

# Coffs Harbour Coastal Processes and Hazards Definition Study

Natural coastal processes can generate significant hazards to local communities. Climate change will further exacerbate coastal risks in the future. In accordance with the NSW Coastal Protection Act 1979 and Coastal Policy 1997, Coffs Harbour City Council is developing a Coastal Zone Management Plan to help guide existing and future development and minimise exposure to coastal risks. The first stage of the Plan was to understand the coastal processes and define the existing and future coastal hazards (in response to climate change) acting on the Coffs coastline.

BMT WBM's approach to the hazard definition combined empirical approaches with cutting edge modeling techniques to assess shoreline recession due to projected sea level rise. Outputs were presented in a risk likelihood format.

The world's best practice Shoreline Evolution Model (SEM), developed by BMT WBM's Dean Patterson, was used to assess shoreline recession due to sea level rise. The SEM presents a considerable advance on the nearly 50 year old Bruun Rule (1962), by accounting for the three-dimensional nature of the shoreline. The SEM accounts for the interaction between waves (refraction, dissipation), headlands, reefs, breakwaters and other coastline features, in generating longshore and cross shore sediment transport.

The project defined hazards in a probabilistic (likelihood) format, to accommodate the uncertainty associated with limited existing process data, future climate change projections and their potential impact. This format allows Council to evaluate coastal hazards within a formal risk assessment framework and to plan for the current, 2050 and 2100 coastal risks.

**Client**

Coffs Harbour City Council

**Date**

2008 - 2010

**Services & Expertise Provided**

Long term definition of coastal hazards combining empirical methods with shoreline response to wave climate variability;

Shoreline recession assessment using BMT WBM's (Dean Patterson) world's first sea level rise modelling tool; and

Hazards defined in a probabilistic format for use in a coastal risk assessment to derive future coastal planning strategies.

