

**DEVELOPING SUSTAINABILITY OBJECTIVES AND INDICATORS FOR SWIM-WITH-MINKE WHALES TOURISM IN THE GREAT BARRIER REEF**

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**ABSTRACT**

Swimming with dwarf minke whales in the northern Great Barrier Reef (GBR) represents an outstanding wildlife tourism interaction experience, however the sustainability of such tourism is uncertain. Effective evaluation of sustainability requires the long-term monitoring of key indicators, matched to clearly defined objectives, which are agreed by all stakeholders within a collaborative management framework. This PhD study evaluates the processes involved in the development of Sustainability Objectives and Indicators for this specialised marine tourism industry. A draft list of 'Proposed Sustainability Objectives' was developed from relevant literature and with input from scientists studying the whales and their interactions with dive tourists in the GBR. Key stakeholders were then interviewed to refine the Objectives and explore issues relating to their implementation. The resulting list of Objectives is to be further refined at stakeholder workshops before formal adoption. Outcomes and lessons from this ongoing development process are discussed.

**Keywords:** Sustainability Objectives, indicators, swim-with-whales, Adaptive management, sustainable tourism, Quadruple-Bottom-Line.

**INTRODUCTION**

Each winter in the northern GBR, dwarf minke whales (*Balaenoptera acutorostrata* subsp.) of an unknown population size aggregate, and with some predictability, approach vessels, SCUBA divers and snorkelers at popular dive tourism sites (Birtles, Arnold & Dunstan, 2002). Valentine, Birtles, Curnock, Arnold & Dunstan (2004) reported that these small whales (which grow up to eight metres in length) make voluntary approaches to within just a few metres of the majority of dive tourists that encounter them, providing a highly satisfying marine wildlife interaction experience. In 2003, the Great Barrier Reef Marine Park Authority (GBRMPA) capped the industry and issued special permits to nine operations to conduct the activity, effectively establishing the first fully-permitted swim-with-whales tourism industry in the world (GBRMPA, 2005). Much of the biology and ecology of these inquisitive whales is however unknown. Due to a growing literature on negative impacts of

some forms of whale and dolphin watching on the targeted animals, in particular the impacts of swim-with programs (e.g. Scarpaci, Bigger, Corkeron, & Nugegoda, 2000; Constantine, 2001), there is a concern among Reef managers, scientists and wildlife conservation NGOs that this form of tourism could be ecologically unsustainable.

A genuine assessment of sustainability requires longitudinal research on key indicators, addressing relevant ecological, social and economic values (i.e. the ‘Triple-Bottom-Line’; WTO, 2004; Miller & Twining-Ward, 2005). In recent years there has been a growing recognition of the need for governance/managerial conditions to be met in order for sustainable development to be truly achievable (Valentin & Spangenberg, 2000; CBD, 2004; GRI, 2006). This fourth element provides a ‘Quadruple-Bottom-Line’ (QBL) framework for sustainability assessment (Valentin & Spangenberg, 2000). This conceptual paper describes the development of QBL Sustainability Objectives and Indicators for a specialised marine tourism industry, reflecting on the development process, whilst it is still ongoing.

Stakeholder support and involvement in the development of a long-term sustainability monitoring program is essential (WTO, 2004; Miller & Twining-Ward, 2005). This PhD study benefits from a c.12 year collaboration between Minke Whale Project researchers and the Reef tourism operators providing swim-with-minke whales experiences. Since 1999, annual Pre- and Post-Minke Season Workshops have been attended by these tourism operators, Reef managers and the researchers, with reporting of the latest research findings and discussion of management issues associated with the activity. This study commenced in late 2005, and its aims were presented to stakeholders at the 2005 Post-Minke Season Workshop. Two additional PhD studies are underway, evaluating some potential ecological indicators, complementary to this research. All three studies have achieved strong support from industry and management participants, who have been updated on progress at each subsequent Workshop.

## METHODOLOGY

A series of ‘Proposed Sustainability Objectives’ were drafted, based on a review of the relevant literature and with input from researchers with extensive experience studying the whales and their interactions with dive tourists in the GBR. The draft Objectives were categorised under four broad themes, including: (1) Ecological, (2) Social, (3) Economic, and (4) Managerial. To ensure in-depth, yet broad stakeholder involvement in the identification and refinement of the Proposed Objectives, semi-structured interviews were conducted over mid-2007 with 15 highly experienced Stakeholder Key Informants (with knowledge of key management issues associated with this industry), including owners and/or managers of swim-with-minke whales tourism operations, Commonwealth and State Government management agency staff, cetacean researchers and representatives from international wildlife conservation NGOs.

Respondents were provided with the list of Proposed Objectives when initially contacted and requested to participate, and were asked to prepare for their interview by giving particular consideration to: (1) how appropriate they thought each objective was, and (2) whether or not it would be useful as a Sustainability Objective for the GBR swim-with-minke whales tourism industry. Interview questions were designed to identify key issues affecting the implementation of specific Objectives, and how they might be best monitored by indicators. Additional aims of the interviews were to explore the range of stakeholders’ values associated with dwarf minke whales and the tourism associated with them, and to identify potential opportunities and threats to the sustainable management of the activity. Respondents were asked to indicate whether or not they would support each Objective and were provided with a

five-point rating scale to indicate the extent of such (if any) support (ranging from 1= 'do not support', to 5 = 'very strong support'). Assurance was given that respondents were not being asked to 'sign off' on the Proposed Objectives (which would not be possible in any case for staff of the Government agencies), and that their comments would be used to develop a revised draft list for evaluation and further refinement at the next Workshop for stakeholders, as part of a modified Delphi approach (e.g. as used by Miller, 2001). Interviews were recorded for transcription and content analysis. The researchers undertook to de-identify all results presented in Workshops, reports and publications.

## RESULTS

The Stakeholder Key Informants indicated a high level of support for the list of Proposed Sustainability Objectives overall, however recommendations were made by most respondents to modify wording to specific Objectives. A high level of support was also expressed for the process by which the Objectives were being developed.

The willingness of the stakeholders to be involved in the development of Sustainability Objectives and Indicators is critical to their successful implementation (Bell & Morse, 1999). Most of the respondents carry a large number of responsibilities associated with their roles (e.g. owners/managers of multi-million dollar tourism operations, Department/Program Directors of government agencies) and are very busy people. However, an overall high level of willingness to participate in these interviews was recorded, and the mean interview duration (which depended upon respondents' availability, willingness and their level of detail in answers to questions) was 65 mins (ranging from 23 to 127 minutes).

The revised list of Proposed Sustainability Objectives will be presented to stakeholders at a Post-Season Workshop on 16<sup>th</sup> November 2007, and the outcomes of this Workshop (which are not pre-determined) will be documented and discussed as part of this Conference Working Paper presentation. Potential Workshop outcomes may include the refinement and formal adoption of some or all of the Proposed Objectives, and the identification of potential indicators to address them (some of which have already been identified by the researchers, however they will require stakeholder screening in light of the revised/adopted Objectives).

## CONCLUSIONS AND IMPLICATIONS

Sustainability Objectives and Indicators, once adopted, should not necessarily be considered permanent, and should be periodically reviewed to ensure that they are relevant and appropriate, address any changes in the socio-ecological system over time, and encompass the evolving values and roles of the stakeholders (Walters & Holling, 1990; Ramirez, 1999). The management framework must therefore be adaptable and collaborative to facilitate this process, otherwise there is a high risk that the indicators will fail (Holling, 1978; Walters & Holling, 1990; Johnson, 1999). Based on the characteristics of this industry and the high level of stakeholder support for the Minke Whale Project's long-term sustainability monitoring program, we have proposed that an Adaptive Management framework (e.g. Holling, 1978; Walters & Holling, 1990) for managing the industry is appropriate. A further aim of this PhD study is to develop a comprehensive Adaptive model, incorporating the full range of stakeholder values, to assist with the long-term monitoring and sustainable management of this very special tourism resource.

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