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Secretary:

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

Dear Sir/Madam,

RE: Inquiry into climate change and environmental impacts on coastal communities

The Southern Rivers Catchment Management Authority (SRCMA) makes the following submission to the above inquiry, particularly regarding the south coast and far south coast region of New South Wales (NSW). Attached is an outline of SRCMA's roles and responsibilities for the coastal zone, management and structure and Catchment Action Plan (CAP) management targets relating to the coastal zone.

Strategic Role of the Southern Rivers Catchment Management Authority

The Southern Rivers catchment covers a 32,000 square kilometre area of south-east NSW, which includes the waters offshore to 3nm, from Stanwell Park in the north to the Victorian border in the south. This area covers major coastal catchments of the Illawarra, Shoalhaven, Eurobodalla and Bega Valley. SRCMA is a locally based and managed organisation with a Board of local people, reporting directly to the NSW Minister for Environment and Climate Change. The SRCMA is a statutory body established under the *Catchment Management Authorities Act 2003* to facilitate and coordinate the management of natural resources in the Southern Rivers region. In consultation with local communities, farmers and other land managers, Landcare, government agencies, Aboriginal people, local government and industry, SRCMA has developed a Catchment Action Plan (CAP) for the region. The CAP is a 10-year strategic plan that defines the desired condition for natural resources of the region and sets 10-year targets and actions to be implemented through collaborative action with local partners. The CAP includes targets for coastal and marine, water, biodiversity, soils and community action.

SRCMA Coastal and Marine Program

SRCMA's Coastal and Marine Program aims to protect and improve the health of coastal, estuarine and marine environments on the NSW south coast. This program concentrates on delivering projects to:

- Improve and/or maintain the condition of coastal, estuarine and marine environments through partnerships with local and State government and community groups.
- Sustainably manage aquatic and marine resources through incentive programs for aquatic/marine industries, such as oyster farmers, to adopt best management practices.
- Protect aquatic and marine biodiversity (including threatened species such as the Grey Nurse Shark) through active management in partnership with relevant authorities and user groups such as Marine Parks Authority, dive groups, tourism operators and marine discovery centres.

The coastal environment does not exist in isolation and is very much impacted by what happens in the catchment, and thus the Coastal and Marine Program has strong linkages to the Biodiversity Program (threatened species, terrestrial coastal vegetation, pest species), the Water Program (water quality, riparian works, wetlands), the Soil and Land Capability Program (acid sulfate soils and coastal development) and the Community Partnerships Program.

Climate change impacts in the coastal zone

The likely impacts of climate change will increase the challenge of sustainable management of the coastal zone. SRCMA regards climate change impacts as a major natural resource management issue, but recognises there is little regional data available to inform decision making at the local and regional scale. The key threats in the coastal zone in regards to climate change are:

- Increased coastal erosion and flooding.
- Increased inundation, fragmentation and degradation of coastal habitats, particularly wetlands.
- Changes in the frequency and magnitude of oceanic storm surges.
- Water quality and nutrient impacts in estuaries and rivers, including ecosystem-cascade effects.

Although sea-level rise has been a prime focus of several of the global scale studies of coastal vulnerability, it is recognised that there are likely to be impacts other than physical ones as a result of climate change, such as socio-economic impacts. SRCMA commissioned the University of Wollongong to undertake the "Scoping study of climate change in the Southern Rivers region: focus on natural, built, coastal and marine systems". This study highlighted coastal communities in Southern Rivers catchments are likely to be subjected to a range of impacts due to climate change. Increasing sea level, and hence, more dangerous and extensive storm surges could put significant population and tourist centres like Kiama, Wollongong, Shoalhaven and Eurobodalla, as well as remote communities at considerable increased risk. In addition to affecting homes, climate change is likely to affect infrastructure, commercial buildings and other physical assets, as well as affect design and performance, including structural standards, cooling and heating demand, sewerage and drainage.

Adaptation measures will need to address inundation from sea-level rise, flooding from increased frequencies and intensities of rainfall, biodiversity impacts and loss of cultural assets in low-lying areas, as well as damage to and loss of properties as a result of increased frequencies and intensities of bushfires, while simultaneously conserving coastal ecosystems. In the coastal zone many of the adaptation and mitigation measures necessary are directly linked to planning measures and controls and the integration of climate risk in development planning is essential, such as enhanced setbacks around estuaries and wetlands and limiting further urban development in vulnerable areas. The impact of global warming and associated environmental changes, e.g. sea-level rise, will most likely be realised within the timeframe of the current cycle of infrastructure replacement. It is important that planning authorities consider the effects of climate change at these time scales, and that they are provided with information concerning the response of the shoreline to sea-level rise.

Planned adaptation for coastal resources has been the focus of a national strategy through the Framework for a National Cooperative Approach to Integrated Coastal Zone Management (ICZM),

which is strongly focussed on climate change (NRMCC, 2006). As an example, the ICZM assigns priority for an integrated and coordinated national assessment of the vulnerability of Australia's coastal systems to climate change, involving all jurisdictions and major sectors. To date, however, analysis of coastal vulnerability has been limited by the absence of a national Digital Elevation Model and nationally consistent mapping in the coastal zone.

Southern Rivers CMA's response to climate change

Adaptation is one of the most effective options to help manage the risk of climate change and reduce vulnerability, and there is a need to build adaptive capacity in climate-affected regions, sectors and communities within the short to medium term, of which the SRCMA is a delivery mechanism to achieve this end. CMA response and adaptations to climate change come from regionally and locally based solutions, formed on cooperative action between communities, industries and government. Climate change impacts will influence how on-ground natural resource management activities are prioritised and undertaken at a regional and local level, such as coastal weed management, native revegetation and regeneration works (e.g., what plant species should be planted with changing temperature, rainfall and bushfire regimes, what sites and vegetation types will be more vulnerable to climate change impacts). Thus, to adequately respond to predicted climate change impacts CMAs need increased research and available data of the likely impacts on coastal communities and the environment. With increased data and understanding CMAs can build resilience of those most vulnerable and improve the ability of those environments, local communities and industries to adapt to climate change.

SRCMA invests in improving biodiversity and landscape resilience to climate change by:

- improving the condition or health of coasts, estuaries, rivers and the marine environment;
- increasing the extent of natural areas with a focus on wildlife corridors;
- targeting those natural areas and species with limited distribution;
- identifying and protecting those natural and cultural assets at greatest risk from sea level rise and increased storm activity;
- supporting farmers and the oyster industry in improving their sustainability;
- investing in greater knowledge through partnerships such as University of Wollongong; and,
- raising awareness and understanding in the community and partnering in local solutions with a wide range of organisations and community groups.

The SRCMA has formed an internal Climate Change Working Group to guide SRCMA's approach to climate change. The commissioned report from the University of Wollongong highlighted predicted impacts for the Southern Rivers region, the vulnerability of natural resources to climate change and existing gaps in the knowledge about climate change that require further investigations, and which are likely to be of importance to other governing authorities.

Key areas for climate change research that were identified in the scoping report by the University of Wollongong are:

- Identification and mapping of areas and habitats of high vulnerability to the impacts of climate change along the coastal zone, such as estuaries, wetlands and coastal floodplains.
- Climate change impacts on estuarine functioning, such as the effect of reduced flow on fish and oyster spawning behaviour and success, ecosystem cascade effects, and effects of changes in seasonality and timing of flows.
- The effect of climate change impacts on different vegetation types in our region, such as riparian and dune vegetation communities, and how climate change will affect their resilience and connectivity in the landscape.
- Identifying provenance and vegetation varieties with high level resilience to climate change, in particular identifying species useful for riparian revegetation and rehabilitation strategies.
- Expected increases and movements of the different agricultural weeds and environmental weeds (riparian and coastal) in our landscape.

- Consequences for river stability/mobility and the implications for current river works programs.
- The extent of risk of saline intrusion from sea level rise to coastal floodplain aquifers and the impact on riparian biodiversity and those aquifers used for water storages and hence water supply.

Recommendations

In summary, SRCMA makes the following recommendations:

1. Investment in a national digital elevation model and nationally consistent mapping for the coastal zone, including analysis and risk assessment.
2. Investment in research into assessing regional scale impacts of climate change impacts on natural, built, and socio-economic assets.
3. Climate risk is integrated into local and State government planning controls in a consistent and appropriate manner.
4. Acknowledgement and resourcing of the role that catchment management authorities can and do play in building resilience in the landscape and communities to meet the challenges of climate change.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P. Green', with a stylized flourish at the end.

Pamela A Green
Chair