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The Secretary
Standing Committee on Climate Change Water Environment and the Arts
House of Representatives
Parliament House
PO Box 6021
CANBERRA ACT 2600

SUBMISSION TO THE INQUIRY ON CLIMATE CHANGE AND THE ENVIRONMENTAL IMPACT ON COASTAL COMMUNITIES

I have been involved with landscape design, planning, and asset management for the land and housing industry for over 25 years.

I live and work overlooking the beach, have been surfing and observing the coastline for over 35 years, and have an interest in the protection and enhancement of the coast's landscape aesthetics and recreation values.

Re- The impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise.

Beaches are the recreation area of a majority of Australians and are fundamentally important to the Australian landscape as well as the tourism economy.

Beaches will be subject to erosion pressures by rising sea level and storm surge due to climate change.

Current beach erosion hotspots will be the first areas to be noticeably affected by sea level rise and more severe and more frequent storm events.

Beaches must be divided into areas that are to be protected, and areas which are to be retreated from.

The best "protect" option for beaches and adjacent development under threat must be planned and implemented.

Retreat from sea level rise could result in eroded dune scarps, loss of protective dune vegetation, dune blowouts, sand inundation/salt wind damage to previously protected hind dune vegetation, proliferation of ad hoc protective works by private land owners, abandoned or collapsed structures, loss of public beach access, suspension of capital and mtce expenditure, all of which will detract from the aesthetic, recreational and tourism value of the beach over the long term.

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Traditional "protect" options such as seawalls and groynes are aesthetically undesirable in a natural beach setting.

Artificial Submerged Offshore Reefs - An innovative practical strategy to protect beaches from erosion due to sea level rise

I suggested that artificial submerged offshore reefs be considered for coastal protection, where applicable, in conjunction with sand nourishment.

Naturally occurring submerged offshore reefs are a common feature along the coast, and can be observed to naturally accrete and retain sand in their lee (salient formations), as well as dissipating wave energy before it reaches the shore, thus protecting the beach behind the reef from erosion.

The frequency and volume of sand "top-up" required to maintain a sand nourished beach, particularly on longshore drift dominated beaches, would be significantly reduced by the use of reefs in combination with the initial sand nourishment.

Reefs have zero visual impact and are environmentally positive, attracting marine life, and can also add value by providing high quality surf breaks for recreation and tourism.

Reefs have previously been used for coastal protection and may be constructed by a variety of means.

I have designed a reef based on an innovative submerged steel vessel concept, primarily for producing quality surf breaks, but which could also provide practical coastal protection for many of the current erosion hotspots on the coast, and for future locations, given predicted sea level rise.

For further information on the submerged steel vessel reef concept see - www.offshoresurfreefs.com

The Offshore Surf Reef unit is able to adapt to sea level rise, as required, simply by relocation (refloat/reposition/resubmerge to set new crest level - static model), or by incrementally raising the variable reef crest level (dynamic model).

The advantage of the Offshore Surf Reef unit is that the steel structure allows economical fine-tolerance fabrication and accurate crest level installation, with fully engineered structural integrity and stability, all being necessary prerequisites for forming a reef shape set relative to sea level for the creation of quality surf breaks.

Steel is a material recognised as being neutral in the marine environment. Artificial reefs constructed from steel are currently used worldwide (including Australia) for recreational fishing and diving purposes.

An example of the application of Offshore Surf Reefs/sand nourishment is shown below for Belongil Beach NSW, where the problems of an existing eroding beach and dune system, and longer term sea level rise threatening the Byron Bay Town Centre and Belongil spit could be resolved while still retaining a natural looking beach with enhanced recreation, tourism, and ecological values.

Belongil Beach - existing

Belongil Beach -
Offshore Surf Reefs/Sand Nourishment

Re- Governance and institutional arrangements for the coastal zone.

Funding for coastal protection works may need to be made available by the Federal Govt, given that coastal protection from sea level change is in the national interest.

Approval processes for coastal protection works, including installation of submerged offshore reefs and sourcing of offshore sand deposits for sand nourishment, need to be simplified to enable timely and cost effective implementation of projects.

It is not envisaged that the exploitation of offshore sand deposits for sand nourishment of beaches become a source of sand for the general construction industry, however some resource swap arrangements with sand miners with existing leases over land based resources may protect environmentally valuable coastal landscapes from future sand mining activities.

Thank you for accepting this submission and please do not hesitate to contact me should you require any further information.

Yours Sincerely

Steve Barrett
Director
30 May 2008

Note
Offshore Surf Reefs design is patent protected with IP Australia.
Offshore Surf Reefs is a registered business name of SRB and Assoc P/L.