

State of New South Wales
Coastal Reforms Submissions
coastal.reforms@environment.nsw.gov.au

RE: Draft NSW COASTAL MANAGEMENT BILL

Comments by Angus Jackson CPEng, FIE (Australia)
Executive Engineer, International Coastal Management (Australia & UAE)
Adjunct Research Fellow, Griffith University

I have over 30 years' experience with coastal management planning and implementation of coastal management plans and works in Australia and overseas. I have reviewed the draft NSW Coastal Management Bill and provide comments as follows.

Coastal management on a state scale needs to address a very wide range of conditions and hazards in a broad and flexible way. The proposed new legislation defines different areas in the coastal zone and outlines management objectives for each of these areas. I have concerns that several of the objectives for the newly defined "coastal vulnerability zone" are worded in an overly prescriptive manner that will exclude viable options that exist now and in the future.

The objective in paragraph 7(2)(f) contains a requirement "to adopt coastal management strategies that reduce exposure to coastal hazards, in the first instance, and wherever possible, is to be attempted by restoring or enhancing natural defenses including coastal dunes, vegetation and wetlands, and if that is not sufficient taking other action to reduce exposure to those hazards." However, the ability to take other action to reduce exposure to coastal hazards is qualified by paragraphs (g)(iv) and (v) that requires that such actions are "to avoid adverse impacts on adjoining land, resources or assets and to provide for the restoration of a beach or land adjacent to the beach if any increased erosion of the beach or adjacent land is caused by actions to reduce exposure to coastal hazards."

These objectives clearly define natural defenses as the first step that must be taken to attempt to reduce exposure to coastal hazards and then places a test that will restrict other viable actions. I am concerned that there will be many cases where the natural defenses will be inadequate, in the short or longer term, and attempts to adopt this strategy will fail with high costs and often irreversible adverse impacts. Further, "in the first instance" could (and from my experience most likely will) be interpreted by under-resourced coastal managers faced with a multitude of complex options as a legal requirement that natural defenses need to always be the default action attempted and that further actions, where no impact can be definitively proven, should only be considered after this test has failed. This will lead to public funds being expended on natural defenses and enhancements that will fail leaving inadequate funds for appropriate actions. It could also lead to damage to the natural and build environment.

The NSW coastal zone is not a simple uniform physical or socio-economic system as it ranges in character from cities to undeveloped, from hard rocky headlands to fragile wetlands, etc. The coastal zone cannot be managed only for average conditions as it is impacted by a wide range of conditions with episodic extreme storm, flooding and erosion events. In areas with no, or little, development the system can often accommodate the damage to the natural system by these extreme events but more developed areas without natural hard rock protection require a higher level of erosion mitigation infrastructure, whether the threats be short or long term. Coastal management involves managing natural processes and events and to be efficient requires proactive strategies based on modelling of future events and risks where natural

protection and defenses are inadequate before a major disaster occurs. There are many situations where reliance on natural defenses is not a real option. This is demonstrated by many examples in NSW where foreshores are protected by hard infrastructure to allow public usage, facilities, access and car parking that without this protection would be exposed to coastal hazards. Examples include high usage ocean beaches such as Bondi and developed areas in bays and estuaries such as Sydney Harbour that are protected by walls and other hard infrastructure. Within areas with high foreshore values, engineered seawalls are needed to protect the land - sea interface without any reliance on natural protection and accepting and managing the impacts on the environment. Such hard engineered approaches are common but would fail the tests embedded in the new bill.

The need for all adverse impacts to be either avoided by other actions in the first place or fully restored is very limiting and not best practice. Options need to be evaluated for a particular site with some flexibility by the principals of cost-benefit analysis (CBA) as per the Draft Coastal Management Manual. Often impacts of natural events, whether they be flooding, bushfires or coastal erosion need to be moved from high value areas to less value areas. Values considered need to include economic, financial, social, heritage and environmental. Coastal management is extremely complex and the concept of zero negative impacts, regardless of larger benefits, is not always practical and there are often no management options, including doing nothing that have no adverse impacts. As a simple example, protection of a high value beach in a manner that has some narrowing (erosion) of a wide beach for a short distance downdrift would fail the test although such a management solution would have a high benefit / cost ratio. As a parallel example, in the fields of traffic management and flood mitigation it is often necessary to divert traffic or floodwaters.

An example of an effective coastal management plan that would fail the test as it accepts downdrift impacts "for the greater good" of all areas is Noosa. Here the council intercepts sand at the downdrift end of the tourist beaches and pumps it back (backpasses) onto the tourist beaches, creating a wider beach that is resilient to erosion that had previously been regularly devastated, impacting the local economy. There is a down drift impact on the undeveloped beaches north of the Noosa River mouth but the impact can be accommodated by the natural system. This coastal management strategy is financed by a levy on the Hasting Street businesses along the tourist beaches with great benefit to all stakeholders. There are many other examples where successful management strategies would fail the test that is now proposed in these reforms.

An inconsistency in the proposed objectives is that the use of natural protection is not limited by the need to avoid adverse impacts whereas any alternate actions must avoid adverse impacts.

For example, at Manfred Street, Belongil is a low narrow dune. If not protected, a breakthrough of the narrow dune would lead to very high economic impacts due to damage to properties and public infrastructure as well as very high environmental damage to the Belongil wetlands. Protection has a high benefit / cost ratio and leaving just a dune could be a huge environmental disaster. It is important to note that there are multiple benefits for a number of stakeholders with the interim protection in place and this protection was jointly funded by private land owners. This is not an isolated example but a guide for future management as NSW has many coastal ICOLs, lakes and wetlands that will need more than natural protection measures. The proposed test result would have missed opportunities to protect both the existing built and natural environment in an acceptable way with minimum or acceptable impacts that can be managed and funded equitably.

Coastal Managers globally are dealing with huge uncertainty and limited resources. As a result, coastal management strategies need to be flexible and often evolve in stages as lessons are learned. A real danger of these inflexible tests embedded in the objectives is that they will limit innovation with natural defenses being the default option resulting in failures and then damage to the natural environment or the built environment. Greater funds may then be required to fix the problem. This is often not the best long term solution and can be very inequitable.

Many coastal areas worldwide which are in crisis and anticipate threats are developing management plans to deal with not only present erosion threats but also predicted increased threats due to climate change. Retreat is one strategy considered in coastal management plans but retreat is often found not to be the most appropriate, particularly where the coastline



cannot accommodate the threats without unacceptable impacts. This is no different from management plans for natural events such as flooding, bush fires and earthquakes that call for infrastructure and strategies to protect present and proposed developed areas. Retreat policies would result in the need for major towns being moved but to where? Retreat is often not feasible and coastal areas such as New York are developing flexible coastal management plans to mitigate future threats without retreat of the existing infrastructure. This has resulted in initiatives such as construction of coastal protection structures combined with, where practical, natural defences.

The retreat option was investigated at Noosa but it would have had huge secondary adverse impacts on the local built environment, economy and the estuarine environment.

It is also proposed in the Coastal Management Manual and legislation that Councils would have the power to make a decision not to permit protection of private assets and to be able to issue a direction to demolish private assets. From some of the previous examples, this in some cases may be the best short term solution but a very bad longer term solution. The Noosa example of resumption would have caused huge impacts at both local and state level. If existing protection was removed at high value beaches such as Narrabeen and only natural protection was used the dunes would need to be very wide and the infrastructure removed. The beach systems may be marginally better but the adverse economic impacts would be huge whereas using services from the existing built community to fund coastal management works has a higher benefit.

The Bill has a number of supporting documents including guidelines for cost - benefit analysis and seawall design guidelines. These tend to be over-precautionary and have embedded in them restrictions and assumptions regarding hard engineering works that limit future innovation and development of the best solutions. For example, while there are numerous seawalls that perform well worldwide and in NSW with a high benefit / cost ratio, the NSW seawall guidelines "The Draft guidelines for assessing the impacts of seawalls (Department of Environment, Climate Change and Water NSW, 2011)" focus on the negative impacts and provides advice in relation to cost sharing for the maintenance of sea walls and management of their erosion impacts."

Summary: The NSW coastline is under threat at identified points and further threatened by climate change. Management will need to be flexible, proactive, timely and innovative and with climate change coastal managers do not have the luxury of being over-precautionary and relying on nature. To be world best practice the bill needs to promote action and innovative flexible solutions. To help achieve this the limiting objectives embedded in section 7 of the bill are inappropriate and section 7 (2) f and g need to be deleted and new options developed. They will not stand the test of time or provide the best solutions as they:

- Limit present and possible future management options with tried and tested options not being deployed.
- Will result in the misappropriation of funds away from actions that are successfully used elsewhere in Australia and the world. NSW will be isolated in a regressive, inflexible regime.

For these reasons, I object to the reforms in their current form as not in the best interest of NSW, its natural environment and its people.

Yours Sincerely,

Angus Jackson