



Planning for coastal and flood hazards in a changing climate:

Eurobodalla Shire Council action

Council Name	Eurobodalla Shire Council
Web Address	www.esc.nsw.gov.au
Size	3,422 sq. km
Population	37,714 (June, 2010)
Awards	Eurobodalla Shire Council's Coastal and Flood Management Planner, Norm Lenehan was awarded the National Climate Change Adaptation Research Facility (NCCARF) <i>Climate Adaptation Champions 2011</i>

1. Background

1.1 Council profile

Eurobodalla Shire is located on the South Coast of New South Wales about 300km from Sydney and 150km from Canberra. The Shire incorporates 112km of coastline, from North Batemans Bay to south of Tilba and extends 53km inland at the widest point. Eurobodalla local government area (LGA) is a rural, growing residential and resort area, with most of the population located along the coastal fringe, or living beside the lakes and rivers. The LGA has approximately 35 Intermittently Closed and Open Lakes and Lagoons (ICOLLs), one inlet and small coastal river and three large coastal rivers with catchments covering in excess of 1,500km². While the LGA covers a total land area of over 3,400km², about three-quarters is national park or state forest. Significant infrastructure in the Eurobodalla LGA which is vulnerable to riverine inundation and sea level rise includes Moruya Airport, Princes and Kings Highways, Batemans Bay Campus of University of Wollongong and Moruya Campus TAFE.

The coastal location and proximity of Eurobodalla Shire to Canberra means there are a large number of investment properties. Consequently, 28 per cent of the rate base lives outside of the LGA. This, in conjunction with an ageing population, low-skilled employment base, high unemployment, low average household income and low growth rate of 1.2 per cent imposes considerable resource constraints on Council and issues for community consultation. As tourism is the primary industry for the LGA, preserving the coastal appeal of the area is crucial.

1.2 Coastal hazards

The LGA is affected by coastal hazards including erosion, inundation and flooding. The major towns of Batemans Bay, Moruya, Narooma and many of the smaller settlements are located on estuaries and areas of open coastline. Coastal flooding is projected to be exacerbated by sea level rise (SLR) with the main Central Business District of Batemans Bay, Narooma Flat and the suburb of Surfside being vulnerable with elevations at around 2m Australian Height Datum (AHD).

Similar to most of the NSW coastline, Eurobodalla Shire experienced major flood events during the period 1950 to late 1970s. Near loss of the Batemans Bay and Moruya Surf Clubs during this time resulted in their relocation, and the Batemans Bay Club was nearly lost for a second time in 1978. A low population in the LGA during this time saw minimal private property loss. Community centres such as both surf clubhouses are expected to again be vulnerable to coastal erosion events.

The area has not experienced a major coastal erosion event since 1991, although there has been a long-term sediment deficit on the northern shoreline of Batemans Bay resulting in shoreline recession



and loss of private lands to permanent inundation. Wharf Road in Batemans Bay has been listed as a coastal erosion hotspot with a number of private properties at immediate risk from erosion and inundation.

2. Council's approach to planning for coastal hazards

2.1 Building an evidence base

i) Identification of priority areas for risk and hazard assessment

In 2010 Council commissioned the *Eurobodalla Coastal Hazards Scoping Study* (SMEC, 2011) to provide an independent assessment of coastal risk that identifies priority areas for risk or hazard assessments. The study will guide the priorities for investment in further studies of coastal hazards and SLR adaptation action. The focus of the study was to identify hazards that presented risk to coastal settlements in the Shire, such as:

- Coastal erosion
- Sand drift
- Shoreline recession
- Tailwater levels
- Beach rotation
- Entrance stability and stormwater erosion
- Coastal inundation
- Coastal cliff stability (geo-technical hazard)

Priority sites were determined through the application of a risk assessment matrix based on consequence and likelihood.

Seven sites within the LGA were identified as requiring a short-term (within six months) management response due to vulnerability to coastal erosion and/or inundation. Five of these sites are within the area that will be assessed under the 2011 review of the *Batemans Bay Coastal Hazard Management Plan* (2001) and the remaining two sites are in Narooma. Inundation is the dominant hazard due to the prevalence of waterways and low lying settlements.

Funds have been secured to complete a detailed coastal hazard management plan for Batemans Bay. Additional funding has also been secured from the NSW Floodplain Management Program to complete flood studies in the Narooma district.

ii) Implementation of risk and hazard assessments

In 2011 Council commenced risk/hazard assessments for priority areas in the LGA. The *Moruya Flooding – Climate Change Assessment* (2010), which investigates flood behaviour, has been completed. The upcoming review of the *Batemans Bay Coastal Hazard Management Plan* (2001, adopted 2006) will assess climate change impacts on coastal risk. Council is seeking confirmation of funding to commence a climate change assessment of flood behaviour in Wagonga Inlet, Narooma which has been identified as a high risk area due to elevations at, or below, 2m AHD.

iii) Information gaps addressed via research partnerships

In 2010 Council participated in two separate research projects to deliver more detailed social analysis and economic modelling of SLR adaptation options. The CSIRO social planning research, *Investigating the trade offs of land use zoning as an adaptation response: perceptions of sea level rise risk and the assessment of managed retreat policy* (to be published 2012), will provide information on community views regarding adaptation options. The study deliberately targeted a transect of residents between the beach front, 'back beach' (walking distance) and properties on the hill beyond the reach of coastal hazards but still receiving amenity value via sea views.

The study sought to collect a cross section of views relating to different adaptation options (retreat versus mitigate); community awareness of SLR; individual identification with the issues and trade-offs. Participation in Council-run workshops has generally been limited to beachfront residents with a



strong vested interest in protecting their private assets. This study will give Council a broader perspective of what the community knows about SLR and willingness in relation to trade-offs. Due to the large absentee rate-payer base, the study has sought to explore options to address difficulties in reaching all sectors of the community, which has become a key issue for Council.

The second research project involving Council involved CSIRO economic research, *Modelling Coastal Adaptation Options*, which will identify different options to manage infrastructure renewal and maintenance over multiple time-scales. Options such as identifying the optimal timing for coastal retreat, the cost of action and the optimal time to invest in possible mitigation have been explored. The study will examine the positives and negatives of different adaptation options and identify the cost-effectiveness of maintaining natural dune systems as mitigation measures to coastal erosion (as opposed to being maintained for amenity and environmental reasons).

Eurobodalla Council and the University of Canberra Architecture Faculty are exploring an initiative to develop post-graduate studies in coastal planning. Recent presentations by Council to planning students about the challenges faced in Eurobodalla Shire may be ongoing as part of the initiative.

2.2 Review of existing hazard and coastal management plans

Council is currently updating the *Batemans Bay Coastal Hazards Management Plan (2006)* to recognise the NSW SLR planning benchmarks and has adopted entrance management plans that consider SLR for coastal lakes. Council is finalising guidelines for its coastal zone management plan and developing an estuary and coastal management plan.

2.3 Proactive community engagement

In 2010 Council established a *Coastal Management Advisory Committee* to source community advice regarding the challenges of managing the LGA's extensive coastline. The Committee includes representatives from local Aboriginal, scientific, business and conservation networks and is assisted by staff from Council and government agencies. The Committee actively participated in the Eurobodalla *Interim Sea Level Rise Adaptation Policy (2010)* development and new requirements for Section 149 Certificates. An online information source for coastal management has been established on the Council website, providing fact sheets on SLR, links to NSW Government websites and details of Council policy (<http://www.esc.nsw.gov.au/environment/coastal-management/>).

3. Planning options to reduce coastal and flooding risks

In 2010 Council adopted the *Interim Sea Level Rise Adaptation Policy* and as part of this mapped 'Investigation Areas', based on the *NSW Coastal Planning Guideline: Adapting to Sea Level Rise* (Department of Planning, 2010) and the Precautionary Principle. The mapping identifies land likely to be subject to coastline hazards now or in the future as a consequence of SLR risk (that is, areas within 100m of high tide, and/or less than or equal to 5m AHD). It applies to new and existing development. The mapping does not model coastal hazards. This mapping provides an *interim* measure of SLR risk and will be replaced by Council once detailed coastal and flood risk assessments are completed.

Key components of the *Interim Sea Level Rise Adaptation Policy (2010)* include:

i) Use of time-based controls and consents

A 100 year-design building life will apply to all new residential developments and all greenfield subdivisions in coastal and floodplain areas. A 50 year-design building life will apply to all new commercial developments (excluding subdivisions) and public facilities in coastal and floodplain areas.

ii) Mandatory disclosure of coastal risks to existing development



Proponents of new development may be required to obtain a positive covenant under Section 88B of the *Conveyancing Act 1919* to make prospective purchasers aware of coastal hazard-triggers outlined in existing Coastline Management Studies/Plans.

To obtain advice on SLR risks, the following must refer to positive covenant Section 88B requirement

- planning certificates issued under Section 149(2) and (5) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* for flood affected properties (primarily within tidal reaches);
- properties within an Investigation Area; and/or
- properties which already have a Section 149 *EPA Act 1979* certificate relating to coastal and tidal inundation..

The proponent may also be required to identify actions required to manage coastal hazards if hazard-triggers are reached.

iii) Allow property owners to reduce risks

The owners of existing private residential developments within Identification Areas, or in areas at risk to the impacts of SLR, may investigate engineered property protection works.

iv) Requirements for owners of high risk properties to actively identify and manage risk

Proponents of new development that falls within an Investigation Area must:

- As part of a development application, include a hazard risk assessment report in their Statement of Environmental Effects as per Schedule 1, Part 1 of the *EP&A Act 1979*. The risk assessment must consider risk category in relation to immediate, 2050 and 2100 hazard lines as specified in the *NSW Coastal Planning Guideline: Adapting to Sea Level Rise* (Department of Planning, 2010). Proposals are assessed against relevant building controls.
- Demonstrate that the development will not create any risk to the community within the specified building life; will manage risk from any coastal hazard, including SLR within specified building life; will not necessitate property protection and/or mitigation works within specified building life; will not create significant adverse economic, social or environmental cost to the community; or can be relocated or removed at no cost to the community upon reaching a pre-determined trigger set as a measure of vulnerability to coastal hazards.

v) Options for planned retreat

The Interim Policy also provides for 'planned retreat' approach in response to coastal hazard and SLR risks. This involves staged avoidance of permanent development sites at risk in the 2011-2100 planning period.

Sites for retreat are identified during the Development Application process. An applicant within an Investigation Area must submit a detailed coastal hazard assessment, retreat strategy and trigger point. A Section 88B instrument is created and attached to the title of the property to facilitate enactment of the trigger points.

The Investigation Areas and the need for proponent funded studies will be phased out as Council identifies hazard areas via the completion of comprehensive coastal hazard management plans. Strategies for adaptation will be outlined in the management options of the certified plans.



Case study

Recently, the Joint Regional Planning Panel approved a tourist development located within an Investigation Area at Surfside to proceed on a hazard trigger consent basis. This physical trigger basis (rather than time trigger) allows that the site may be occupied in accordance to the “real” hazard rather than an obligatory time period that may, or may not, see the true hazards realised.

This short term stay of commercial land use was assessed on a planning time horizon to the year 2050. The shorter planning period for commercial development encourages commercial investment that has a shorter economic return period than residential properties.

A condition of consent included limiting the construction to lighter-weight materials; no future change of use to residential and identification of hazard retreat levels (inundation by tide and storm events in this case).



Shoreline recession at a coastal erosion hotspot, courtesy of Eurobodalla Shire Council.

4. Key drivers for Council’s approach

- Increased awareness of coastal and flood management issues within Council including participation in the National Sea Change Taskforce.
- Legal advice regarding Council’s corporate risks under Section 733 of the *Local Government Act 1993* and responsibilities to carry out ecologically sustainable development and assess the suitability of a site for development under section 79C of the *EP&A Act 1979*.
- Dedicated internal funding for climate change risk assessments and associated policies, strategies and development controls, including establishment of a full time position for coastal and flood management planning in 2008.



5. Key challenges

- Timeliness of accessing risk and hazard information; where risk and hazard studies lag behind the present need to make land-use planning decisions.
- Some challenges have no easy solution as for example, Batemans Bay experience of coastal erosion and loss of beach sand. However sand removal and beach nourishment are not feasible options due to Batemans Bay's location within a marine park area.
- Development may be at risk from multiple climate hazards such as increased coastal erosion, coastal inundation, decreased water availability and increased fire intensity. There is a need for building code requirements to reflect these changing climate conditions.
- Most insurance cover does not account for 'actions of the sea', including coastal hazards, which leaves property owners financially exposed.
- While Council permits property owners and development proponents to investigate engineering property works for development at risk of coastal hazards, these works can be extremely expensive in the short and long term. Obtaining approval under the Council's *Interim Sea Level Rise Policy (2010)* can also be difficult due to the complex nature of coastal processes.
- Council has statutory responsibilities to assess and manage coastal hazards. However, due to changing climate conditions, including SLR, greater levels of investment are required to adequately identify and reduce coastal risks to the community in the long-term.
- Coordination between LGAs, government departments and the private sector in relation to data and information provision (e.g. aerial mapping) is vital. A more integrated, strategic approach to research, hazard and risk assessments, and coastal management is needed to realise the full potential of limited local government resources.
- Research into policy options to adapt to increased coastal risks, such as planned retreat, managing development pressures and maintaining public access to foreshore areas; how to avoid sterilising land; use of differential planning controls; circumstances that could trigger the operation of the *Land Acquisition (Just Terms Compensation) Act 1991*; changes in land title and relocatable/demountable homes is needed, so that detailed guidance to local government is available.
- There needs to be more research into legal and economic levers that could reduce the social cost of retreat and mitigation policies. For example, peppercorn leases (incremental payments for the property) of waterfront.
- There needs to be a succession plan for 'post-retreat' scenarios that clearly defines how public ownership and access will prevail over the foreshore and sub-tidal areas. For example, areas of the Batemans Bay coastal erosion hotspot have private title below mean high water.

6. Future priorities and next steps

- Council will review its SLR benchmarks on release of future NSW Government SLR policy and information from reputable scientific sources. This ensures Council advice is based on the most recent and credible information and fulfils its obligations under *Section 733* of the *Local Government Act 1993*.
- Further information and research is needed on public liability and land use planning issues, such as application of climate-related thresholds and trigger points to land use planning; what constitutes 'appropriate development'; and application of rolling-easements while still ensuring equity, environmental integrity and protection.
- Additional research is required to investigate the legal and economic mechanisms for the succession of private land into public foreshore following the activation of retreat orders.



Eurobodalla has identified this as key legal and social equity issues that require additional focus and discussion beyond the limited resources of local planners.

- Council will continue to seek funding to undertake the processes of coastal and floodplain management in NSW through the completion of certified plans in order to fulfil statutory requirements.
- Council will incorporate coastal risk and coastal management into the LEP standard instrument.
- Council will seek partnerships with research agencies, other local councils and government to complete projects that would otherwise be beyond Council budget.
- Council will expand the scope of adaptation research and policy to develop an over-arching climate change risk and adaptation policy to address bushfire risk, asset management plans, ecological adaptation corridors and other adaptation needs.

Further information contact

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