

Glossary

This glossary explains a range of technical or planning terms that are used in the Coastline Management Plan. The definitions are drawn from several different sources, including the NSW Coastline Management Manual (NSW Government 1990), the First Pass National Assessment on Climate Change Risks to Australia's Coast (Department of Climate Change 2009a), definitions in NSW legislation and policy and standard coastal engineering or coastal planning manuals.

Accretion	Growth of coastal shorelines by steady addition of sediments.
Adaptation	Adjustments in natural or human systems in response to climate stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Adaptive capacity	Ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.
Authorised Location	Defined in the current proposed amendments to the NSW Coastal Protection Act as a place that has at least five houses or a public road in the immediate coastal erosion hazard zone. In Wyong Shire, Hargraves Beach and North Entrance Beach are currently defined as Authorised Locations.
Average Recurrence interval (ARI) and annual exceedance probability (AEP)	Both of these terms are a measure of the rarity of a rainfall event, but can also be used to refer to the rarity of a storm event. The ARI is the average, or expected, value of the periods between exceedances of a given rainfall total accumulated over a given duration. The AEP is the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.
Bathymetry	Refers to the depth of the ocean. A bathymetric chart will show the depths to the sea floor (and therefore the shape of the sea floor) at different locations.
Beach	A wave deposited accumulation of sediment, usually sand, but also cobbles and boulders, lying between the upper limit of wave swash and extending out across the surf zone to the depth at which average waves can move sediment shoreward. Short (2007) notes that on the high wave energy NSW coast, this means that beaches extend seaward to water depths of 15 to 20 metres and as much as 1 to 3 kilometres offshore.
Biodiversity	The numbers and relative abundances of different genes, species and ecological communities in a particular area.
Bluff or cliff	Coastal cliffs (especially steep and precipitous cliffs), steep rock and weathered rock slopes, headlands, indurated and cemented sand coastal slopes.
Climate	Climate in a narrow sense is usually defined as 'average weather'. The usual period for calculating the 'average' is 30 years.

Climate model	A numerical representation (typically a set of equations programmed into a computer) of a climate system. The most complex and complete climate models are General Circulation Models.
Climate projection	A projection of future climate based on simulation by climate models.
Coast	Generally used, with 'coastline', to refer to the actual shoreline where the sea meets the land.
Coastal hazard zone	The shoreline and hinterland areas determined to be at risk from coastal erosion or inundation. The zone is divided up as the Zone of Wave Impact and Slope Adjustment and Zone of reduced foundation capacity for a given time period.
Coastal inundation	This is flooding that occurs when waves overtop the frontal dune system, so that on or landward of low dunes is inundated by sea water. Some of these areas can also be flooded by rising lake waters. High lake water levels are influenced by catchment rainfall, accommodation capacity on local floodplains and the size/capacity of the lake entrance.
Coastal Risk Area	Any coastal area that that is subject to coastal erosion, inundation or geotechnical hazard that has potential to negatively impact people or property.
Coastal zone	Extends from the continental shelf to as far inland as coastal processes (tides, wind-blown coast dunes) dominate. The NSW Coastal Policy defines this as including 3 nautical miles seaward of the mainland, one kilometre landward of the open coast high water mark, one kilometre around the shores of all bays, estuaries, lakes and lagoons and all tidal waters upstream to the limit of mangroves.
Coastal geomorphology	The physical structures, processes and patterns associated with the coast, including landforms, soil and geology and the factors that influence them.
East Coast Lows	Intense low pressure systems which occur on average several times each year off the east coast of Australia. Severe East Coast Lows generate extreme water levels and high waves which drive storm bite erosion.
Ecosystem services	Ecological processes or functions having monetary or non monetary value to individuals or society at large.
Emergency response	Any actions taken during an erosion or inundation event to ensure the safety of people and property.

<i>El Nino</i> southern oscillation (ENSO)	Refers to widespread two to seven year oscillations in atmospheric pressure, ocean temperatures and rainfall associated with <i>El Nino</i> (the warming of the oceans in the equatorial eastern and central pacific) and its opposite, <i>La Nina</i> . Over much of Australia <i>La Nina</i> brings above average rain and <i>El Nino</i> brings drought. A common measure is the Southern Oscillation Index (SOI) which is the normalised mean sea level pressure difference between Tahiti and Darwin. The SOI is positive during <i>La Nina</i> and negative during <i>El Nino</i> events.
Exposure	Refers to the elements of risk which are subject to the impact of a hazard.
Flood hazard	A hazard associated with inundation. Flood hazard generally refers to flooding associated with storm water systems, rivers and estuaries.
Geotechnical processes	Refers to the processes that drive landslides and poor structural integrity of rocks and soils. Landslides are defined as the movement of a mass of rock, debris or earth (soil) down a slope. The definition includes landslides, slips, slumps, rock falls and topples.
Greenhouse effect	An increase in the temperature of the earth's surface caused by trapping of heat by greenhouse gases (i.e. gases that absorb and re-emit infrared (heat) radiation. Carbon dioxide and methane are both greenhouse gases).
Hazard	A source of potential harm or a situation with a potential to cause loss. It may also be referred to as a potential or existing condition that may cause harm to people or damage to property or the environment.
Holocene period	The Holocene interglacial period is a geological epoch that began approximately 12,000 to 10,000 years ago. Climate and sea level have been relatively stable for the last 6000 years of the Holocene period.
Interglacial period	The warm periods between ice age glaciations. The 'Last Interglacial' before the current one, dated to 130,000 to 115,000 years ago.
Littoral	In coastal environments, the littoral zone extends from the high water mark to areas permanently submerged.
Mitigation	Refers to those response strategies that reduce the sources of green house gases or enhance their sinks.
Ramsar	The Convention on Wetlands, signed in Ramsar in Iran in 1971 is an international intergovernmental treaty dedicated to the conservation and wise use of wetlands.

Resilience	The ability of a social or ecological system to absorb disturbances while retaining the same basic infrastructure and ways of functioning, the capacity for self organisation and the capacity to adapt to stress and change.
Risk and Risk Management	Risk is calculated as a product of probability (likelihood) and consequence of a hazard occurring. Risk management involves understanding all aspects of an activity that may have unanticipated consequences and determining which are the significant and unacceptable risks. The process helps identify priority actions that need to be undertaken to ensure that important values are maintained. The Australian Standard for risk assessment and management has adopted ISO 31000 (2009).
Sea level rise	An increase in the mean level of the ocean. Eustatic sea level rise is a change in global average sea level brought about by an increase in the volume of the world ocean (by warming the water – thermal expansion, or by melting of ice caps). Relative sea level rise occurs where there is a local increase of the level of the ocean relative to the level of the land, which might be due to ocean rise or to subsidence of the land. In areas subject to rapid uplift, relative sea level can fall without a change in ocean volume.
Storm surge	Elevated sea level at the coast caused by the combined influence of low pressure and high winds associated with a severe storm such as a tropical cyclone. Includes wave runup and wave set up.
Storm tide	The total elevated sea level height at the coast above a datum during a storm, combining storm surge and the predicted tide height.
Sustainability	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Ecologically sustainable development is consistent with intergenerational equity, conservation of ecological functions and services, proper valuation of social, cultural, environmental and economic assets.
Threshold or tipping point	The point in a system at which sudden or rapid change occurs, which may be irreversible.
Tidal delta	The deposition feature just inside the mouth of an estuary. Marine sand is deposited where flood tide velocities decline as the flows enter the still waters of the lake system. Most estuaries also have a much smaller ebb tide delta forming shoals at the seaward extremity of the channel.

Trigger point	Within an adaptive coastal risk management strategy, certain circumstances will trigger a change of management response. A number of trigger points can be used, individually or in combination (cumulative risk), including the proximity of the erosion scarp to existing development, the asset life of infrastructure or Council's capacity (technical and financial) to maintain functional community infrastructure such as sewerage and stormwater systems. Rising sea level will, over time, reduce the functionality of stormwater systems draining to the sea or lake system, so that water backs up and flood risk increases, and it has the potential to cause excessive infiltration of sewer systems or to erode pumping stations.
Uncertainty	An expression of the degree to which a value (such as the future state of the climate system) is unknown. Uncertainty can result from a lack of information or from disagreement about what is known or should be known.
Vulnerability	Degree to which a system is susceptible to or unable to cope with adverse effects of stresses such as invasive species, changes to hydrology, land clearing, all of which may be exacerbated by climate change, including climate variability and extreme weather events. Vulnerability is a function of the character, magnitude and the rate of change and variation to which a system is exposed, its sensitivity and its adaptive capacity.
Wave run up	The ultimate height reached by waves (storm or tsunami) after running up the beach or coastal barrier.
Wave set up	The super elevation in water level across the surf zone caused by the energy expended by breaking waves.
Zone of Wave Impact and Slope Adjustment	The immediate hazard or 'storm bite' that is at risk during a storm. These are the areas a) seaward of the erosion escarpment and b) the part of the eroded dune which may be affected by slumping to its natural angle of repose after a storm event.
Zone of reduced foundation capacity	When extreme scour occurs on the beach face, the outer part of the dune has reduced load bearing capacity.