



BYRON SHIRE COUNCIL

POLICY NO 09/010

CLIMATE CHANGE STRATEGIC PLANNING POLICY

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#908785

INFORMATION ABOUT THIS DOCUMENT

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Further Document Information and Relationships

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|---|--|
| Related Legislation | Environmental Assessment and Planning Act 1979 |
| Related Policies | |
| Related Procedures/ Protocols, Statements, documents | <p>Intergovernmental Panel on Climate Change (IPECC), <i>Climate Change 2007: The Physical Science Basis</i>. http://www.ipcc.ch/</p> <p>Department of Environment and Climate Change (DECCW) Floodplain Risk Management Guideline: <i>Practical Consideration of Climate Change</i>, 25 October 2007. http://www.pittwater.nsw.gov.au/_data/assets/pdf_file/0016/34630/DECCW_FRM_Guideline_Practical_Consideration_of_Climate_Change_25-10-07.pdf</p> <p>Commonwealth Scientific and Industrial Research Organisation (CSIRO), <i>Projected Changes in Climatology Forcing for Coastal Erosion in NSW</i>, August 2007. http://www.environment.nsw.gov.au/resources/climatechange/nswdnrreportv1020070824.pdf</p> <p>Australian Government, Department of the Environment and Water Resources: <i>Climate Change Adaptation Actions for Local Governments</i>, 2007. http://www.climatechange.gov.au/impacts/publications/local-government.html</p> <p>SMEC <i>'Belongil Creek: Impact of Climate Change on Tailwater Level (Sea Level Rise)'</i>, Discussion Paper, July 2007.(#694571)</p> <p>NSW Coastline Management Manual. http://www.environment.gov.au/coasts/publications/nswmanual/index.html</p> <p>Byron Shire Greenhouse Action Strategy, 2008. http://www.byron.nsw.gov.au/publications</p> <p>Byron Shire Local Environmental Study, 2008. http://www.byron.nsw.gov.au/publications</p> <p>Climate Change Risk Assessment – (note: information arising from current grant funded work)</p> <p>Draft Shire-wide Local Environmental Plan (note: in development, yet to be exhibited)</p> <p>Draft Coastal Zone Management Plan (note: in development, yet to be exhibited)</p> <p>International Council for Local Environmental Initiatives (ICLEI), <i>Local Government Climate Change Adaptation Toolkit</i>, March 2009. http://www.iclei.org/fileadmin/user_upload/documents/ANZ/CCP/CCP-AU/Projects/Al/AdaptationToolkit/Toolkit_CCPAdaptation_Final.pdf</p> <p>Sea Level Rise Policy Statement, 2009 Department of Environment and Climate Change NSW http://www.environment.nsw.gov.au/climateChange/sealevel.htm</p> |

Policy –Climate Change Strategic Planning

Byron and Tweed Shire Councils: Climate Change Risk Assessment, Final Report, May 2009, GHD

Byron and Tweed Shire Councils Climate Change Adaptation Action Plan, June 2009, GHD

Draft Byron Shire Climate Change Adaptation Implementation Schedule #861850

Australia's Biodiversity and Climate Change: A strategic assessment of the vulnerability of Australia's biodiversity to climate change, Australian Government, 2009.

<http://www.climatechange.gov.au/impacts/pubs/biodiversity-vulnerability-assessment.pdf>

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POLICY TITLE CLIMATE CHANGE STRATEGIC PLANNING POLICY

FILE REFERENCE COR050505

1. NAME OF THE POLICY AND COMMENCEMENT

This Policy is known as the *Byron Shire Council Climate Change Strategic Planning Policy* ('Policy'). It sets out Byron Shire Council's policy position relating to climate change as per council resolution 07-757.

The Policy was adopted by resolution (09-968) of Council on 12 November 2009.

2. OBJECTIVES

- To set out Council's accepted climate change parameter's to inform the decision making process for strategic, infrastructure and operational planning
- To mitigate impacts associated with climate change on future generations through commitment to the precautionary principle.
- To review climate change parameters as further information becomes available from leading government organisations.

3. POLICY STATEMENTS

3.1 *Climate Change Parameters*

The following minimum climate change parameters will be used in all Council's strategic, infrastructure and operational planning:

- a) temperature increases of 0.7°C to 5.6 °C by 2070
- b) sea-level rises of 18 - 91cm by the end of this century
- c) increases in rainfall intensities of 5 - 30% by the end of this century
- d) increase in cyclone intensities by 2050 of 10% to 20%, with peak wind speeds 5% to 10 % faster, increases in maximum rainfall of 20% to 30% and storm surges increases of 20cm to 30cm.

3.2 *100 year Planning Period*

A 100 year planning period will be used for any strategic, infrastructure and operational planning document or designs that may be affected by climate change.

3.3 *Strategic, Infrastructure and Operational Planning*

Climate Change Flood Planning Scenario for 2100 (Attachment 1) will be used for the purpose of all Council's land use planning, infrastructure and operational responsibilities.

3.4 Strategic Land-use Planning

If an adopted Flood Study or Floodplain Management Plan does not exist that suitably considers climate change in accordance with Councils climate change parameters then the following will be used:

- For all large scale developments, major infrastructure upgrades, new land releases, subdivisions creating more than 2 vacant lots and rezonings in areas below 5m Australian Height Datum (AHD), an additional 1.0m to the Flood Planning Level (FPL) be applied and above 5m AHD, an additional of 0.5m to the Flood Planning Level be applied. Unless a Flood Study which incorporates the appropriate Climate Assessments is available to justify using an alternative amount.
- For all large scale developments, major infrastructure upgrades, future land releases, subdivisions creating more than 2 vacant lots and rezonings, which are subject to any requirement for the completion of a new flood study, Climate Change effects must be addressed in accordance with section 3.5 of this policy.
- For all infill development not defined as large scale development within existing residential and commercial/industrial zones, the surrounding floor levels, building flood protection requirements and/or proposals and the existing Flood Planning Level be considered in terms of adequacy and assessment of risk prior to consideration being given to adding any additional requirements resulting from the Climate Change Parameters.

If a Flood Study or Floodplain Management Plan does exist then the Flood Planning Level or 100yr flood levels plus 0.5metre freeboard will be used as a minimum Flood Planning Level for all developments, unless the Study or Floodplain Management Plan details an alternative approach.

3.5 Flood Studies and Floodplain Management Plan Projects

Flood studies will additionally model the 100 year event using the Climate Change Flood Planning Scenarios (Attachment 1) to provide for Climate Change effects, unless State Government (DECCW) request Council use an alternative approach.

3.6 Biodiversity Planning

Impacts to coastline, coastal floodplain and river /waterway biodiversity due to coastal erosion and shoreline recession, salt water intrusion to ground water, and tidal inundation and changes to hydraulic behaviour of waterways result in: habitat loss; habitat fragmentation; habitat squeeze; increased competition; and ecosystem health decline.

Therefore, appropriate buffering of natural ecosystems from development is to be incorporated into strategic plans, land use controls and development proposals to allow room for the migration of those communities as sea levels rise and/or changes in hydraulic behaviour of waterways are realised.

Also, current and potential future wildlife corridors are to be identified and protected via land use controls to allow for the survival and adaptation of ecological communities and associated biodiversity.

3.7 *Biophysical and Socio-economic Thresholds*

Biophysical and socio-economic thresholds are limits of their resilience beyond which it is assumed that irreversible degradation may ensue. The precautionary principle is a response to uncertainty in the face of poorly understood thresholds. In the absence of adequate data to determine thresholds or direction from State Government Council will apply the precautionary principle.

3.8 *Emergency Management and Planning*

Climate Change Flood Planning Scenario for 2100 (Attachment 1) will be used for the purpose of all Council's emergency management and planning responsibilities. Council will undertake emergency management education for the community to advise of potential risks and emergency planning associated with climate change and extreme weather events.

3.9 *Review of Current Plans*

Council's planning and strategic documents and infrastructure policies, where their content may be affected by climate change, will be reviewed to incorporate the impacts of the Climate Change Flood Planning Scenarios and Climate Change Parameters, as funding and resources, including grants, permit.

3.10 *Review of Flood Planning Scenarios and Climate Change Parameters*

Climate Change Flood Planning Scenarios and Climate Change Parameters will be reviewed and/or updated upon receipt of further Intergovernmental Panel on Climate Change (IPCC) reports and/or Commonwealth Scientific and Industrial Research Organisation (CSIRO) or Department of Environment, Climate Change and Water (DECCW) recommendations.

3.11 *Resourcing*

Council will pursue grant opportunities to further examine climate change issues as they affect planning and infrastructure provisions.

4 DEFINITIONS

Large scale development: includes medium density development (as defined in DCP 2002), commercial development (with a floor area greater than 1500m²), industrial development (with a floor area greater than 1500m²).

| ATTACHMENT 1 Byron Shire Council - 100 year Climate Change Flood Planning Scenarios | | | | | | | | | | | | |
|--|---|---|--|---|--|--|---|--|--|--|--|--|
| Scenario | Predicted Global Sea Level Rise | Increased Regional Sea Level Rise | Possible accelerated ice melt | Total Sea Level Rise | Possible Tide in AHD | 100 Year Storm Surge | | | Wave Setup | Calculated 100 year Tailwater Condition in AHD | Difference compared to existing ocean levels | Increase in rainfall intensity |
| | | | | | | Barometric Pressure effect on 100 Year Ocean Level | Wind Setup | Total Storm Surge | | | | |
| Current Conditions | 0 | 0 | 0 | 0 | 0.94 | 0.6 | 0.3 | 0.9 | 0.45 | 2.29 | Nil | 0 |
| 2050 | 0.18 | 0.12 | 0.1 | 0.4 | 0.94 | + 20cm | | 1.1 | 0.45 | 2.89 | 0.6m | 10% |
| 2100 | 0.59 | 0.12 | 0.2 | 0.9* | 0.94 | + 30cm | | 1.2 | 0.45 | 3.49 | 1.21m | 30% |
| Source | IPCC 2007. SPM 3, Page 13, Report 1 of 4th assessment report. | CSIRO 2007, Table 17, Projected Changes in Climatology Forcing for Coastal Erosion in NSW | IPCC 2007. Page 14, Dot point 1, Report 1 of 4th assessment report.. Some experts suggest that IPCC are below the mark with this, however, the majority support IPCC in other areas. | *Rounded down by 1cm due to uncertainty. In line with recommendations from DECCW Sea Level Rise Policy Statement. April 2009 and DECCW Practical Consideration of Climate Change guideline 2007. | See below, The Highest Astronomical Tide | Original figure from SMEC report assessing tail water levels for Belongil Creek. | Original Storm Surge figures from SMEC report. CSIRO Projected Changes In Climatological Forcing For Coastal Erosion In NSW 2007. Notes Maximum 22cm increase in storm surge for 2070 above 1980 100 year storm surge levels. Therefore a 20-30cm increases is added to storm surge for 2100. | Total Storm Surge. Note- recent DECCW guidelines for climate change assessment have not recommended any increases to storm surge values. | Any predictions on increase in wave setup from climate change are unsubstantiated and omitted. As advised by DECCW. Value based on 31 years of data from MHL's Byron Bay Waverider Buoy. Reduced to determine a wave setup for an Estuary mouth (not open coast). | Final Result | Allowance for Sea Level Rise | Recommended in DECCW Practical Consideration of Climate Change guideline 2007. |

Three different values have been considered in choosing a possible tide level; The Highest Astronomical Tide (HAT), the Higher High Water Solstice Springs (HHWSS) and the Mean High Water (MHW) mark. Tides run on a 19 year cycle called the EPOCH. The HAT is the theoretical highest tide level that could occur under average meteorological conditions and under any combination of astronomical conditions. This will not occur every year, once every 19 years is more likely. The HHWSS is the average of the higher of the two daily spring high water heights observed over a long period. The MHW is the average of all the high water heights observed over a long period of time

Manly Hydraulics Laboratory assessed the last 19 years of tidal data on Councils behalf in May 2009 and advised that; the HAT at Ballina is 1.09m AHD and at Brunswick Heads is 1.134m AHD. The HHWSS mark at Brunswick is 1.038m AHD and Ballina 0.936m AHD. The MHW mark for Ballina is 0.419m AHD and Brunswick Heads is 0.51m AHD. During the May 2009 ocean event the highest water level was observed as being 1.266m AHD. Note; this is provisional data from MHL and is yet to be quality assured and this data includes storm surge and wave setup.

It is extremely unlikely that the HAT would coincide precisely with the timing of the maximum storm surge and maximum wave setup, since the HAT is predicted to occur only very rarely, perhaps only once every several years. Combining this with the barometric effects, wave setup and climate change effects will determine the maximum tailwater level which is likely to occur and is therefore highly unlikely. For this reason, using the MHHW mark is preferred because using the HAT is considered too conservative and very unlikely to occur at the same time as a 100 year event. The probability of the MHHW occurring at the same time as the 1 in 100 year is also unlikely but is considered an appropriate datum for modelling purposes.