

# Modelling Byron Bay Shoreline Erosion and Effect of Seawalls

The beaches of Byron Bay have historically experienced periods of significant erosion, resulting in the construction of numerous seawalls for protective measures. Updrift of these structures, increased shoreline erosion has occurred in recent times.

BMT WBM was commissioned by Byron Shire Council to develop a coastal evolution model of Byron Bay. The modelling was used to assist Council in gaining a better understanding of the shoreline processes driving the current and likely future erosion trends resulting from climate change within Byron Bay.

Following a review of historic shoreline data, the development and validation of a one-line coastal evolution model of Byron Bay was completed. The application of the model successfully demonstrated that the historical construction of protective seawall structures has resulted in downdrift erosion. Furthermore the assessment highlighted that cross embayment sediment transport within the Bay influences the sediment budget within each of the numerous beach units.

Using the validated one-line model, the impacts of future sea level rise was also assessed. The climate change assessment adopted state-of-the-art methodologies accounting for the combined impact of cross-shore shoreline recession and resultant longshore sediment transport gradients to calculate future likely shoreline positions.

## Client

Byron Shire Council

## Date

2010

## Services & Expertise Provided

Review of historic shoreline processes;

Detailed wave transformation modelling;

Coastal evolution model development; and

Shoreline response to seawall impact and climate change assessment.

