparingly used (5). If property law in Australia favours construction of defences against incursion of the sea and loss of land through erosion or inundation, then in populated areas it is highly likely that we will lose beaches and foreshore access. Costly remediation (sand nourishment) measures could be employed, but questions will arise as to whether this should always be the preferred solution where beaches are backed by sea walls. Application of the PTD, or equivalent explicit legal protection, will give priority to protection of the public good over private interests. This may save the taxpayer from considerable expense possibly without recourse to compensation.

Physical Context

Unlike large sections of the coast of Europe and North America, the Australian coast has not suffered from extensive coastal erosion. Continued sea level rise in southeast England and along the Gulf and Atlantic coast of the USA combined with major storm events has resulted in thousands of properties being lost, damaged or re-located (6). Sea level has been relatively stable around the Australian coast for at least 6000 years for geological reasons (7). However, our shores experience periodic battering from storms whether they are tropical cyclones, east-coast lows or mid-latitude depressions.

The geomorphological setting of the coast dictates the response of beach and dune systems to processes of waves, tides, ocean currents, winds and the behaviour of river and coastal lake entrances. Australian conditions are reasonably well known as are the coastal hazards facing natural and built assets (8).

Changes in shoreline position and beach-dune condition reflect the sediment budget of a particular stretch of coast. Of concern to coastal managers is whether a beach system is receiving

sediment enabling the shoreline to accrete or grow seawards; or is losing sediment and the beach and dunes are receding; or the system is balanced and the shoreline is oscillating around a mean position. Bondi is an example of a “balanced” system at present-day sea level even with a sea wall. It is a classic closed sediment compartment. Moruya Beach which has been monitored since 1971 shows a similar condition with the foredune experiencing storm erosion then rebuilding in periods following storm episodes. This was demonstrated in the extreme storms of 1974 to 1978 (9). During such storms the beach may be re-positioned 80 to 100 metres landward only to grow back in subsequent quieter periods (10). But there are other beaches which appear to undergo long-term recession such as those on the NSW north coast (11). This appears to be due to longshore sand transport reducing sand supplies especially where the dunes have been replaced by protective works.

When a natural dune buffer is absent between a beach that is undergoing wave attack and land that is either privately owned, or where there is public infrastructure or facilities that local authorities consider critical to its community, then problems arise. A beach may erode as a result of storm wave attack and under natural conditions will recover if there is a dune buffer. But if development has occurred on the dune, often involving removal of the dune cap and vegetation, land may be lost to the sea and not recover. This is what has happened at Collaroy-Narrabeen since the 1940s (12). In cases where erosion results in long-term recession, the position of the shoreline as defined by Mean High Water (MHW) moves landward and sand which makes up the intertidal beach is lost offshore or alongshore.

The issues just described are relevant to present-day conditions. Extreme events on the Gold Coast involving loss of land and threat to property are well documented as are similar situations in NSW, especially at Byron Bay (13). But risks to property are highly likely to change as the impacts of climate change take effect (14). Estimates of impacts have been made as “first pass”

approximations, and sophisticated modelling tools have been developed to show probable changes to shoreline positions and levels of inundation as sea levels rise (15). Insurers and other decision-makers are interested in risk issues that arise from the application of modelled projections of sea level rise and shoreline change. For landowners and coastal managers, these studies are relevant to decisions that they may be forced to take as coastal regulations embrace consideration of climate change impacts.

Public Trust Doctrine

In his review of the public trust doctrine as it applies in Australia, Tim Bonyhady has commented that as a common law concept it has “had little influence in Australia, because until recently, it was wrongly conceived to be an exotic American invention” (16). In his papers, he has documented various cases that have invoked the public trust, including the coastal case with a very significant long-term outcome in Sydney harbour (17). He concludes with an insightful quote from Justice Paul Stein in relation to Australian environmental law that “while the doctrine was far from an environmental panacea, there was room for the development of the doctrine of the public trust *alongside* protective legislative schemes concerning the environment and natural resource utilisation, more particularly where legislative regimes are weak or absent” (18). Given current concerns over the effectiveness of legislation in all Australian states that have jurisdiction over coastal planning and management, and the absence of any Commonwealth powers in this area, it is opportune to explore how the PTD can best be applied to coastal environments in this country using experience from the USA in particular.

The PTD can be traced back to the sixth century Institutes of Justinian and the accompanying Digest. The public’s right to

full use of the seashore emanates from a section of Book II of the Institutes that stated (19):

By the law of nature these things are common to all mankind--- the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and the buildings, which are not, like the sea, subject only to the law of nations.

Roman law recognised the special status of the seashore: “the shores are not understood to be the property of any man, but are compared to the sea itself, and to the sand or ground which is under the sea” (20). English common law in turn viewed the shores to be public in nature and American law inherited these Justinian principles from colonial times. The beach was seen to have a public purpose with respect to navigation and access and as such needed to be “free from private interruption and encroachment” (21).

Joseph Sax has become widely known for his advocacy of the PTD to assist communities in the protection of the environment and natural resources. It has been used to restrain governments from alienating public property (22). The public character of public lands deemed to be held in trust for the benefit of the public has been noted by the US Supreme Court and many state jurisdictions. A comprehensive review of court decisions by the US Coastal States Organization, Inc., entitled *Putting the Public Trust Doctrine to Work*, highlights how many decisions apply a view held in one case that “Throughout history, the shores of the sea have been recognised as a special form of property of unusual value; and therefore subject to different rules from those which apply to inland property” (23). Courts have invalidated several state actions that extinguished public ownership or access to the shore. Furthermore, the doctrine has been used in coastal situations to support State regulation to promote or protect the public trust as a “background principle” of State property law as a defense to regulatory takings or compensation (24).

What then is the PTD? In the USA, tidal wetlands, beaches and navigable waters, and the underlying lands, were publicly owned at the time of statehood and “remain so today” (25). The doctrine provides the State (Crown) with the responsibility of holding in trust certain lands, waters and living resources for the benefit of all people now and into the future, for a variety of public uses (26):

The doctrine articulates not only the public rights in these lands and waters. It also sets out limitations on the States, the public and private owners, as well as establishing duties and responsibilities of the States when managing these public trust assets...The trust has a clear and definite beneficiary: the public, which includes not just present generations but those to come. There are trustees...These trustees have a duty to protect the trust. There is a clear purpose for the trust: to preserve and continuously assure the public's ability to fully use and enjoy public trust lands, waters and resources for certain public uses.

The underlying principle with the PTD is that the State in its various manifestations owes a duty of care to protect the environment. Simpson in her review of the doctrine as it may apply in Australia, noted that there are two co-existing interests in trust property; one is the public right to use and enjoy trust land; the other is private property rights which may exist in the use and enjoyment of trust land (27). She makes the critical point for the purpose of this paper that:

*In accordance with the PTD while the State may convey private property rights to individual property owners, the private interest is **subservient to the State's inalienable interest** that it continues to hold in trust the natural or cultural resource.*

Simpson took the position that the most potentially useful application of the PTD is for the protection of wetlands, lakes, rivers, beaches and coastal foreshores (28).

In the USA, the operation of the PTD is essentially a State responsibility. Each State has the authority for applying the PTD to trust lands and waters “within its borders according to its own views of justice and policy” (29). As a result there is no single PTD for each state and territory, and interestingly also for the federal government, for lands and waters that is in each jurisdiction’s domain. However, there exists a core set of principles which should be similarly relevant to Australian states, territories and federal authorities in dealing with coastal hazards under current as well as new climate era conditions.

Public trust doctrine and transient shorelines

Coastal lands can not be seen as fixed in time and space. They are subject to both shifts in shoreline position as defined by MHW, and to tidal inundation. Of course expensive engineering works can be constructed to defend land from incursions of the sea. But it is doubtful that a coastal nation of the size and population of Australia could ever afford barrages, dykes, levees, sea walls and pumping stations to maintain all beaches, foreshores and low-lying lands bordering estuaries, along with private property and public facilities, from future recession of shorelines or flooding by sea waters.

Climate change science informs us that extreme storm events are likely to progressively generate adverse impacts on both public and private assets as sea level continues to rise. In different places and at different times, thresholds will occur which will irreversibly create a situation requiring emergency action or legal conflict. As argued by Kundis Craig and others, if too much emphasis is placed on property owner’s common law rights, this will impair a government’s ability to deal adequately with climate change adaptation, especially with regard to the risks created by rising sea levels (30).

On shores subject to the daily ebb and flow of tides, tidal “boundaries” are continuously moving. Changes can occur

across the beach and along the beach; one part of a beach system can be eroding while elsewhere it can be accreting, a process known as beach rotation (31). From a surveyors and property title perspective emphasis is placed on the mean position of high water mark (MHW) or on the mean position of low water mark (MLW) (32). It should be noted that in the USA there are significant differences between coastal states as to what parts of the intertidal beach the public “owns” and hence defines the public’s common law interest in shores. Titus has mapped the different legal standing of states with respect to ownership (33). Gordon has pointed out the difficulties of defining with any degree of accuracy and reliability MHW noting “the concept of locating the interception of a horizontal plane of MHW with a dynamic beach profile that is constantly transformed, in order to obtain a meaningful and repeatable property boundary is demonstrably ridiculous” (34).

In Australia, there are old title grants where the seaward boundary has been defined by an ambulatory MHW as surveyed at a particular time and registered at a land titles office. These titles are subject to the doctrine of accretion and erosion where legal precedent indicates that unless erosion is slow and imperceptible, the ambulatory boundary will not change following an erosion (avulsive) event (35). There are also boundaries that have been fixed, the so-called “right line” boundaries, defined by surveyed established reference marks. Along the NSW coast, these fixed lines were initially set back from a perceived MHW by a distance of one chain, a road width. Often a foreshore reserve of 100 feet (30.5m) was created between a surveyed private right line boundary and MHW. In northern NSW, shoreline recession has occurred in several places removing the road or foreshore reserve so that the fixed boundary may now appear to reside in that part of the beach-dune system subject to storm erosion above MHW, and even onto the active intertidal beach. These shifts in shoreline position raise many questions about land title and ownership of land affected by natural processes of sediment transport and sea

level rise recently the subject of an exhaustive review by Corkill (36).

What can Australian states learn from the experience of those who have addressed the conflict between public good and advocates for interests of private property rights where boundaries of properties are subject to storm erosion or even worse where shorelines are receding and private land is being lost to the sea? This is a vexed issue in most US coastal states. In California there have even emerged advocates for “Sand Rights” (37).

A key issue in the US is that of compensation (and insurance) for coastal land owners under threat of attack from the sea. What is the role of the State in protecting both public and private interest given the vast number of properties at risk? Kundis Craig has attempted to answer this question by bringing together shoreline change induced by climate-change induced sea-level rise and the impacts of extreme storms creating emergency situations requiring intervention by the State. She argued the case for linking each state’s public trust and “public necessity” doctrines to insulate any changes to state property law from “taking” liability (38). She reflected on the considered views of a New York State Task Force on the use of land use planning, real estate rules and insurance regulation for rethinking public and private interests related to areas affected by sea-level rise. It was noted that the availability of these two property law doctrines does not make sea-level rise regulation apolitical as we have seen in 2012 in the media from the central coast of NSW. We can easily agree with her when she says (39):

Implementing sea-level rise policies is likely to be contentious, especially as states---like New York---begin to seriously contemplate implementing policies of coastal retreat. Property rights’ advocates will inevitably decry the “loss” of individual freedoms caused by regulation to deal with sea-level rise effectively---and neither coastal nourishment nor coastal armouring are likely to be effective long-term solutions---

especially if state courts begin reviving, expanding, and evolving common-law public trust and public necessity doctrines to meet the new needs that sea-level rise is creating.

The seriousness with which the coastal states in the US are taking these issues is highlighted by the work of the Coastal States Organisation, referred to above, the California Coastal Commission, the US state and federal court system, and legal commentators on the PTD and related concepts such as “rolling easements”. Several US states have embedded the doctrine, or equivalent protection of public interests, in their constitutions or into legislation. For instance, the Hawaiian Constitution states that “All public natural resources [including beaches to the vegetation line] are held in trust by the State for the benefit of the people”; while Oregon, thanks to its Beach Bill passed in 1967, guaranteed the public’s right of access to all the state’s beaches between LWM and the vegetation line (41).

Since 1970, the Florida Constitution has incorporated the PTD. Under the doctrine in this state, the public has a right to use navigable waters for navigation, commerce, fishing and bathing and other easements allowed by law, including the use of the foreshore, in “the service of the people” (42). In 2008, the Florida Supreme Court rejected private landowner’s objections to beach renourishment stating that the “**State has a constitutional duty to protect Florida’s beaches**, part of which it holds in trust for public use” (43). This was seen as a way to balance public and private interests because without nourishment the public would lose vital economic and natural resources. In June 2010, the US Supreme Court upheld the conclusions of the Florida court noting the import of the PTD (44).

Louisiana has codified the PTD and it is used to give the State authority to regulate to protect its coasts including environmental values, without affecting an unconstitutional taking. The deltaic coast of this State is subject to great shifts in

shoreline position as the Mississippi delta grows and subsides with subsequent erosion of beaches and wetlands.

In Texas much of the State's capacity to protect the public interest scarce natural resources through statute. For instance, its Open Beaches Act passed in 1959 guarantees "the free and unrestricted right of ingress and egress to and from the state-owned beaches", and its constitution provides the State with substantial authority to regulate public rights and public welfare in the coast without effecting an unconstitutional taking (45). The fact that shore boundaries in Texas are ambulatory have resulted in some useful legal decisions reflecting on private use of public trust lands, and the application of a "rolling easement" to accommodate and preserve public rights in the face of a rising sea. Two cases are of interest: *Brannan v. State* and *Severance v. Patterson*. They have been subject to considerable discussion (46) and highlight the power and limits to Texas coastal law and the use of rolling easements. The Texas Supreme Court affirmed the State continues to own the "wet sand" portion of the beach up to the MHWL regardless of how the beach changes leaving no dispute over the public's right of use. Those buying a coastal property in Texas should know that there is uncompensable risk and that the "owner will lose that property to the state and to the public trust doctrine, even during an avulsive event"; however, a further decision in the Texas Supreme Court on 30 March, 2012, found that the state law meant to preserve public access to the shoreline does not entitle state officials to seize private property that suddenly moves onto public beaches because of the avulsive effect caused by erosion from hurricanes or storms (47).

One of the interesting conclusions that have emerged from decisions of the California Supreme Court is that public trust uses are sufficiently flexible to encompass changing public needs. The legislature acting within the confines of the common law PTD in deciding on permissible uses of trust lands must take into account the overarching principle of the PTD that the

lands belong to the public and are to be used to promote public rather than private uses; if there is to be “mixed-used development”, then such development must have as its primary purpose an appropriate public trust use (48). The California Coastal Commission noted that local government or private party acquisitions of a right to use former trust property free of trust restrictions are rare. The clear expectation in California is that alienation of beaches for private purposes that interferes with the public’s use of trust lands will not be acceptable.

The conclusion from this brief review of US experience is that public trust boundaries may migrate with the shoreline and hence with sea-level rise where there is coastal recession. It is complicated by the application of the PTD in different ways between the states including provisions for access and how sudden avulsive events are distinguished from those that are slow and imperceptible. Titus has reviewed many of these differences as well as options available to governments to address the impacts of sea-level rise and shoreline recession on public interests, including public access and the role of state and federal governments in funding beach nourishment and hence requiring provision of access and beach amenity. He states that “ultimately, the impact of sea-level rise on public access [and thus use of beaches] will depend on policies and preferences that prevail in coming decades” (49). Moreover, Kundis Craig has noted (50):

If sea-level rise becomes critical or amounts to a public crisis, Gulf state courts and legislatures may well decide to expand upon their existing public trust doctrine precedents in order to base more comprehensive coastal responses upon the public trust doctrine’s background limitations on private property rights.

Potential use of the PTD in coastal Australia

Various policies and legislation have emerged over the last decade by Australian states to address coastal hazards, including potential impacts of climate change (51). For the purpose of this paper, I will discuss only Queensland and NSW.

In 2012, Queensland released its *Coastal Plan* prepared under the Coastal Protection and Management Act 1995 with consideration to the Sustainable Planning Act 2009. It aims to protect coastal processes in “erosion prone areas” such that erosion and accretion are able to occur without interruption: *This policy is to ensure coastal processes are maintained, including natural fluctuations and alongshore sand movement which is critical to the maintenance of beaches and foreshore areas* (52).

Protection from adverse coastal hazard impacts are to take account projected effects of climate change giving preference “for allowing the natural fluctuation of the foreshore and foreshore ecosystems to continue, including, in response to rising sea levels (53). The Plan stipulates what should occur with respect to proposed development in erosion prone areas including application of provisions in the Queensland Protection and Management Act 1995 for the erosion prone area to be surrendered to the State and “dedicated as a reserve for coastal management purposes” without compensation (54).

While the Queensland Plan and legislation makes limited use of the word beach, it is apparent that the intent of these sections of the Plan and the land surrender provisions of the Act is to ensure that the State retains foreshore/beach for the public good. This includes any future changes that may be needed to how the erosion prone as well as coastal hazard areas are defined as new information is available through the IPCC. Of interest is that maps showing erosion prone areas and coastal building lines are available on the web site of the Department of Environment and Resource Management (DERM). Queensland once had a powerful and technically competent Beach Protection Authority, which could administer the legislation. It remains to be seen

how effective the new Plan will be in securing beaches in areas to be developed and in maintaining them in developed areas as they have done to great effect on the Gold Coast.

In 2003, I discussed in some detail measures up to 2002 related to beach protection in NSW including application of the NSW Coastal Policy 1997 where explicit reference was made to the objectives of recognising and accommodating natural processes, coastal hazards and climate change (Objective 2.1), and providing public access to foreshores (Objective 7.1) (55). Specific reference to beach protection, restoration and rehabilitation of beaches and frontal dunes was included in Table 3 of the Policy with links to statutory land-use plans (LEPs) and coastline management plans (56). The NSW Government's *Coastal Protection Package (2001)* led to amendments to the Coastal Protection Act 1979 (CPA) and a new SEPP 71 that dealt with Coastal Protection; these initiatives had the effect of reinforcing the 1997 Policy. They followed a review by the then NSW Coastal Council in 2000 of problems of beach erosion following storm events that impacted adversely on beach condition, and shoreline change under the doctrine of accretion.

Since 2002, the absence of an up-to-date Coastal Zone Management Manual and technical support to assist local government implement the policies and the Act and how landowners and councils could act in emergencies, has limited the capacity of local councils and landowners to undertake decisions that would lead to beach protection consistent with provisions in the legislation. More specific guidance was sought with respect to how to manage for potential climate change impacts given more recent IPCC projections. There were also court cases that stimulated further debate over the adequacy of the policies, legislation related to the coast, implementation issues as to roles of different authorities, and the "rights" of landowners to protect property (57). In 2009, the NSW Government commenced a process of review of the CPA and

other legislation and the development of a range of guidelines including sea-level rise benchmarks to 2100 (58). Many aspects of proposed changes were hotly debated at conferences, professional meetings, in journal articles, and in submissions (59). The debate continues leading to the present NSW Government commissioning a Task Force to review aspects of the 2010 changes that were enacted under the previous government. This work is currently underway.

Both the 2002 and 2010 amendments to the CPA provide explicit recognition of beaches. Surprisingly neither the State Plan nor the targets of the Natural Resources Commission offer a similar recognition that beaches are a natural resource of value the State. However, a new objective was added to the objectives of the CPA (s.3 (i)) to “promote beach amenity” as part of an overall objective for the protection of the coastal environment of the State for the “benefit of both present and future generations” (60). In Parts 4A and 4B of the CPA there are frequent references to beach protection, restoration, preserving beach environment, and beach access and beach amenity. Provisions related to Coastal Emergency Works are also detailed. It is apparent that the Act, in line with the 1997 Coastal Policy, regards beaches as important features of public benefit and there is a need to have provisions in legislation that reinforces this public good intent (61). But how satisfactory is it (along with other changes to the Infrastructure SEPP and the new guidelines) in offering sustainable protection of beaches for present and future generations, and, more particularly, is there sufficient weight to this intent that will really protect beaches in the face of the construction of protective works by landowners and/or public authorities?

Two problems arise in considering the effectiveness of current policies and legislation in NSW in protecting beaches in the public interest. One relates to the “right” of private beachfront landowners to protect their property in the context of transient shorelines and “where modern property rights exists

independent of the limits of land over which those rights are exercised” (62). The other is where public authorities under current NSW legislation can opt out of provisions that may restrain private landowners, but will allow a council or a state agency to act in such a way as to potentially destroy or degrade the beach environment, amenity, safety or access contrary to the objectives of the CPA.

As expressed by Byrne (63) in the USA, too much emphasis on property owner’s common law rights, impairs legislatures’ ability to deal adequately with climate change adaptation, especially with regard to the risks that sea-level rise is creating. The case for the landowner has been expressed by Coleman who has argued that it is the duty of the State (the Crown) to protect private land from incursions of the sea (64). She cites English common law going back to 1371:

The English courts saw the power of the Crown to erect a sea wall or embankment as protection against the sea as emanating from the Crown’s prerogative for the general safety of the public and the defence of the realm...English statutes relating to defence against the sea date from as early as 1427. The courts found the statutes to be only regulatory of the common law position. The statutes empowered and required the Commissioners to carry out the Crown’s obligations and to levy property owners for the cost of the work (65).

Other cases are referred to including some in Australia but not any here that are coastal. However, she concludes that Governments and legislatures cannot ignore the “fundamental” right of property owners to protect their land from the sea; as an ancient common law right it should be used to guide decision makers and legislatures in formulating the response to the threat of sea level rises and the need to protect land from inundation or damage from the sea (66).

Amendments to the CPA in NSW in 2010, together with the associated guidelines, went part of the way in addressing the “rights” of landowners where erosion is or is likely to impact on

private property. As noted above, these provisions are currently under review. However, there was intent to offer a specific mechanism for private owners to construct emergency or longer term protective works provided such actions do not permanently damage the beach (67). These measures could be seen as potentially onerous and difficult to implement as well as liable to challenge in the courts given uncertainties regarding how an individual council may seek to apply a Coastal Zone Management Plan in the absence of clarity in the LEPs, or how the Coastal Panel will assess individual applications for consent in the absence of a CZMP.

The second problem that beaches face in NSW results from the legislation excluding public authorities from the explicit requirement to protect the beach to the same extent as required by private landowners. Under the Infrastructure SEPP 2007 public authorities have been able to place rocks on the beach or front of a foredune to protect public facilities such as caravan parks. This has occurred at Tuross Lake and very recently at Kingscliff. Part 5 of the EP&A Act has been used by councils to grant themselves consent. In the case of Kingscliff this consent was made prior to the Coastal Panel providing advice as is now required under the amended SEPP (cl. 2A,b,(ii)). These actions appear contrary to the intent of the CPA s.55M where consent should not be granted under the EP&A Act unless the consent authority such as a council is satisfied that over the life of the works the action taken does not unreasonably limit access, the use of the beach or pose a risk to public safety. It could be argued that even “temporary” placement of rocks as seen at Kingscliff in 2012, or in 1998 at Narrabeen (they are still there), offer satisfactory arrangements for protection of the beach and are most likely to increase erosion and further loss of the beach.

Therefore, it is possible that the current provisions authorities allow public authorities to destroy the very amenity and environments on which is attractive to residents and tourists as there is no overriding obligation to maintain a beach. This

position could be compounded by disclaimers in the Sea Level Rise Policy, 2009, to exclude the State from liability insofar as it does not have nor “accept any obligations to reduce the impacts of coastal hazards and flooding caused by sea level rise on private property” (68). As noted by Lipman and Stokes the effectiveness of such disclaimers without legislation to remove the liability as a means of protection for the State from liability has been questioned (69).

Future application of the PTD in Australia

Two questions arise from any formal introduction and application of the PTD by state governments in Australia: (1) will the PTD, or equivalent legal protection, help resolve emerging conflicts between property owners and public authorities facing loss of land and built structures on the one hand and the public interest in having a beach on the other; and (2) could the use of the PTD to protect beaches give local and state governments greater certainty in the management of transient and hazardous coastal land at risk from extreme events and sea level rise?

A fundamental premise behind these two questions is a value statement that beaches are deemed important to Australians as a natural resource for environmental, social and economic reasons. It is seen as a public good held in trust for the use and enjoyment of present and future generations. Just as the Court in 1895 saw Sydney’s foreshores as a finite resource for which there would be increasing demand as population grew (70), it could be argued that continued development pressure behind many beaches for private or commercial purposes, including caravan parks, will lead to alienation of the beach, conflicts over boundaries and rights of property owners, and the construction of protective works and dumping of rocks which will reduce beach amenity and access and even induce public safety and liability risks. The demonstration of November 2002 at

Collaroy-Narrabeen may be repeated many times over in future as passions are inflamed as private landowners exert what they see as their property right to defend their eroding lands.

A second premise is that MHWL on sandy shorelines will move inland over time along both open coast and around the shores of estuaries and coastal lakes onto private land or land managed by councils for commercial purposes. These movements could be either “slow or imperceptible”, or sudden or “avulsive” during storm events. If Corkill is correct in his interpretation of Australian shoreline law, the Crown will always have possession of the land below MHWL, and land lost below high water mark, however defined in NSW and Queensland, reverts to, and is effectively acquired by the States; hence the implied right to compensation on just terms under s.51 (xxxii) of the Commonwealth Constitution does not apply (71), or equivalent State just terms legislation. The basis for this view is that private title to land such as the Torrens system only guarantees title to existing land (72). Whether his position applied to such “right line” boundaries is the subject of some debate, but even so two problems still arise in relation to the application of this premise and the long-term sustainability of beaches; the first is that erosion involves the “dry beach” above MHWL together with the foredune, whether incipient or established, thus cutting into private property (or council facilities) where land owners are likely to erect structures to defend their property (73). The second arises from the concept of “avulsion” and whether all boundaries will shift landward following an erosion event leading to shoreline recession. The recent findings of the Texas Supreme Court again reinforces the legal position that a public easement behind a beach cannot be displaced inland encroaching on private property after storms erode and inundate the land (74). This has the effect of questioning the long established “rolling easement” policy in Texas. On the open coast of east Australia, storms are known to “bite” as much as 80 metres into dunes and undermine rock defences above MHWL. Such adverse storm impacts have driven anxious and

threatened land holders to place rocks and other materials on the eroding shoreline on what they see as their land as MHWMM perceptibly marches inland. So any attempt to apply the PTD to protect beaches must take into consideration the regulation of lands subject to potential and actual erosion during storms above MHWMM.

The third premise is that land owners have no common law right to defend against the sea in Australia. This position is argued by Corkill against that of Coleman's as outlined above. Corkill viewed the "royal duty" of the Crown to defend the realm from the inroads of the sea as an "imperfect obligation" and it gave the subject only an "imperfect right" with no means to enforce this right against the Crown (76). Under current UK legislation local coastal authorities are now empowered to use discretion as to whether protective works should or should not be permitted (77). In New Zealand, Barker J considered a land owner's right to protection under English common law in *Falkner v Gisborne District Council* (1995) and recognised that the Resource Management Act 1991 had supplanted that common law noting (78):

The Act is simply not about the vindication of personal property rights, but about the sustainable management of resources....the governing philosophy of sustainability does not of itself require the protection of individuals' property to be weighed more heavily than the protection of the environment and the public interest generally.

However, there has yet to be a similar test by the courts of current NSW and Queensland coastal legislation. Given the ongoing review by the new Coalition Government in NSW, and possibly one in Queensland, it will not be surprising to see close attention being given to private property interests even though the current legislation in NSW already gives the land owner (and especially councils) the opportunity if not right to protect property in ways that potentially could destroy the beach (79).

What can be done to avoid such situations that are consistent with the ESD objectives of legislation and the need to provide beaches for the Australian public in developed and developing areas?

I identify six possible courses of action, three involving national action and three that can be undertaken by a State Government under existing powers.

- (1) The most radical would be a new provision in the Commonwealth Constitution similar to that in the Hawaii State Constitution (80) that recognises all public natural resources are held in trust by governments for the benefit of the people. Under legislation respective governments could allocate how these natural resources could be used but the concept of public trust would be embedded in ways that enabling legislation would take into account. Under this amendment any Australian government would be bound by the same duties and responsibilities as any trustee, and would acknowledge the legal right of citizens to enforce duties of protection and management of natural resources held in trust (81). The practicality of such an amendment is questionable but the idea needs to be floated.
- (2) It may be possible to amend the Commonwealth EPBC Act 1999 to incorporate a trigger provision that identifies a role for federal assessment when a development may impact adversely on the existence of a beach in ways that are inconsistent with the ESD principles that underpin the Act and the public right to have access to a beach. Again there may be practical difficulties especially in implementation at scales of individual beaches and a strong likelihood that states would resist.
- (3) Following the model suggested in the House of Representatives Standing Committee report (2009), it may be possible to achieve an intergovernmental “beaches” agreement between the states and

Commonwealth governments which would achieve a similar objective to amending federal legislation without the federal government assuming any further responsibility. The PTD as defined in the Agreement could be built into enabling state legislation along the lines of that in Florida or the Beaches Act in Oregon with explicit recognition of the obligation in law to maintain beach amenity and access as mandatory requirements in the national interest.

- (4) Even without an intergovernmental agreement, it is possible for each state to strengthen its own coastal legislation with clauses that give weight to be protection of beaches as transient land in planning law. It may require changes to property law to clarify the issue of land ownership under migrating MHW. It would also be necessary to define erosion/inundation zones similar to that in Queensland that extends into private land and clearly indicate that private use in such zones would be subservient to the need to protect the beach and beach access. In this way the State would act as trustee in providing in perpetuity for the public good.
- (5) Another way the state may achieve this aim is to consider the introduction of legislation similar to the Resource Management Act in New Zealand. This legislation would more clearly provide for protection of public good natural resources than appears to be the case under existing planning and NRM law in Australia. Such initiatives may be underway at present with new governments in the eastern states and if that is the case the need to protect the beach should not be overlooked.
- (6) Using existing legislation and state policies in NSW in particular, it should be possible to incorporate PTD principles in ways that Paul Stein recognised as possible (82). For instance, provisions in the CPA and EP&A Act allow for LEPs and CZMPs to be drafted that will control how land above and below MHW is used. At the moment there are too many loop holes that permit

damaging actions as beaches erode including limited controls over actions by councils (83). There is also a lack of consistent maps defining coastal lands at risk from extreme events like those of 1974 or from rising sea levels. If the LEPs are drafted in ways that ensure adverse impacts cannot occur and that the State working with local councils are prepared to enforce compliance, then the future of beaches in areas under pressure will be reduced. It will not remove all the angst associated with emergencies or battles over possible compensation as properties are threatened or damaged, but clearly worded LEPs tied back to the CPA will certainly help as would the use of time-limited and distance-limited consents (84).

Conclusion

Australia faces many challenges in the management of its precious beaches in areas of urban development and where settlements along the coast may expand as population continues to grow. Pressures arise from the episodic impact of large storm events which remove sand from the beach and cut into dunes that naturally form buffer zones above high water level. The impact of such events will be exacerbated as sea level rises under the driving force of global warming. Where there are public utilities or private property, or plans to develop coastal land that may be subjected to present-day and future coastal hazards, the imperative to adopt protective “works” is highly likely to lead to degradation of beach amenity and habitat and even beach access. This will most likely lead to costly legal disputes. The possibility exists that the transient nature of coastal areas will highlight a point made by Bailey that “climate change and its impacts epitomize yet another era of social and legal transformation” thereby presenting unique challenges to property law (85).

The PTD could be more formally introduced and applied in Australian environmental law to provide a more definite mechanism to protect beaches in perpetuity. An obligation could be placed on governments to act as trustee in the public interest in the way they use planning instruments and management practices to ensure appropriate weight is given in decision making so that potentially adverse impacts are not made that causes loss of a beach. Using a phrase from California, the PTD could involve “sand rights”. Property owners and other land managers would be under mandate to give beaches room to move and thus reduce the need to place built structures in harm’s way.

The use of the PTD in ways outlined in this paper would incur some costs. There are properties at risk to storms under current climate conditions let alone those projected to occur in future. There are councils who are determined to protect assets that occupy land that previously was a dune buffer. In both cases these “property” interests clash with a mandatory statutory provision that places such interests as subservient to the inalienable interest that the PTD confers on state governments to maintain the public right to use and enjoy trust land, the beach, while retaining the right of private landowners to also use trust land without destroying it. Yet there will most likely be issues of compensation when states or councils take action to reduce risks of storm impacts and inundation under the PTD, or equivalent legislation, whether it is part of more prudent planning to protect public assets, or as part of a strategic climate change adaptation program as has been discussed by Jan McDonald (86).

There is clearly scope for the PTD to be “belatedly re-emerged” as noted by Justice Mason in 1997(87). How it could best be done is a matter for consideration. But threats to the future of beaches where private or other commercial interests appear to be more powerful in articulating benefits for a select few, with or without the spectre of adverse climate change impacts, creates a sense of urgency for governments to look at the

doctrine to give a higher order level of protection than appears to be the case in current Australian environmental law. At the very least, the use of the PTD *alongside* other protective legislative schemes as proposed by Justice Stein in 1996 (88) should constitute a greater level of certainty for decision-makers than is now the case for ensuring all Australians can retain access and “ownership” of their beaches.

End Notes

1. Chapman, D., et al., 1982. Coastal Erosion and Coastal Evolution in NSW, Coastal Council of NSW.
2. Department of Climate Change, 2009. Climate Change Risks to Australia's Coast, Australian Government; see also Titus, J. (ed.), 2009, Coastal Sensitivity to Sea-Level Rise: a focus on the Mid-Atlantic Region, U.S. Climate Change Science Program, U.S. Government.
3. Land subdivision on the NSW coast can be traced back to the 1880s at places like Byron and into the early 20th century at Collaroy-Narrabeen.
4. Putting the Public Trust Doctrine to Work prepared by the Coastal States Organization, Inc., second edition, 1997; this is a very comprehensive review of how the doctrine applies in the USA including its application in coastal zone management. A useful distinction is made between different ownership interests: *jus publicum* (trust) and *jus privatum* (proprietary) noting that there are states where the private land owner “owns” the beach, but is “still subject to several paramount rights of the public to use those trust lands for public trust purposes” (p. 7).
5. See references in Bonyhady, T. (2000). An Australian Public Trust, in Dovers, S. Environmental History and Policy, Oxford University Press, p 258-272.
6. There is an extensive literature on shoreline erosion around the U.S. coast; the work of Orin Pilkey

highlights the concern of coastal geologists and geomorphologists (e.g. Pilkey and Cooper, 2004, Science, 303, 1781-1782); see Titus note 2 for more references and discussion of sea-level rise and its effects on coasts.

7. Short, A.D. and Woodroffe, C., (2010). The Coast of Australia, Cambridge University Press. This book provides a review of coastal landforms and their evolution especially since sea level reached its present position around 6000 years ago.
8. See note 7.
9. Monitoring at Moruya Beach commenced in December, 1971, by the author and has been maintained by the efforts of Roger McLean to the present day. This constitutes a very long record of beach and foredune change on an undeveloped coast; see McLean, R. and Shen, J., 2006, Journal of Coastal Research, 22, for details of change and references. Angus Gordon in a paper presented to the 8th Australian Conference on Coastal and Ocean Engineering also has discussed beach fluctuations and shoreline changes in NSW (see Institute of Engineers No 87/17, 1987); for an earlier reference see Thom note 13.
10. Gordon, A., 2001. Highwater Mark-the Boundary of Ignorance, paper presented at the 11th NSW Coastal Conference, Newcastle.
11. Recession of the shoreline on the north coast of NSW has been the subject of extensive analysis going back to the PWD report on Byron Bay in 1978 to more recent research of Ian Goodwin of Macquarie University and the report of the NSW Coastal Panel 2011 on erosion at Kingscliff. The northern councils of Tweed and Byron have been the subject of many consultants' studies for purposes of coastline management, to be accessed at each council office; see also note 1.

12. Collaroy-Narrabeen is highly developed and erosion has been observed on numerous occasions threatening and damaging properties; Warringah Council has documented these impacts in a number of reports; see also note 1.
13. Some of the most dramatic erosion events have occurred on the Gold Coast, especially from the cluster of storms in 1967 (see Thom, B., 1974, Coastal erosion in eastern Australia, Search, 5, p.198, with references to earlier history of erosion in southeast Queensland and NSW).
14. See note 2 and recent papers of John Church in Church, J. et al., (Eds), 2010, Understanding Sea-Level Rise and Variability, Wiley-Blackwell.
15. See note 1 and the application of a stochastic model approach developed by Peter Cowell (Cowell, P. et al., 2006, Journal of Coastal Research, 22).
16. See note 5.
17. See note 5 for details on the Cremorne case, and other cases discussed by Jessica Simpson of the NSW Environmental Defender's Office in her paper on "The Public Trust Doctrine and its relevance in Australia" presented at the Coastal Solutions Forum, 15 November, 2003.
18. See note 5, and reference to paper by Stein, P., 1996, Ethical issues in land-use planning and the Public Trust, Environmental and Planning Law Journal, 13, 593-601.
19. See note p.4, and further information on the history of the PTD in Takacs, D. 2008, The Public Trust Doctrine, environmental human rights, and the future of private property, New York University Environmental Law Journal, 711.
20. See note 4 p. 5.
21. See note 4 p. 5.
22. Sax, J., 1970. The public trust in natural resource law; effective judicial intervention, Michigan Law Review, 68, 471-566. Bailey, note 24, has recently

quoted an interview with Professor Emeritus Sax (18/2/2010) where he states “With climate change there will be an unprecedented landward movement of water causing defensive property responses with an intensity never before seen. We simply cannot apply the old rules and have them make sense”.

23. See note 4, p. 5-6.
24. Robin Kundis Craig, 2010. Public trust and public necessity defenses to takings liability for sea-level rise responses on the Gulf Coast, Journal of Land Use and Environmental Law, xxx, p.1-44. This paper provides an overview of issues facing coastal states that are the subject to threats of rising seas and contains numerous references to how the two “background principles” of state property law could insulate state and local coastal regulation from landowner claims of regulatory “takings”. E.Britt Bailey has commented on this same issue in 2010 “From Sea to Rising Sea: how climate change challenges coastal land use laws”, University of Hawaii Law Review, 33, Winter, 2010.
25. See Titus in note 2, p.118.
26. See note 4, p. 3.
27. See note 17 for Simpson, 2003.
28. See note 17.
29. See note 4,p.3; the Coastal States in the USA saw the importance of a publication that showed how there are a core set of principles forming the foundation for how the PTD is applied in each State even though there is no single PTD.
30. See note 24, p. 30; the history of the Oregon Beach law of 1967 is instructive; it follows an attempt in 1966 when a motel owner fenced off sections of a beach for private use; a bill was introduced that was modelled on the Texas Open Beaches Act following a public demand for beach access; the Oregon law recognises public easements of all beach areas up to the line of vegetation regardless of underlying property rights (see

http://en.wikipedia.org/wiki/Oregon_Beach_Bill). The Hawaii Coastal Management Act 1977 also defines the shoreline for purposes of public use as the edge of vegetation, or “the upper limit of debris left by the wash of the waves” (ch. 205-1).

31. Beach form can change in many different ways over time; see note 7 for a discussion of Australian beach types.
32. Thom, B., 2003. Beach protection in NSW: new measures to secure the environment and amenity of NSW beaches, Environmental and Planning Law Journal, 20, 325-358, note 16. This paper describes differences in how coastal boundaries are defined and difficulties that arise in coastal management given various tenure arrangements covering beaches in NSW; more recent work by Corkill in preparation has queried the interpretations in this paper—see below note xx.
33. See note 2 Titus, 2010, figure 8.4.
34. See note 32 for references to Gordon and others on boundary measurement involving MHWL.
35. See note 32 for distinguishing ambulatory versus fixed or right line boundaries.
36. John Corkill has made a recent contribution to the debate on land-sea boundaries as part of his postgraduate research studies at Southern Cross University. His work has been made available through his contribution to the Australian Climate Change Adaptation Research Network—Settlements and Infrastructure (ACCARNIS) National Forum and Workshop held at UNSW in November 2009 entitled “Principles and Problems of Shoreline Law”. A draft paper for review has been prepared in 2012 and kindly made available for citation in this paper by the author as it explicitly questions interpretations made by Thom in 2003, note 32.
37. See note 2 Titus and note 24, and the work of Stone, K., 1999, Sand rights: a legal system to protect the

shore of the sea”, Stetson Law Review (winter) and other papers cited in note 32 page 331 (note 21).

38. See note 24.
39. See note 24, p. 44.
40. US studies by Titus, Kundis Craig, Stone and others provide numerous examples of beach protection through legislation; see notes 2, 24, 37.
41. Quoted by Simpson, note 27 (see Article XI, 1, adopted 1978).
42. See note 24, p.14.
43. See note 24, p. 16.
44. See note 24, p. 17.
45. See note 24, p. 22-23.
46. There is considerable interest in the recent case before the Texas Supreme Court, *Severance v Patterson*. This case has come before the court twice in November 2010 and March 2012. It is discussed in note 24 and by Titus, J., 2011, Rolling Easements, Climate Ready Estuary Program, US EPA web site. In 2012 the Court again upheld the property rights on west Galveston Island which in effect is being seen as ending the Texas Open Beaches Act because it weakens any claim the state would have following a storm that moves the public beach landward removing the so-called rolling easement (see 2 April, 2012 Galveston The Daily News <http://galvestondailynews.com/story/303170>).
47. See note 46.
48. California Coastal Commission, see note 19.
49. See note 2, Titus, p. 122.
50. See note 24, p. 27.
51. For details on the work in 2011 of the Coasts and Climate Change Council and supporting legal advice, see Department of Climate Change and Energy Efficiency web site under climate change adaptation.
52. Queensland Coastal Plan, 2011. Department of Environment and Resource Management, p.4.

53. See note 52, p. 42.
54. See note 52, p. 44; see also s.109-115 Land Surrender in Queensland Coastal Protection and Management Act 1995.
55. See note 32 for details of changes in management in NSW.
56. NSW Coastal Policy 1997, NSW Government, Sydney, based on principles of ESD.
57. Lipman, Z. and Stokes, R., 2011. That sinking feeling: a legal assessment of the coastal planning system in NSW, Environmental and Planning Law Journal, 28,182-200; this paper discusses aspects of changes to various legislation in NSW in 2010.
58. The NSW Coastal Protection Act 1979 was amended in late 2010 and a number of guidelines were issued to supplement the legislation as discussed in note 57.
59. The amended legislation and guidelines has been the subject of considerable debate by legal and coastal management practitioners; see note 57 and also Gordon, A., Lord, D. and Nielsen, L., 2011, "NSW Coastal Protection Act-a disaster waiting to happen", paper presented at the NSW Coastal Conference Tweed Heads, November, 2011.
60. Objectives as defined in the Coastal Protection Act, 1979 as amended.
61. See note 58 and amended sections 4A and 4B.
62. N. Graham, 2011. Owning the Earth. In Burdon, P. (ed.) Exploring Wild Law, Wakefield Press, Adelaide, p. 266.
63. Peter Byrne cited in note 24 at page 41 (and note 30 in 24).
64. Coleman, K., 2010. Coastal protection and climate change, Australian Law Journal, 84, 421-422.
65. Note 64, p.421.
66. Note 64, p. 422.
67. The NSW Government has released guidelines for the management of actions required during an

“emergency” as defined in the amended CPA. These amendments and the guidelines have been critically reviewed by Gordon et al., see note 59, and Lord, D. and Gordon, A., 2011, “Local government adapting to climate change-where the rubber hits the road” in proceedings 20th Australasian Coastal and Ocean Engineering Conference, Engineers Australia, Perth, September, 2011.

68. See note 57, p. 196.
69. See note 57, and McDonald, J. 2010. Paying the price of adaptation: compensation for climate change impacts. In Bonyhady, T., McIntosh, A. and McDonald, J. (eds.) Adaptation to Climate Change: Law and Policy, Federation Press, Chapter 10.
70. See note 5.
71. See note 36, p.44.
72. See note 36, p. 54.
73. See notes 1 and 9.
74. See note 46.
75. See notes 9 and 13 for references to episodes of shoreline erosion.
76. See note 36, p. 47.
77. See UK Coastal Protection Act, 1949, s. 4 (1) where a coastal protection Authority has the power to carry out work as may appear to them to be necessary or expedient for the protection of land.
78. See note 36, p. 48 for ruling of Barker J.
79. See note 58 and amendments to the Major Infrastructure SEPP in 2010 requiring the advice of the NSW Coastal Panel.
80. See note 41 for reference to Hawaii.
81. See note 27.
82. Stein, P., 1996. Ethical issues in land-use planning and the public trust, Environmental Planning and Law Journal, 13, 593-601.
83. It is unfortunate that councils appear to be able to use as they please those provisions in the EP&A Act and

the Major Infrastructure SEPP to place rocks on foreshores as experienced at Kingscliff in 2011 and 2012.

- 84. See note 59.
- 85. See note 24, Bailey, 2010.
- 86. See note 69.
- 87. See Mason J quoted in note 5, p. 271.

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