# Coastal news

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*Figure 1: Kaikoura Peninsula (Class I) scored a high scenic value due to the plethora of natural features such as wave platforms and stacks that adorn this coast as well as due to the absence of human modification. (Photograph by Nicholas Key).*

## A Coastal Scenic Assessment of the North Canterbury Coast

New Zealand's coastal scenery is a significant resource both intrinsically and economically. The Resource Management Act (RMA 1991) s5 Purpose of the Act and s6 Matters of National Importance identify the need to protect scenic landscapes but do not provide criteria by which such land-scapes are to be distinguished or compared.

Accordingly, scenic assessment for resource management implementation in New Zealand is often based on subjective evaluations of multiple values that do not specifically address the impacts of development on coastal scenery. In an attempt to find a practical solution to the problem of scenic assessment for coastal resource management purposes a novel quantitative methodology was applied to



*Figure 2: This New Brighton site (Class IV) has few natural features, except for the wide sand beach and dune system. Combined with the intensive and unattractive development, including a car park at the top of the beach, this meant that it scored very poorly.*

*Figure 3: Gore Bay (Class II) is an attractive natural coastal environment that was let down by the presence of a road and number of unattractive utilities immediately adjacent to the beach.*

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36 sites along the North Canterbury Coast.

## Methodology

Our methodology is based on that recently developed by a team of coastal scientists based in the United Kingdom (UK), headed by Professor Allan Williams of Glamorgan University (Ergin et.al., 2004). It aims to objectively evaluate coastal scenery while addressing issues arising from increased tourism and development on the coast and can be broken into 5 steps, steps 3-5 of which we repeated.

Step 1 is based on surveys of over 4000 coastal users in the UK and Turkey, 26 coastal scenery features or parameters were identified as representing public perceptions of scenic value, including 18 natural or physical and 8 human or built parameters. From these results a coastal evaluation survey was developed to record the extent and/or magnitude of each parameter on any given coast.

In Step 2 each parameter was assigned a weighting relative to its perceived contribution towards scenic quality based on the preferences of coastal users in the UK and Turkey. Using these parameters a series of fuzzy logic matrices were created to account for the subjectivity and accuracy of observers. In Step 3 the coastal evaluation survey was completed at 36 coastal sites along the North Canterbury coast.

In Step 4 fuzzy logic assessment matrices were then applied to the raw evaluation survey data to calculate a D-Value classification for each site, with a maximum potential range from CLASS 1 ($D \geq 0.85$), extremely attractive natural sites with very high landscape value; to CLASS 5 ($D < 0$), very unattractive urban sites with intensive development and low landscape values. This analysis also produced a series of charts for each site indicating the contribution of each parameter to the final D-Value. For Step 5 the matrix results were used to analyse each coastal site in terms of

its strengths and weaknesses which, once identified, can be safeguarded and improved through targeted management strategies.

## Findings

Considerable variation in scenic value was found amongst the 36 sites assessed in Canterbury, with results ranging from $D = 1.35$ (Class 1) to $D = 0.05$ (Class IV). Four individual sites (Kaikoura Peninsula - Figure 1; New Brighton - Figure 2; Gore Bay - Figure 3; and Akaroa - Figure 4) were selected to further investigate implications for management of scenic resources (Figure 5). Comparisons reveal that human parameters had the greatest impact on the final classification of sites.

This is an important finding because the absence of scenic natural features cannot be altered but the unattractive and insensitive development that had a disproportionately negative impact on the classification of many sites could be targeted in the formulation of resource management strategies so that existing and future human modification of the coastal environment is improved for the benefit of wider scenic values.

## Critique of the methodology used and its applicability in a New Zealand Resource Management context

There is a gap in the RMA between the identified need to protect significant landscapes, and the absence of guidelines as to how this should be achieved. The methodology used here addresses several key elements of the RMA, including meeting the Purpose of the Act by promoting sustainable development, and Matters of National Importance by providing a framework to evaluate the effects of development on landscape. A methodology such as this one, adjusted to reflect the objectives of the RMA and the New Zealand cultural context would be a valuable addition to resource management in New Zealand.

*Figure 4: Akaroa (Class III) is a popular tourist destination with some natural features including native bush and stunning views. The scenic quality of this is reduced by the road running directly adjacent to the shore backed by intensive development.*

It was found that this methodology was successful in evaluating coastal scenery based on public perceptions and values, but currently does so in a UK and Turkish context. The technique was useful to find the basic weaknesses and strengths of coastal scenery in Canterbury. However, for the methodology to be applied here successfully we need a new set of assessment parameters reflecting the values and perceptions of New Zealanders (Step 1). Key factors highlight the need for cultural contextualisation, including the current weightings assigned to historic features that are rarely found or valued on the New Zealand coast, and the consideration of cultural values ascribed to the coast by Maori.

## Conclusion

Results show that large variations exist in the scenic quality of the North Canterbury coast. Key human factors are identified as important for improving sites of low scenic value through management strategies including the need to buffer the coast from traffic and maintain surrounding structures. While the methodology employed proves useful at the level of gross comparisons, its applicability within New Zealand is hampered by reliance on the perceptions of foreign beach users. This study comprises a useful first attempt to find an appropriate approach to coastal scenery assessment and management in NZ and helps to identify the key areas where such a methodology could be applied.

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*Reference*
Ergin, A, Karaesmen, E, Micallef, A, Williams, A T, 2004. "A new methodology for evaluating coastal scenery: fuzzy logic systems". *Area*, 36 (4), 367-386.
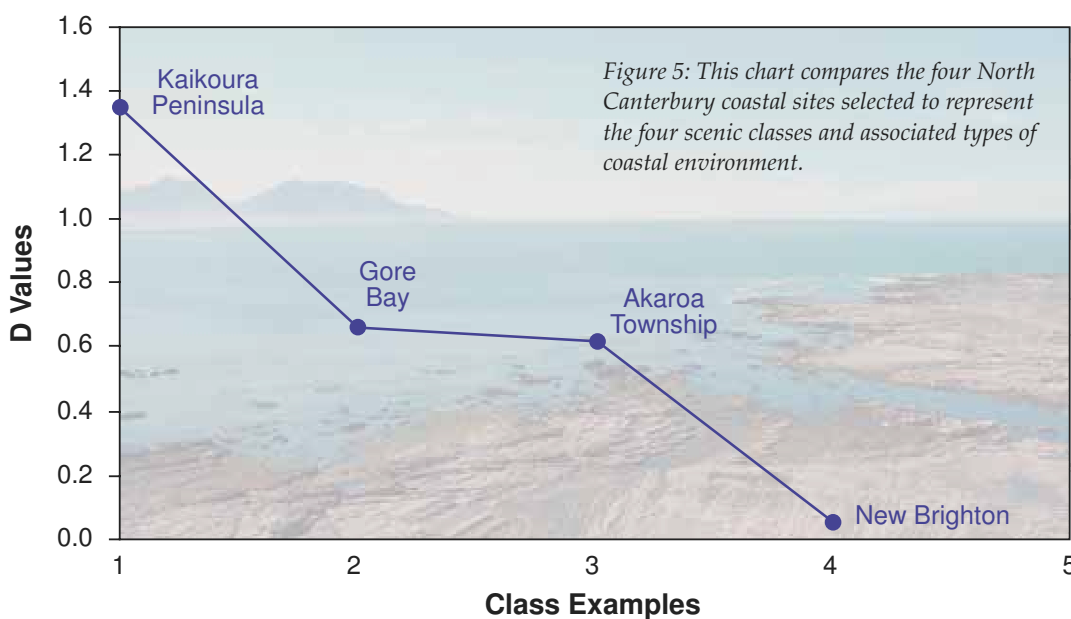


*Figure 5: This chart compares the four North Canterbury coastal sites selected to represent the four scenic classes and associated types of coastal environment.*