



## CRC REEF RESEARCH CENTRE TECHNICAL REPORT No. 15

### Evaluating The Effectiveness Of Pictorial Symbols In Reef Visitor Education

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#### EXECUTIVE SUMMARY

This report is concerned with evaluating how effective eight symbols or pictograms are in informing a wide range of visitors about appropriate Reef behaviours. It is part of a larger project within the CRC Reef Research Centre Ltd on interpretation evaluation and design.

1. Interpretation itself is a key activity in promoting sustainable environmental practices. Management through interpretation is particularly relevant to the effective promotion of sustainable and quality tourism.
2. Interpretation can be linked to the developments in total quality management, particularly by emphasising the use of performance indicators to assess the success of interpretive activities.
3. Three kinds of interpretation evaluation can be identified -
  1. Front end evaluation which provides information about audience characteristics and knowledge,
  2. Formative evaluation which involves trialing and assessing pilot or draft forms of an interpretive activity or product (the present project is an example of this form of evaluation),
  3. Summative evaluation which focuses on assessing the effectiveness of interpretation which is in place.
4. The core questions informing the present study were -
  1. Do the proposed symbols change visitor knowledge of how to behave at the Reef?
  2. Are the symbols alone effective as a communication strategy or do they require explanatory text?
  3. How well do visitors with different language backgrounds understand the symbols?
5. An investigation of the available literature suggested that symbols are best seen as a supplements to language, not as replacements for language since cultural differences are likely to affect how symbols are interpreted.
6. Seven hundred and twenty seven (727) Reef visitors were questioned in relation to behaviour depicted on the eight symbols or pictograms. The behaviours included not standing on or touching coral, placing litter in bins, not touching or chasing fish and other marine life, not collecting coral or shells, and not feeding fish.
7. An important feature of the present study was the use of multiple assessment methods to determine visitor understanding of these Reef behaviours. Three major techniques were used -

1. Visitors were asked to underline inappropriate Reef behaviours in a short story and to answer true or false to a set of twelve statements about Reef behaviour. This survey was translated into German, Japanese and Cantonese. Further, a number of conditions were used to organise the study with a control or baseline group completing the survey without seeing the symbols, a second group completing the survey after seeing the symbols alone, and a third group completing the survey after examining a card with the symbols and explanatory text. The symbols and text cards were also translated into German, Japanese and Cantonese.
  2. Visitors were asked to list appropriate and inappropriate Reef behaviours without prompts.
  3. Visitors were asked to study the symbols and to write in their own words what they believed each symbol was trying to tell them.
8. A core finding of the study was that there were generally high levels of knowledge about appropriate Reef behaviours in all groups of visitors before they saw the symbols. The only exceptions were touching fish and coral and feeding fish and these were still noted as inappropriate behaviours by the majority of visitors overall. This finding, which was consistent across several measures may be viewed as contradicting a number of public stereotypes about visitors who are sometimes depicted as ill-informed about how to behave in Reef environments.
9. Importantly the study also found that neither the symbols alone nor the symbols and text had very much influence on visitor knowledge about Reef behaviours. For the different language groups the Cantonese survey sample benefited most from the symbols with text, while for the Japanese visitors the symbols alone appeared sufficient. The more detailed results indicated that one set of symbols for all visitor groups may not be an effective communication strategy. The issues of feeding fish and touching fish and coral are not easily depicted in simple pictorial forms.
10. The formative evaluation process confirmed its value in the present study by providing systematic, empirical evidence about the effectiveness of the proposed technique to inform management decisions about the implementation of this proposed interpretive activity. The researchers recommend that the complexity of the information to be communicated cross-culturally is such that the use of these symbols alone is not appropriate. Clearly text added on to the symbols is necessary but both the symbols and the text need to be simplified. Alternatively, a more focussed interpretive effort on the specific behaviours of touching and feeding fish, touching coral and collecting shells and coral may need to be considered.

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